Colorado State University
Academic Program Guide
2000-2001

The Colorado State University campuses are located in or near the city of Fort Collins. The county seat of Larimer County, this community of approximately 109,000 is located 65 miles north of Denver on Interstate 25, and 45 miles south of Cheyenne, Wyoming. The city is served by railroad-freight and bus lines. Transportation from Fort Collins to Denver International Airport is provided by shuttle service.

At the foot of the Rocky Mountains, Fort Collins is within an hour's drive of such major recreational areas as Estes Park, Red Feather Lakes, Horsetooth Reservoir, and several mountain parks, including the 790,000-acre Roosevelt National Forest and Rocky Mountain National Park.

A wide variety of recreational activities is fostered not only by the presence of such areas but also by the climate in the Fort Collins region. Located at an elevation 5,000 feet, Fort Collins has a clear, dry atmosphere, over 300 days of sunshine and generally pleasant temperatures throughout the year. The summer temperature ranges from an average high of 82° to an average low of 52°; the winter temperature ranges from an average high of 41° to an average low of 13°.

Indicative of the cultural life of Fort Collins are the museum, the public library, and civic symphony. An active University calendar – guest speakers, art exhibits, theater, cinema, concerts – adds to community life. This broad spectrum of cultural and outdoor recreational facilities, the excellent climate, and the mountain surroundings contribute toward making Fort Collins an ideal university setting.

This Academic Program Guide 2000-2001 contains basic information about Colorado State University and the educational programs for Fall 2000.

Starting with Fall 2000, Colorado State University embarks on a new curriculum–there is a new All-University Core Curriculum and each program of study has been revised to accommodate this new Core Curriculum.

Office of the Provost/Academic Vice President
Colorado State University
108 Administration
Fort Collins, CO 80523-1001

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PRESIDENT'S MESSAGE

Welcome to Colorado State University!

Education should prepare students not only to make a living, but to live full and rewarding lives. This academic program guide provides an introduction to the rich variety of experiences available to students who undertake this vital and challenging journey at Colorado State.

This is an exciting time at our University - a time when we’re renewing our commitment to undergraduate education and celebrating excellence in teaching and advising. Our goal is to help all students pursue their individual dreams and realize their potential as educated citizens.

Colorado State is a first-class international research university, known worldwide for its top programs in such fields as engineering, water resources, forestry, agricultural sciences, atmospheric sciences, veterinary medicine, and more. But our University’s most important mission is to educate students — undergraduate and graduate. Colorado State has been shaped by thousands of students with diverse interests and character—students who enliven the community through music, drama, and art; students who work with professors on important scientific breakthroughs; students who have built one of the nation’s top student volunteer programs. Colorado State graduates have gone on to win Pulitzer Prizes, fly on space-shuttle missions, become leaders of industry and education, carry on important scholarly work, and much more.

This academic program guide can offer insight into the breadth and depth of the educational offerings at our University, but descriptions of courses and majors only tell part of the story. The educational experience Colorado State offers involves more than just what students learn in the classroom. A Colorado State education involves a rich variety of academic, cultural, and research experiences that prepare students to confront the challenges of a complex and demanding world.

We welcome you to our University and encourage you to take advantage of all it has to offer.

Sincerely,

Albert C. Yates
President
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# University Calendar

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<td>Aug. 17-18</td>
<td>Thursday, Friday. Orientation, advising, and registration for new students.</td>
</tr>
<tr>
<td>Aug. 21</td>
<td>Monday. Classes begin. Late registration fee assessed for adding first class.</td>
</tr>
<tr>
<td>Aug. 24</td>
<td>Thursday. End of limited drop period.</td>
</tr>
<tr>
<td>Aug. 27</td>
<td>Sunday. End of initial and limited add period.</td>
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<tr>
<td>Sept. 4</td>
<td>Monday. Holiday - University offices closed.</td>
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<tr>
<td>Sept. 6</td>
<td>Wednesday. Registration closes. End of extended period for adding all courses. Last day for dropping courses without record entry, changes in grading options, and tuition and fee adjustments.</td>
</tr>
<tr>
<td>Oct. 16</td>
<td>Monday. Last day for dropping courses.</td>
</tr>
<tr>
<td>Nov. 18</td>
<td>Saturday. Fall recess begins; no classes next week.</td>
</tr>
<tr>
<td>Nov. 23-24</td>
<td>Thursday, Friday. Holiday - University offices closed.</td>
</tr>
<tr>
<td>Nov. 27</td>
<td>Monday. Classes resume.</td>
</tr>
<tr>
<td>Dec. 8</td>
<td>Friday. Classes end.</td>
</tr>
<tr>
<td>Dec. 11-15</td>
<td>Monday through Friday. Final examinations.</td>
</tr>
<tr>
<td>Dec. 15-16</td>
<td>Friday, Saturday. Commencement ceremonies.</td>
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<tr>
<td>Dec. 25-27</td>
<td>Monday through Wednesday. Holiday - University offices closed.</td>
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<td>March 12</td>
<td>Monday. Classes resume.</td>
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<tr>
<td>March 19</td>
<td>Monday. Last day for dropping courses.</td>
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<tr>
<td>May 4</td>
<td>Friday. Classes end.</td>
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<tr>
<td>May 4-11</td>
<td>Monday through Friday. Final examinations.</td>
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<td>Friday, Saturday. Commencement ceremonies.</td>
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<td>Monday. First 4- and 12-week terms begin.</td>
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<tr>
<td>May 28</td>
<td>Monday. Holiday - University offices closed; classes in session.</td>
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<tr>
<td>June 8</td>
<td>Friday. First 4-week term ends.</td>
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<tr>
<td>June 11</td>
<td>Monday. 8-week term and second 4-week term begin.</td>
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<tr>
<td>July 4</td>
<td>Wednesday. Holiday - University offices closed. No classes.</td>
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<tr>
<td>July 6</td>
<td>Friday. Second 4-week term ends.</td>
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<td>July 9</td>
<td>Monday. Third 4-week term begins.</td>
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<tr>
<td>Aug. 3</td>
<td>Friday. Last day of classes for all terms.</td>
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## Fall Semester - 2001

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<tr>
<td>Aug. 16-17</td>
<td>Thursday, Friday. Orientation, advising, and registration for new students.</td>
</tr>
<tr>
<td>Sept. 3</td>
<td>Monday. Holiday - University offices closed.</td>
</tr>
<tr>
<td>Nov. 17</td>
<td>Saturday. Fall recess begins; no classes next week.</td>
</tr>
<tr>
<td>Nov. 22-23</td>
<td>Thursday, Friday. Holiday - University offices closed.</td>
</tr>
<tr>
<td>Nov. 26</td>
<td>Monday. Classes resume.</td>
</tr>
<tr>
<td>Dec. 7</td>
<td>Friday. Classes end.</td>
</tr>
<tr>
<td>Dec. 10-14</td>
<td>Monday through Friday. Final examinations.</td>
</tr>
<tr>
<td>Dec. 24-26</td>
<td>Monday through Wednesday. Holiday - University offices closed.</td>
</tr>
</tbody>
</table>

## Spring Semester - 2002

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 1</td>
<td>Tuesday. Holiday - University offices closed.</td>
</tr>
</tbody>
</table>

# Spring Semester - 2002

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 1</td>
<td>Tuesday. Holiday - University offices closed.</td>
</tr>
</tbody>
</table>
Jan. 10-11 Thursday, Friday. Orientation, advising, and registration for new students.
Jan. 21 Monday. Holiday - University offices closed.
March 9 Saturday. Spring recess begins.
March 18 Monday. Classes resume.
May 3 Friday. Classes end.
May 6-10 Monday through Friday. Final examinations.
May 10-11 Friday, Saturday. Commencement ceremonies.

**Summer Session - 2002**

May 13 Monday. First 4- and 12-week terms begin.
May 27 Monday. Holiday - University offices closed; classes in session.
June 7 Friday. First 4-week term ends.
June 10 Monday. 8-week term and second 4-week term begin.
July 4 Thursday. Holiday - University offices closed.
July 5 Friday. Second 4-week term ends.
July 8 Monday. Third 4-week term begins.
August 2 Friday. Last day of classes for all terms.
The University

THE MISSION OF COLORADO STATE UNIVERSITY

In 1870 the Territorial Council and House of Representatives of the Territory of Colorado created the Agricultural College of Colorado. When the Territory became a State in 1876, the College was placed under the governance of the State Board of Agriculture. The College admitted its first students in 1879 and received designation that same year as Colorado's land-grant college under the Morrill Act of 1862. The Morrill Act provided federal endowment support for state institutions,

where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.

Subsequent federal legislation led to the establishment of an agricultural experiment station and extension service, while state legislation added responsibility for the Colorado State Forest Service. Following several name changes, the College became Colorado State University in 1957 and earned recognition by the North Central Association of Colleges and Schools as a mature university in 1974. Today the University stands as a comprehensive graduate research university with high admissions standards offering a comprehensive array of undergraduate programs consistent with its land-grant tradition.

Colorado State University has a unique mission in the state of Colorado. The land-grant concept of a balanced program of teaching, research, extension, and public service provides the foundation for the University teaching and research programs, Agricultural Experiment Station, Cooperative Extension, and Colorado State Forest Service. The University has long been a leader in recognizing the rapidly changing global environment, and has a commitment to excellence in international education in all its instructional, research, and outreach programs. The University continues to make education and training accessible to deserving applicants from all classes and groups, and maintains a wide range of research, extension, and public service programs in response to the needs of the people of Colorado, the nation, and the world.

UNIVERSITY AIMS

Provide a High-Quality Undergraduate Experience

The University will continue to review and enhance the educational opportunities available to undergraduate students. Programs will be designed to meet the contemporary and future needs of students by developing critical thinking, communication skills, problem-solving capabilities, technical expertise, and an awareness and appreciation of varying perspectives. Excellent teaching and advising are necessary to assure a high-quality undergraduate experience.

Provide High-Quality Graduate Education Programs

The University will continue to review and enhance the educational opportunities available to graduate students. Graduate students will be provided with the necessary means to reach the highest levels of learning in their field, to make scholarly contributions directed toward the well-being of humanity, and to develop their abilities as professional leaders.

Provide an Environment Conducive to Excellent Faculty and Student Research, Scholarship, and Artistry

The University will provide an atmosphere supportive of scholarly inquiry and accomplishment. Free expression and pursuit of ideas in the search for truth will be assured. Colorado State University will strive to disseminate the results of its research, scholarship, and artistry through its own classrooms and throughout the world for the benefit of all.
Provide Outreach Programs Responsive to the Educational and Developmental Needs of All University Constituencies

The University will provide learning experiences, both on- and off-campus, to meet the evolving needs of the widest range of clientele. Colorado State University accepts its land-grant responsibility to serve the needs of the people of the state, nation, and the world by developing and sharing knowledge within its areas of capability.

Assure the Growth and Development of University Students, Staff, and Faculty

The University will ensure an environment that is supportive of the needs and aspirations of its students, staff, and faculty. This includes providing the necessary support and atmosphere to allow competent individual and collective performance of professional responsibilities and opportunities to pursue professional growth.

Assure Full Participation of Individuals from the Pluralistic Society in Which We Live as Equal Partners in the Life of the University

The University will recruit, retain, and support staff, students, and faculty from the diverse culture which the University serves with particular emphasis on those which have been historically underrepresented. The University will assure participatory decision making by soliciting and respecting the contributions of the diverse segments of the community.

Assure the Material and Financial Resources Needed To Achieve All of the University's Aims

The University will develop effective strategies for securing from varied sources the necessary resources to achieve competitive salaries, modern facilities, and other services required to perform its educational, research, and service missions.

Nondiscrimination Policy

Colorado State University does not discriminate on the basis of race, age, color, religion, national origin, gender, disability, sexual orientation, veteran status or disability. The University complies with the Civil Rights Act of 1964, related Executive Orders 11246 and 11375, Title IX of the Education Amendments Act of 1972, Sections 503 and 504 of the Rehabilitation Act of 1973, Section 402 of the Vietnam Era Veteran's Readjustment Act of 1974, the Age Discrimination in Employment Act of 1967, as amended, Americans with Disabilities Act of 1990, the Civil Rights Act of 1991, and all civil rights laws of the state of Colorado. Accordingly, equal opportunity for employment and admission shall be extended to all persons and the University shall promote equal opportunity and treatment through a positive and continuing affirmative action program. The Office of Equal Opportunity is located in 101 Student Services. In order to assist Colorado State University in meeting its affirmative action responsibilities, ethnic minorities, women, and other protected class members are encouraged to apply and to so identify themselves.

Admission of students, employment, and availability and access to Colorado State programs and activities are made in accordance with these policies of nondiscrimination. Off-campus householders who desire to list student accommodations with the University must certify that they will comply with the University's policy on nondiscrimination in student housing.

Any student or University employee who encounters acts of discrimination because of age, race, religion, color, gender, sexual orientation, national origin, veteran status, or handicap either on or off campus is urged to report such incident to the Office of Equal Opportunity of Colorado State University, located in 101 Student Services. Any person who wishes to discuss a possible discriminatory act without filling out a complaint form is welcome to do so.

Any of the above discriminatory acts can also be the subject of complaints to the Department of Education, Office of Civil Rights as well as to the Office of Federal Contract Compliance Programs, Equal Employment Opportunity Commission, and the Colorado Civil Rights Division; information on filing complaints with any of these agencies is available in the Office of Equal Opportunity.

Sexual Harassment Policy

Colorado State University does not tolerate sexual harassment among students, employees, or other members of its community. Sexual harassment is prohibited in the employment context by Title VII of the 1964 Civil Rights Act and in the education context by Title IX of the Educational Amendments of 1972.

Sexual harassment occurs when unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature appear in any of the following contexts: (1) submission by an individual is made either an explicit or implicit term or condition of academic standing or of employment; (2) submission to or
rejection of such conduct is used as the basis for academic or employment decisions affecting the individual; or (3) such conduct has the purpose or effect of unreasonably interfering with a person’s academic performance or work, or creating an intimidating, hostile, or offensive academic or work environment.

Generally, a single sexual joke, offensive epithet, or request for a date does not constitute sexual harassment; however, being subjected to such jokes, epithets, or requests repeatedly may constitute hostile environment sexual harassment. In determining whether the alleged sexual harassing conduct warrants corrective action, all relevant circumstances, including the context in which the conduct occurred, will be considered. Facts will be judged on the basis of what is reasonable to persons of ordinary sensitivity and not on the particular sensitivity or reaction of an individual.

In cases of alleged sexual harassment, the protections of the First Amendment must be considered if issues of speech or artistic expression are involved. Free speech rights apply in the classroom and in all other education programs and activities of public institutions, and First Amendment rights apply to the speech of students and teachers. Great care must be taken not to inhibit open discussion, academic debate, and expression of personal opinion, particularly in the classroom. Nonetheless, speech or conduct of a sexual or hostile nature that occurs in the context of educational instruction may exceed the protections of academic freedom and constitute prohibited sexual harassment if it meets the definition of sexual harassment and (1) is reasonably regarded as nonprofessional speech, or (2) lacks accepted pedagogical purpose or is not germane to the academic subject matter.

The University can respond to sexual harassment only if it is aware of its existence. Any member of the University community who believes that she or he has experienced sexual harassment or reprisal shall contact the Office of Equal Opportunity to request advice and information about possible ways to proceed, including use of the University formal complaint procedures. Such discussion will be kept confidential to the full extent permitted by law. Similarly, any member of the University community who believes that she or he observed an incident of sexual harassment in the University learning and working environment or who receives report of alleged sexual harassment from an employee or student should seek assistance from the Office of Equal Opportunity.

Full details of the Colorado State Sexual Harassment Policy, including what is involved in bringing a complaint and the procedures for informal and formal resolution are available from the Office of Equal Opportunity or online at the Colorado State Web site on the A-Z list under “Sexual Harassment Policy” or directly at: http://www.colostate.edu/Depts/OEO.

COLORADO STATE UNIVERSITY SYSTEM

Colorado State University is the largest of the three institutional members of the Colorado State University System. Administered by the Chancellor, the System promotes collaborative academic programs and related activities between and among Colorado State University, Fort Lewis College, and the University of Southern Colorado. Governed by the State Board of Agriculture, System administrative offices are located in Denver.

STATE BOARD OF AGRICULTURE

Colorado State is governed by the State Board of Agriculture, which is also the controlling body for the Agricultural Experiment Station, Cooperative Extension, Colorado State Forest Service, Colorado Water Resources Research Institute, the University of Southern Colorado at Pueblo, and Fort Lewis College at Durango. The Board consists of nine members appointed by the Governor and confirmed by the Senate for four-year terms. In addition, a student representative and a faculty representative from Colorado State University, the University of Southern Colorado, and Fort Lewis College also serve as nonvoting, advisory members of the Board. The student representatives must be full-time students, have junior or senior status, and be elected officers of the student body of the institution which they represent, and the faculty representatives must have the rank of associate professor or higher and be elected officers of the faculty councils for their respective institution.

ACCREDITATION

Colorado State is accredited by:
North Central Association of Colleges and Schools and
Commission on Institutions of Higher Education
Accreditation Board for Engineering and Technology
Accrediting Council on Education in Journalism and
Mass Communication
American Assembly of Collegiate Schools of Business-
The International Association for Management Education
American Association of Marriage and Family Therapy
American Association of Veterinary Laboratory Diagnosticians, Inc.
American Council for Construction Education
American Dietetics Association
American Occupational Therapy Association-
  Accreditation Council for Occupational Therapy
  Education
American Psychological Association
American Veterinary Medical Association
Council on Social Work Education
Foundation for Interior Design Education Research
Institute of Food Technologists
Landscape Architectural Accreditation Board
National Association of Industrial Technology
National Association of Schools of Music
National Council for Accreditation of Teacher
  Education
National Environmental Health Science and Protection
  Accreditation Council
National Recreation and Park Association/American
  Association for Leisure and Recreation
Society for Range Management
Society of American Foresters

Colorado State is approved by the Colorado State
  Department of Education for training teachers.

Graduates are eligible for membership in the American
  Association of University Women.

FACILITIES MANAGEMENT

Office in Facilities Services Center, North
Ronald A. Baker, Director, Facilities Management

The University spans five primary campuses on 4,474
acres plus numerous Agricultural Experiment Stations, Cooperative Extension Offices, and Colorado State Forest Service sites across the state that cover an additional 5,014 acres. Altogether, the University has 745 buildings including 229 classrooms and 1,436 laboratories totaling 7,684,937 gross square feet. In addition to acres owned, the University manages an additional 89,594 acres throughout the state, most of which is the Colorado State Forest.

The main campus is a 562-acre site located in the older section of Fort Collins, and is adjacent to its central business district. Although broken into three distinct areas—central, south, and west—the main campus-central is the heart of the University. It accommodates undergraduate and graduate academic courses, laboratories, athletics, housing, and support services. Main campus-south contains the Veterinary Teaching Hospital’s research and teaching programs in clinical sciences. Main campus-west is one of three student housing areas. Student housing includes 10 residence halls plus 1,026 apartment units capable of housing 29% of the student body, all within a 10- to 20-minute walk of the main campus core.

The oldest section of main campus is known as the Oval; this is the original campus and contains 50- to 100-year-old buildings. The tree-lined Oval epitomizes the higher education environment and is prominent in local history and alumni memories. Additions to campus have since been to the south and west. The $3.5 million, 22,000 gross square-foot Animal Reproduction and Biotechnology Laboratory for the College of Veterinary Medicine and Biomedical Sciences at the Foothills Campus was completed in 1996 and is being used to support world-class research in animal reproduction. The semicircular addition to Rockwell Hall was completed in 1997, providing a new home for the entire College of Business. The 110,000 gross square-foot addition to Morgan Library and renovation of the existing space was completed and dedicated in 1998 after a year delay due to the 1997 flood. The addition and new entrance to the Lory Student Center was also completed in 1998 after some delay in occupancy because of the 1997 flood. The west addition of the Moby Complex has been completed as has the $18.3 million renovation and addition to the Engineering Building. The $7.5 million Bioenvironmental Hazards Research Building began construction in the fall of 1998 with occupancy planned for the spring of 2000.

Besides the traditional academic environment prevalent on the main campus, Colorado State’s land-grant mission demands support of a wide variety of research and specialized studies with facilities such as animal facilities, greenhouses, wind tunnels, observatories, etc. Outlying campuses cater to a range of research activities including crops research, animal reproduction, and watershed management.

Two miles west of main campus lies the 1,708-acre foothills campus, home to much of the University’s research activities, Hughes Stadium, and the Colorado State Forest Service nursery.

The Environmental Learning Center (ELC), one mile east of Fort Collins, is a 181-acre educational and research unit managed by the Department of Natural Resource Recreation and Tourism. The ELC consists of four major habitats, each supporting a rich mix of plant and animal life, and also houses the Rocky Mountain Raptor Program and Operation Osprey.

Local agricultural campuses include the Agriculture Research Development Education Center (ARDEC), which is situated on 489 acres northeast of Fort Collins. Recently completed, ARDEC provides a field laboratory for agricultural research scientists, a demonstration site for Cooperative Extension, and field plots for instructional use.
Pingree Park, a 1,177-acre area bordering Rocky Mountain National Park, is located 50 miles west of Fort Collins, and is used for a variety of conferences, the local elementary schools’ Eco-Week, and summer camps sponsored by universities around the country.

In addition, Colorado operates 11 research centers statewide to conduct research and experiments in various scientific fields.

**UNIVERSITY LIBRARIES**

*Office in Morgan Library*
*Camila Alire, Dean of Libraries*

The University Libraries support the teaching and research activities of Colorado State’s faculty and students by providing a diverse collection of approximately two million items and offering a wide array of interpretive services. These services include a comprehensive library instruction program, five major information service points, and Reserves and Interlibrary Loan services with electronic access.

William E. Morgan Library, the new and expanded central facility, houses the major part of the collection, which includes books, maps, journals, technical reports, archives, and manuscripts. The online catalog SAGE provides an index of all materials in the Libraries. The collection is enriched by a wide selection of electronic resources accessible from the library Web page ([http://Manta.library.Colostate.edu](http://Manta.library.Colostate.edu)). The new Electronic Information Center includes labs for instruction, specialized assistive technology, equipment, and public terminals for accessing the full array of electronic databases and services. A variety of user seating, including group study rooms, is available. The Journal Reading Room contains the most recent issues of approximately 8,000 journal titles.

In addition to the main facility, there are three branch libraries, two at the Foothills Campus and one at the Veterinary Teaching Hospital. The Libraries also maintain a storage facility, the University Libraries Depository, located on Lake Street.

The University Libraries is a member of the Association of Research Libraries (ARL), Big Twelve Plus Consortium, and the Colorado Alliance of Research Libraries. These memberships enable the Libraries to participate in preservation, resource sharing, and collection development programs on a national scale. Resource sharing is further enhanced by participation on OCLC, Online Computer Library Center, Inc., which supports electronic access to the collections of over 10 million libraries worldwide.

**COLORADO STATE UNIVERSITY ALUMNI ASSOCIATION**

*Alumni Relations Office located in the Alumni Center, Corner of Shields and Laurel Streets*

The Colorado State University Alumni Association has been active since 1884 when it was organized by the first graduating class.

The mission of the Alumni Association is to promote the interests of the University and to establish and maintain a mutually beneficial relationship between the University and its alumni. The Association believes that an informed, interested, and involved alumni body is one of the University’s most valuable assets.

The Association is a non-dues based organization which is governed by a 20-member Board of Directors. The Association sponsors over 125 events each year designed to promote Colorado State and involve alumni in the life of the University. Some of these activities and events include the A.C.T.I.O.N. Volunteer Program, Distinguished Alumni Awards, Best Teacher Awards, Student Alumni Connection (S.A.C.), Alumni Association chapters and Web site, financial services, travel programs and merchandise, Homecoming activities, career services, and special events.

The *Colorado State University Alumni* magazine is published by Colorado State University in cooperation with the Alumni Association.
Undergraduate Admissions
Policy and Procedures

Admissions Office in Spruce Hall
Mary Ontiveros, Director of Admissions

All correspondence about undergraduate admissions should be addressed to the Office of Admissions, Colorado State University, Fort Collins, Colorado 80523-0015. Students interested in graduate admissions should request a copy of the Graduate and Professional Bulletin.

Colorado State University’s admissions evaluation process is designed to promote diversity within the student population and to assure equal opportunities to all applicants. The quality of the educational experience provided to all students at Colorado State University depends in part on the maintenance of diversity within the student population. The final admissions decision is based on a student’s potential for attaining a degree at Colorado State University, and takes into account the student’s past academic performance, test scores, leadership qualities, high school and community service, principal/counselor/teacher recommendations, geographic residence, and ethnic/racial background. Because the University receives more applications than it can honor, and because of the commitment to diversity as an important educational objective, the admissions evaluation process and the admissions decisions reflect and rest upon this range of factors. The University does not set quotas for members of particular groupings or for people possessing particular characteristics. However, to assure and increase the diversity of the students admitted, the University establishes and seeks to implement recruitment goals that provide guidelines for affirmative action to locate and identify a pool of qualified applicants.

Students who knowingly falsify application information, transcripts, or test scores, or who fail to indicate all previously attended institutions are subject to rejection or dismissal.

REQUIREMENTS AND PROCEDURES

Admission requirements set forth in the following sections are minimum requirements that may be subject to change after a General Catalog has been printed. The State Board of Agriculture, Colorado State’s governing board, reserves the right to deviate from published admission requirements. In such cases, changes in admission policy will be publicized.

Consult individual college sections for additional admission information.

Selective Service Registration

In compliance with C.R.S. 23-5-118, Selective Service registration is required of male United States citizens born after December 31, 1959, who wish to enroll at Colorado institutions of higher education. Individuals providing false information are subject to penalty of law and disenrollment.

Application Deadlines

The deadline for submission of admission applications and all required documentation is July 1 for fall semester and December 1 for spring semester. All applications and supporting documentation postmarked after the deadline will be processed for the next term. Admission for any term may close whenever the University meets its enrollment limit. Therefore, applicants are encouraged to submit a complete application and all academic credentials as early as possible. Applications are processed up to 14 months before the requested date of entrance.

Social Security Number

All students are requested to submit a social security number. International students are encouraged to file for a social security number although they are not eligible for social security benefits. The social security number is used as a student identifier in maintaining academic and financial records. This number is included on the student’s photo identification card which may be solicited in connection with various University-related activities and services, and is used for posting grades. Students’ disclosure of the social security number is voluntary.

The student social security number is only released to agencies or individuals outside the University at the request of the student or in accordance with federal and state requirements in regard to financial aid awards, Internal Revenue Service for student employee salary
reporting, and State Controller’s debt collection procedure.

Immunization Policy

See University Health Service in the Student Programs and Services section of this catalog for immunization requirements.

For High School Graduates

Colorado high school seniors applying for admission should obtain their application from the high school counselor. Out-of-state students should write the Office of Admissions, Colorado State University, Fort Collins, CO 80523-0015 for an application. Students may also apply using the application on the World Wide Web at: http://www.colostate.edu/depts/Admission. A $30, nonrefundable, processing fee is required. This fee is not refunded if admission is denied and is not applicable to tuition and fees if the student enrolls. Make payable to Colorado State University a check or money order on which is indicated the applicant’s full, legal name.

Colorado State University selects for admission students who appear to be best qualified to benefit from and contribute to the educational environment of the University. All applications are carefully and individually reviewed. Those students accepted without condition usually meet the admission standards for first-time freshmen as defined by the Colorado Commission on Higher Education.

Minimum admission requirements are as follows:

1. Completion of high school requirements.

2. Submission of scores from the American College Testing Program (ACT) or the Scholastic Aptitude Test (SAT) of The College Board. Tests may be taken during the junior or senior year in high school. Arrangements for tests and transmittal of scores to Colorado State should be made with the high school counselor or with the nearest office of the American College Testing Program, P.O. Box 168, Iowa City, IA 52240, or The College Board, P.O. Box 592, Princeton, NJ 08540.

   Many students are admitted during the senior year. In such cases, admission is subject to successful completion of all entrance requirements and high school graduation.

3. Satisfactory completion of 18 high school units during grades 9-12. Fifteen of these must be academic units and must include: a) four units of high school English including reading, composition, grammar, literature, and speech; b) five units of social science and natural science with a minimum of two from each; and c) three units of mathematics, including one unit of algebra I, one unit of geometry, and one unit of algebra II (or a comparable three-course sequence).

Admission preference will be given to students who participated in an accelerated mathematics program or who maintained enrollment in mathematics courses during their senior year in high school.

It is highly recommended that two units of foreign language be taken and that at least one unit of natural science include laboratory work.

It should be noted that additional requirements may be stated by individual colleges; consult the individual college sections. For example, the College of Engineering requires one-half unit of trigonometry, one unit of chemistry, in addition to the required algebra and geometry.

In special cases, students otherwise well-qualified, but not meeting the requirements, are considered for admission on a case-by-case basis.

For Non-High School Graduates

Individuals 18 years or older who have not graduated from high school and wish to be admitted to Colorado State may be considered for admission and should request application materials from the Office of Admissions. Students may also apply using the application on the World Wide Web at: http://www.colostate.edu/depts/Admission. A $30 nonrefundable processing fee is required.

An applicant must submit transcripts showing all completed high school and collegiate courses, scores from the General Educational Development (GED) Test, and evidence of competence in mathematics comparable to that indicated by successful completion of high school courses customarily titled algebra I, geometry, and algebra II. Examples of acceptable evidence of the required competence in mathematics include satisfactory completion of high school courses, completion of a college course in intermediate algebra with a grade of B or above, or satisfactory performance on the Colorado State University Mathematics Placement Examination.
Scores from either the American College Testing Program (ACT) or the Scholastic Aptitude Test (SAT) of The College Board may be required. An interview may also be required.

The admission decision is based on the student’s academic potential for attaining a degree at Colorado State. In special cases, students otherwise well-qualified, but not meeting requirements, are considered for admission on a case-by-case basis.

**For Transfer Students**

Undergraduate students who wish to transfer to Colorado State should request an application from the Office of Admissions. Students may also apply using the application on the World Wide Web at: http://www.colostate.edu/depts/Admission. A $30 nonrefundable processing fee is required.

Undergraduate students who have graduated from high school and completed more than nine credits at other institutions must apply as transfer students. Those who have completed nine or fewer semester credits at other institutions must apply for admission as freshmen (see “For High School Graduates” above) and must also submit official transcripts of all collegiate work attempted.

The deadline for submission of admission applications and all required documentation is July 1 for fall semester and December 1 for spring semester. All applications and supporting documentation postmarked after the deadline will be processed for the next term. Earlier admission improves chances for financial aid and housing, and facilitates academic advising in the student's chosen major.

Applicants must submit official transcripts showing all work attempted from each university or college attended. No part of the previous collegiate record may be disregarded. *Failure to list all institutions previously attended is a serious offense that will cancel admission or enrollment.* Transfer students currently registered at another institution must submit a list of courses indicating those in which they are presently enrolled and those in which they will enroll prior to entering Colorado State. To be admitted, an applicant must have completed a mathematics course at the level of college algebra or above with a grade of C or above, or completed an intermediate algebra course with a grade of B or above, or have achieved a satisfactory score on the Colorado State Mathematics Placement Examination, or submit other credible evidence of adequate preparation of university-level mathematics courses.

Applicants are granted admission on the basis of their previous academic and conduct records, the appropriateness of their previous courses to their proposed program of study, and the availability of space in the program. Admission is subject to satisfactory completion of current courses and submission of a final, complete, official transcript. Transfer students should plan to complete composition before applying for admission to Colorado State. Priority will be given to students who demonstrate the greatest academic potential for attaining a degree at Colorado State.

Students who have completed an Associate of Arts or an Associate of Science degree with a 2.00 or better cumulative grade point average (A=4.0) from an accredited community or junior college will be guaranteed admission to the University provided enrollment limitations have not been met.

Because of demand, admission to some programs of study is more competitive than others; admission to these programs is limited to students presenting the strongest academic credentials.

For example, students applying to the College of Engineering must have completed at least one term of calculus and one term of calculus-based physics or chemistry prior to enrolling. Preference will be given to those applicants with the strongest records in pre-engineering programs. Consult individual college sections for additional admission information.

Course work taken at vocational-technical institutes or nonaccredited colleges generally is not counted toward the minimum number of credits required for admission of transfer students.

In special cases, students otherwise well-qualified, but not meeting all of these requirements, are considered for admission on a case-by-case basis.

**Good Standing Requirement**

Transfer applicants for admission to Colorado State whose records indicate they are under disciplinary censure generally may not be admitted until they have cleared their disciplinary records. While each case is decided on the basis of information furnished by the applicant and institution concerned, the general rule is applicants may be considered for admission to Colorado State for the term nearest the date they are eligible to return to their former institutions.
Evaluation of Credits

Colorado State maintains transfer guides with all community colleges in Colorado. Each guide consists of policies and practices for the acceptance of college credit, a list of courses which transfer to Colorado State, and an outline of academic programs. Students contemplating transfer are encouraged to meet with transfer advisers at their current institution as early as possible.

The Transfer Evaluation Office is responsible for determining routine course equivalencies for all courses that meet the All-University Core Curriculum requirements. Students should be aware that credits may transfer to the University, but not count toward department graduation requirements. Evaluation of credits is made only from official transcripts after a student has been granted admission. Regular academic courses completed with a grade of C- or better are generally accepted in transfer. Transfer grades and credits are not computed within the cumulative GPA earned at Colorado State.

Transfer Appeals Process

Students may appeal a decision regarding the transferability of a specific course(s) and/or the decision regarding the placement of a specific course(s). Any questions concerning the transfer evaluation report should first be referred to the Degree and Transfer Evaluation Office. That Office will either satisfy the student’s request, or refer the student to an academic department for additional consideration. The student is responsible for supplying any supporting documentation from the student’s transferring college along with the appeal. If the academic department does not satisfy the student’s concern, the student may be referred to the Vice Provost for Undergraduate Studies, 108 Administration Building, who is the final institutional authority for the appeal. Appeals beyond the institution should be directed in writing to the Vice Chancellor for Academic Affairs of the State Board of Agriculture, Colorado State University System, 110 6th Street, Room 640, Denver, CO 80202.

Credit From Two-Year and Noncollegiate Institutions

See Credit Policies in the Graduation Requirements section of this catalog.

For Former Colorado State Students

Former Colorado State students who have not attended another institution since attending Colorado State must file an application for readmission. Students who have withdrawn prior to the end of a semester must also file the appropriate readmission application. A $30 nonrefundable processing fee must accompany the application for admission for students who were not regularly enrolled during the previous year. Students are readmitted if they are in good standing and space is available in the University. The application deadline is July 1 for fall semester and December 15 for spring semester.

Students who have attended other collegiate institutions after attending Colorado State must file an application for readmission with the $30 nonrefundable processing fee, transcript(s) of all courses attempted at the transfer institution(s), and a list of courses that will be completed prior to entering Colorado State. The admission decision is based on previous Colorado State work and the student’s academic performance at transfer institutions.

For International Students

International applicants seeking admission to Colorado State University as entering freshmen must present scores from the Scholastic Aptitude Test (SAT) of The College Board and must demonstrate a high level of English proficiency. Official secondary school transcripts and/or school leaving examinations must also be submitted. If transcripts are not in English, a certified English translation must also accompany each document.

All applications from international students must be submitted at least three months prior to the beginning of the term for which admission is requested. The initial inquiry about admission should indicate the applicant's academic background, proposed program of study, and the source and amount of financial support for study at Colorado State. The Immigration and Naturalization Service requires that the University have on file proof of financial support before the visa documentation can be issued. A $30 nonrefundable processing fee is required. To obtain an international undergraduate application, contact the Office of Admissions. Students may also apply using the application on the World Wide Web at http://www.colostate.edu/depts/Admission. International applicants seeking admission to the Graduate School should refer to the Graduate and Professional Bulletin.

International applicants wishing to transfer to Colorado State University must also submit an international application at least three months prior to the beginning of the term for which admission is being requested. Official transcripts of all university or college courses taken in the United States or abroad are required. Secondary school transcripts and/or school leaving examinations must be submitted. If transcripts are not in English, a certified English translation must also accompany each document.
All international applicants, except those whose native language is English and for whom the language of instruction is English, are required to submit scores from the Test of English as a Foreign Language (TOEFL). The minimum acceptable TOEFL score is 525. Applicants with less than a 525 equivalent on the TOEFL may be referred to the Colorado State University Intensive English Program. Scores from other English language proficiency examinations may be considered in lieu of the TOEFL. Contact the Office of Admissions for additional information. Students who knowingly falsify transcripts or test scores, or who fail to indicate all previously attended institutions will be denied admission to the University. Sponsoring agencies will be informed of this decision.

Undergraduate international students are not eligible for scholarship assistance from Colorado State University sources, and their employment possibilities are severely limited by law; consequently, international students need to explore scholarship and loan possibilities within their home countries. Financial planning should include a thorough investigation of currency exchange and monetary transfer regulations between the home country and the U.S. See Yearly Costs for International Students in the Tuition, Fees, Expenses, and Adjustments section in this catalog.

Only U.S. citizens and permanent residents of the United States (and certain U.S. territories) may contact the Office of Financial Aid for information on applying for assistance.
Financial Assistance

Office in Administration Annex, Room 103
Sandy Calhoun, Director

Colorado State offers a variety of financial assistance programs for deserving and needy students. Awards recognize scholastic achievement, encourage continual educational growth, and assist needy students.

Financial assistance is subject to the financial resources available to Colorado State. Detailed information on all financial aid programs is available on request from Student Financial Services and on the Student Financial Services Web site at http://www.colostate.edu/depts/SFServices. Financial aid policies and procedures may change without notice.

FINANCIAL AID PROGRAMS

Scholarships

Undergraduate Colorado resident or nonresident students may be considered for the Creative and Performing Arts Award, Colorado Scholars Award, the Distinguished Scholars Award, Academic Achievement Award, the President’s Scholarship, and the Transfer Achievement Award.

Undergraduate Colorado resident students may be considered for the Advocacy Diversity Award and the First Generation Award.

The University also administers scholarships offered by private agencies, foundations, service clubs, and individuals. For more detailed information on available scholarships, contact Student Financial Services.

Army and Air Force ROTC scholarships are available to qualified high school graduates interested in ROTC, and to students enrolled in ROTC programs. Interested students should contact the ROTC departments.

Grants

Colorado State administers a number of grant programs available to undergraduate students. Several are restricted to Colorado residents. These include: Colorado Student Grants which are generally $1,000 each year, and State Student Incentive Grants, which are usually $1,000 each year. Residents and nonresidents may qualify for a Federal Supplemental Educational Opportunity Grant, which ranges between $800 to $1,000 per year.

Additionally, the University administers the Federal Pell Grant Program for qualified undergraduates. The federal government establishes the dollar limits on these grants each year.

The Colorado Graduate Grant Program is restricted to Colorado residents and is the only need-based grant program available for graduate students. These grants are generally $800 per year.

All grants may be reawarded providing the student continues to document need and maintains satisfactory academic progress.

Loans

Colorado State participates in the federal Perkins Loan Program, the federal Direct Loan Programs, both subsidized and unsubsidized, the federal Direct Parent Loan for Dependent Students (PLUS), the Health Professions Loan (HPL) Program, and its own short-term loan program. Both undergraduates and graduates are eligible to apply for the federal Perkins and federal Direct Loans. The federal PLUS Program is available for parents of dependent, undergraduate students only. HPL is restricted to students enrolled in the D.V.M. degree program. Loan amounts vary depending on need, eligibility, and on maximum limits established by federal regulations.

Work-Study

The Work-Study Program, administered by Student Employment Services, provides part-time employment opportunities for qualified students. Students average 12 hours of work per week and earn between $2,000 and $2,200 total for an academic year. Both undergraduate and graduate students are eligible to apply for the work-study program. Awards are based on an evaluation of students’ financial need.
A merit work-study program is also offered at the University. Students do not have to document financial need to receive merit work-study. Students must find a job, generally on campus, which relates to their academic major. All regularly enrolled students, other than Colorado resident graduate students, are eligible to apply. Interested students should contact Student Employment Services.

**APPLICATION PROCEDURES FOR NEED-BASED FINANCIAL AID**

Students use the Free Application for Federal Student Aid (FAFSA) to apply for financial aid. Application information and application procedures for any of the above programs may be obtained from Student Financial Services.

**SATISFACTORY ACADEMIC PROGRESS STANDARDS**

Students applying for and/or receiving financial aid are expected to maintain satisfactory academic progress. Failure to perform at established levels may result in students becoming ineligible for financial aid. Students’ total number of credits are also evaluated, and students may not exceed established credit limits. Students must not also receive a combination of F, U, I, or W for a semester. Copies of the complete policy are available at Student Financial Services. The satisfactory academic progress policy is in the Financial Aid Guide which is sent to all students who receive an award notice.

**FRAUDULENT RECEIPT OF FUNDS**

Students who receive student aid funds through a misrepresentation, falsification, or omission of information may have their names referred to appropriate law enforcement authorities for possible prosecution under the law. Any person who knowingly makes a false statement or misrepresentation when applying for financial aid shall be subject to a fine of not more than $10,000 or imprisonment of not more than 5 years, or both, under provisions of the United States Criminal Code.

Student Financial Services retains the right to withdraw or cancel a student’s aid if it is believed the student obtained the funds by fraudulent means.

**REPORTING CHANGES**

All students must immediately notify Student Financial Services of any changes in their financial situation, residency, class standing, or any other factors which can reasonably be construed to have a bearing on their financial aid.

**STUDENT EMPLOYMENT**

Student Employment Services is responsible for the institution’s Student Employment Program. This office lists many of the University’s on-campus student positions, and is a central receiving and referral agency for jobs within the community and surrounding areas.

Students wishing to work on or off campus should contact Student Employment Services, Room 133, Student Services Building. Job postings may be viewed in person or on the Student Employment Web site at www.colostate.edu/Depts/StudEmp.

All individuals who are currently enrolled at the University as resident instruction (RI) students and are carrying one or more RI credits may use the University’s employment services. Students who enroll less than half time are subject to the Student Employee Retirement Program. Student employees are compensated on an hourly basis and are paid every other week, through direct deposit to the employee’s personal checking or savings account.

Colorado State is an Equal Opportunity Employer which provides on-campus work opportunities to several thousand students each year. The University adheres to the state’s fiscal rules and the regulations set forth by the Department of Education and the Colorado Commission on Higher Education which govern the work-study and student employment programs.

**VETERANS’ BENEFITS**

The Records and Registration Office assists the Department of Veterans Affairs (VA) by providing certification for education benefits under Title 38, U.S. Code: Chapter 30 (New G.I. Bill), Chapter 31 (Vocational Rehabilitation), Chapter 32 (Post-Viet Nam Era - active duty between January 1977 and June 1985), and Chapter 35 (Dependents Educational Assistance); and Title 10, U.S. Code: Chapter 1606 (Selected Reserve Members).

Students eligible for any of these benefits must contact the Records and Registration Office, Room 100, Administration Annex, at least six weeks prior to the expected date of enrollment. Applicants should apply to
Colorado State in a degree-seeking major or for teacher licensure before applying for veterans’ education benefits.

To receive full benefits, a student must maintain at least 12 undergraduate-level credits, or 9 graduate-level credits or research equivalent. However, different standards may apply for students enrolled in short-term courses. Students must notify the Records and Registration Office of any change of address, major, or enrollment status. A description of the regulations governing receipt of veterans’ education benefits, *Standards of Progress*, is available at the Records and Registration Office.

Students participating in the advance payment program must complete the necessary paperwork with the Records and Registration Office during registration. Requests for advance payment cannot be accepted after the VA’s advance payment deadline for the applicable term has passed. Advance payment checks are disbursed from the Records and Registration Office on the first day of the term.

**FINANCIAL SUPPORT FOR GRADUATE STUDENTS**

Graduate students seeking financial support should consult the appropriate section of the *Graduate and Professional Bulletin*. Merit-based awards, such as fellowships and assistantships, are available on a competitive basis. Need-based support, such as loans or work-study positions, may be provided to students who qualify.
Tuition, Fees, Expenses, and Adjustments

Authority to set tuition rates is vested in the governing boards of Colorado’s state institutions of higher education. The tuition rates which apply to any succeeding fiscal year will not be known until June of each year. The State Board of Agriculture, therefore, reserves the right to change the following tuition and fee schedules and related policies, including the time, date, and method for payment, at any time.

SCHEDULE OF TUITION AND FEES

In addition to the charges listed under each category, students pay any special course fees; see Special Fees in this section.

Tuition and fees for a student registering for a combination of regular on-campus courses or educational outreach courses will be assessed individually according to the schedule established for each.

Students who are off campus for full-time internships, practica, and professional affiliations, and are not concurrently enrolled in other on-campus experiences or courses, will be assessed a reduced student fee. This fee of $75.49 is the ASCSU fee, the facilities construction fee, plus a fee determined by the principal and interest of the bonds on athletic facilities, the student center, the student health service, and the student recreation center.

Undergraduate Students

<table>
<thead>
<tr>
<th>Colorado Resident</th>
<th>Tuition Per Semester</th>
<th>Fees Per Semester</th>
<th>Total Per Semester 1 (Two Semesters)</th>
<th>Total Per Academic Year 1 (Two Semesters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 credit</td>
<td>$134.00</td>
<td>$32.89</td>
<td>$166.89</td>
<td>$349.71</td>
</tr>
<tr>
<td>2 credits</td>
<td>$268.00</td>
<td>$32.89</td>
<td>$300.89</td>
<td>$699.42</td>
</tr>
<tr>
<td>3 credits</td>
<td>$402.00</td>
<td>$32.89</td>
<td>$434.89</td>
<td>$844.71</td>
</tr>
<tr>
<td>4 credits</td>
<td>$536.00</td>
<td>$32.89</td>
<td>$568.89</td>
<td>$1089.42</td>
</tr>
<tr>
<td>5 credits</td>
<td>$670.00</td>
<td>$32.89</td>
<td>$702.89</td>
<td>$1334.71</td>
</tr>
<tr>
<td>6 credits</td>
<td>$804.00</td>
<td>$32.89</td>
<td>$936.89</td>
<td>$1579.42</td>
</tr>
<tr>
<td>7 credits</td>
<td>$938.00</td>
<td>$32.89</td>
<td>$1170.89</td>
<td>$1824.71</td>
</tr>
<tr>
<td>8 credits</td>
<td>$1072.00</td>
<td>$32.89</td>
<td>$1404.89</td>
<td>$2069.42</td>
</tr>
<tr>
<td>9 or more credits</td>
<td>$1204.00</td>
<td>$32.89</td>
<td>$1638.89</td>
<td>$2314.71</td>
</tr>
</tbody>
</table>

Out-of-State Resident 1

| 1 credit          | $604.00              | $32.89           | $636.89                             | $1273.71                                 |
| 2 credits         | $1208.00             | $32.89           | $1240.89                            | $2543.71                                 |
| 3 credits         | $1812.00             | $32.89           | $1844.89                            | $3813.71                                 |
| 4 credits         | $2416.00             | $32.89           | $2448.89                            | $4093.71                                 |
| 5 credits         | $3020.00             | $32.89           | $3052.89                            | $5363.71                                 |
| 6 credits         | $3624.00             | $32.89           | $3656.89                            | $5633.71                                 |
| 7 credits         | $4228.00             | $32.89           | $4259.89                            | $5903.71                                 |
| 8 credits         | $4832.00             | $32.89           | $4859.89                            | $6173.71                                 |
| 9 or more credits | $5439.00             | $32.89           | $5562.89                            | $6443.71                                 |

1The $32.89 fee is for the student center and the $362.71 fee is for the student center, student health service, student recreation center, student activities, athletics, the stadium, and the auditorium-gymnasium complex. Part-time students carrying five credits or less may elect to pay the full fee and receive the same level of services and activities as full-time students.

Veterinary Medical Students Enrolled in Professional Course Registering for 9 Through 24 Credits

Senior veterinary students are assessed tuition on a credit basis for each semester since their class schedules vary during the three-semester period. Subsidized tuition is $199.05/credit and nonsubsidized tuition is $696.67/credit. Fees for senior veterinary students are assessed over the three semesters in equal payments of $252.35/semester.

Graduate Students

(Except Professional Veterinary Medical Students)

<table>
<thead>
<tr>
<th>Colorado Resident</th>
<th>Tuition Per Semester</th>
<th>Fees Per Semester</th>
<th>Total Per Semester 1 (Two Semesters)</th>
<th>Total Per Academic Year 1 (Two Semesters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 credit</td>
<td>$154.00</td>
<td>$32.89</td>
<td>$186.89</td>
<td>$373.71</td>
</tr>
<tr>
<td>2 credits</td>
<td>$308.00</td>
<td>$32.89</td>
<td>$340.89</td>
<td>$707.42</td>
</tr>
<tr>
<td>3 credits</td>
<td>$462.00</td>
<td>$32.89</td>
<td>$494.89</td>
<td>$1040.71</td>
</tr>
<tr>
<td>4 credits</td>
<td>$616.00</td>
<td>$32.89</td>
<td>$648.89</td>
<td>$1373.71</td>
</tr>
<tr>
<td>5 credits</td>
<td>$770.00</td>
<td>$32.89</td>
<td>$802.89</td>
<td>$1706.71</td>
</tr>
<tr>
<td>6 credits</td>
<td>$924.00</td>
<td>$32.89</td>
<td>$956.89</td>
<td>$2039.71</td>
</tr>
<tr>
<td>7 credits</td>
<td>$1078.00</td>
<td>$32.89</td>
<td>$1110.89</td>
<td>$2372.71</td>
</tr>
<tr>
<td>8 credits</td>
<td>$1232.00</td>
<td>$32.89</td>
<td>$1264.89</td>
<td>$2705.71</td>
</tr>
<tr>
<td>9 or more credits</td>
<td>$1386.00</td>
<td>$32.89</td>
<td>$1418.89</td>
<td>$3038.71</td>
</tr>
</tbody>
</table>

Out-of-State Resident 1

| 1 credit          | $604.00              | $32.89           | $636.89                             | $1273.71                                 |
| 2 credits         | $1208.00             | $32.89           | $1240.89                            | $2543.71                                 |
| 3 credits         | $1812.00             | $32.89           | $1844.89                            | $3813.71                                 |
| 4 credits         | $2416.00             | $32.89           | $2448.89                            | $4093.71                                 |
| 5 credits         | $3020.00             | $32.89           | $3052.89                            | $5363.71                                 |
| 6 credits         | $3624.00             | $32.89           | $3656.89                            | $5633.71                                 |
| 7 credits         | $4228.00             | $32.89           | $4259.89                            | $5903.71                                 |
| 8 credits         | $4832.00             | $32.89           | $4859.89                            | $6173.71                                 |
| 9 or more credits | $5439.00             | $32.89           | $5562.89                            | $6443.71                                 |

1Out-of-state residents enrolled in WICHE’s WRGP Program in Technical Communication (M.S.) or Education and Human Resource Studies (Ph.D.) pay Colorado resident tuition.
## Graduate Assistants

Full-time graduate assistants receive at least the minimum monthly stipend of $1,029 for the 2000-2001 academic year, effective July 1, 2000, as set by the University. Such assistants must register for at least one credit in the fall and spring terms, and such credits as the appointing department may require each summer term during which the appointment is in effect. Assistants may have tuition payments made in their behalf.

## Students Registering for Educational Outreach Courses

Tuition and fees assessed for courses offered by the Division of Educational Outreach vary by program, level of instruction, and delivery mode. Consult current Educational Outreach publications for specific rate information or call the Division of Educational Outreach at (970) 491-5288.

## Special Course Fees

Certain courses require enrolled students to pay fees for special services and/or materials. Since the costs are determined annually, course fees may vary from the stated charge in the separate publication, Courses of Instruction.

For some courses, enrolled students are assessed a uniform fee during registration to cover the costs incurred by the University to offer the courses. These costs include the rental of external facilities, the expenses of field placements, the provision of special facilities of a personal nature that the University would not otherwise maintain, and/or the costs of off-campus travel of students and supervising faculty members.

For some courses, enrolled students are assessed by the department variable fees based upon actual use of expended materials supplied by the department and used by the student in the creation, construction, and/ or fabrication of an object of value such as a class project that becomes the student’s property; or based upon actual use of expendable materials supplied by the department because of the inability to make individual purchases economically.

For some courses, enrolled students are assessed by the department variable fees based upon actual damage to or
nonreturn of equipment used in the courses.

All special course fees will be assessed and collected through normal student accounts receivable procedures. *No fees should be paid directly to academic departments or individuals.*

**IN-STATE RESIDENCY FOR TUITION CLASSIFICATION PURPOSES**

Classification of students for tuition purposes is governed by state statute (“tuition law”) which sets forth conditions for a student being considered as “in state” for purposes of tuition classification. The tuition law is contained in sections 23-7-101 to 104, and 23-7-105 of the Colorado Revised Statutes. Although individuals may be considered state residents for voting and other legal purposes after being in the state for a short period of time, the tuition law specifies additional requirements for classification as “in state” for tuition purposes. The tuition law, which applies to all public institutions of higher education in Colorado, is subject to judicial interpretation and change at any time by the Colorado legislature. Colorado State University must apply the rules set forth in the Colorado Revised Statutes, and *is not* free to make exceptions except as specifically permitted under the Statute.

**Definition of “In-State Residency” for Tuition Purposes**

Under the Colorado tuition law, the term “in-state” student means: “A student who has been domiciled in Colorado for one year or more immediately preceding the first day of classes for the term for which such status is claimed.” Further, the tuition law states: “Attendance at an institution of higher education, public or private, within the state of Colorado shall not alone be sufficient to qualify for domicile in Colorado.” A copy of the tuition law, as identified above, is available at Student Financial Services, 103 Administration Annex, or on the Web site at: http://www.colostate.edu/Depts/SFServices

**Initial Classification**

The initial tuition classification is determined from the information the student supplies on the application for admission to the University. The University, in making this determination, may also consider relevant information contained in any other University educational records. Failure to answer all questions on the admissions application could lead to initial classification as “nonresident.”

**Petition for Classification Review**

Students who feel they have subsequently become eligible for in-state status may file a petition with the Tuition Classification Officer in the Student Financial Service Office. Petitioners should consider their tuition classification status to be nonresident until their classification is changed, and personal financial decisions should be made accordingly. Petition materials and a copy of the Colorado Revised Statutes may be obtained from Student Financial Services. Petitions will be processed only for students who have been either admitted to the University or are currently enrolled for the semester they are requesting a change in classification.

**Deadline for Petition**

It is the responsibility of the petitioner to submit a completed petition in a timely manner and no later than the deadline date. To obtain a copy of the deadline dates for any semester, contact Student Financial Services.

**Appeal of Classification**

Decisions made by the Tuition Classification Officer are subject to appeal to the Residency Appeals Committee. The appeal must be submitted in writing, no later than 15 days after the date of the letter in which the decision is conveyed to the petitioner. The decision of the Residency Appeals Committee is the final administrative ruling; however, petitioners may seek legal counsel to be informed of their rights and remedies. Additional information regarding the appeal process is available through Student Financial Services.

Any student who provides false information to avoid paying “nonresident” tuition may be subject to legal and/or disciplinary action.

**ADDITIONAL EXPENSES**

**Health Insurance**

The University administers an optional health insurance plan for students at a reasonable rate. This insurance is in addition to the Hartshorn Health Service program funded by student fees. Insurance is not a prerequisite to the use of the Hartshorn Health Service, but is designed to supplement it and to help protect against the high medical costs of an accident or sickness requiring hospitalization. This insurance plan provides additional coverage for any family plan; it provides primary coverage when no other plan is involved. The plan is optional; however, students are encouraged to enroll unless they already have adequate health insurance. Information on Student Health
Insurance is contained in the Student Health Insurance brochure which is available to all new students.

**Personal and Living Expenses**

The amount of money spent by a student in an academic year (two semesters—August to May) for all other expenses varies with current prices and the habits and needs of the student; therefore, it is difficult to estimate the amount of money needed by individual students for such items as entertainment, laundry, and clothing. New students should have sufficient financial resources to insure successful completion of at least one semester.

Expenses not directly related to educational costs are not included in the estimates. Living off campus may result in some savings, but comparable in-town housing and diet will approximate University residence hall costs.

**Estimated Yearly Expenses**

The following estimate of student costs, exclusive of tuition and fees, is based on a minimum but adequate standard. Students’ actual expenses may be lower or higher, since these are only estimates. Certain courses carry a special course fee in addition to the regular tuition and fees.

<table>
<thead>
<tr>
<th>Item</th>
<th>Per Semester</th>
<th>Total Academic Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living Allowance</td>
<td>$2,451.00</td>
<td>$4,902.00</td>
</tr>
<tr>
<td>Books and Classroom Supplies</td>
<td>$330.00</td>
<td>$660.00</td>
</tr>
<tr>
<td>Incidental Personal Expenses</td>
<td>$1,175.00</td>
<td>$2,350.00</td>
</tr>
<tr>
<td>Total of Estimated Costs</td>
<td>$3,956.00</td>
<td>$7,912.00</td>
</tr>
</tbody>
</table>

**International Students**

Students from other countries should anticipate expenses considerably higher than those quoted above. The above estimates do not include costs of transportation, clothing (particularly winter clothing for those coming from warmer climates), living expenses during vacation periods and during the summer months, and items of personal use which cannot be brought in a suitcase and which must be purchased in the United States after arrival. An unmarried undergraduate student should anticipate living expenses of about $800 per month in addition to out-of-state tuition, plus $800 settling-in expense.

The amount of financial support required for a single, undergraduate student is $22,808 and for a single graduate student is $23,242 (1999), but the actual total could exceed this minimum requirement. In addition, expenses for graduate students run considerably higher than for undergraduate students because of research costs, thesis expenses, field trips, special equipment, and more expensive textbooks. For a list of detailed expenses, write to the Office of International Programs (address listed below). Students enrolled in specialized training courses in nondegree schools should refer to the specific program documents for costs.

Students accompanied by dependents must allow additional funds for a spouse at $3,000 per year and $2,400 per year for each child. Medical insurance is required for all foreign students and their accompanying dependents creating an additional approximate expense of $900 per year for students, $2,600 per year for spouses, and $1,300 per year for children.

All agencies and other entities sponsoring international students which utilize third party billing privileges will be assessed a $200 base service fee per student per semester. Those students and sponsoring agencies and entities receiving additional services over and above those provided to all international students will be assessed an additional $50 service fee per student per semester. Both of these fees apply to all international sponsored students who receive services as described above and who use University resources regardless of whether the student is registered for credit-bearing classes.

For a copy of the Service Schedule and/or a detailed list of estimated expenses, write the Office of International Programs, Attn: Coordinator, Sponsored Degree Programs, 315 Aylesworth Hall, NE, Colorado State University, Fort Collins, CO 80523-1024.

**Exchange Students**

Foreign students attending Colorado State, as a part of one of Colorado State’s two-way reciprocal exchange programs, should direct questions about their study and expenses to the Office of International Programs (see address above).

**PAYMENTS AND ADJUSTMENTS**

**Payment of Student Accounts**

Notwithstanding any other provision of this publication to the contrary, any student who completes registration agrees to pay the University according to the payment terms documented in the Colorado State University Class Schedule under the Payment of Accounts section. Late charges of 1.5% per month and other penalties specified therein may be assessed for late payment. Payment of all University charges is to be received in the University Cashier's office by the due date to avoid late payment penalties. Payments by check are processed on the day of receipt (future dates are not honored). Failure to pay amounts due may result in referral of outstanding balances to a collection agency for action. Further, the
University reserves the right to impose a charge and a financial hold for returned checks. Contact the University Bursar’s Office, 111 Johnson Hall, for the amount of the returned-check charge currently in effect.

Statements are mailed to students at the current address on file with Enrollment Services. For those students residing in the residence halls, the hall address will automatically become their “current” address when they move in. Students may arrange to have the statements sent to a separate billing address by filling out a billing address form available in Johnson Hall, the Administration Annex, and the Lory Student Center. Students are responsible for keeping the University informed of current addresses, and for arranging payments. The University will not register a student, confer a degree on a student, nor provide a final transcript to any student or former student who has any past due financial obligation to the University (other than a loan not yet due).

Students who are sponsored by a non-related third party may request direct billing to the sponsor for tuition, fees, and other related educational expenses. Detailed information on sponsor billing is available upon request from the Student Financial Services Office. Arrangements for sponsor billing must be made prior to the Student Account Statement due dates to prevent late payment penalties.

Tuition, fees, and residence hall charges are due in three monthly installments each semester as follows:

<table>
<thead>
<tr>
<th>Charges</th>
<th>Fall 2000</th>
<th>Spring 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3 tuition, fees, and housing</td>
<td>8/10/2000</td>
<td>1/10/2001</td>
</tr>
<tr>
<td>1/3 tuition, fees, and housing</td>
<td>9/10/2000</td>
<td>2/10/2001</td>
</tr>
<tr>
<td>1/3 tuition, fees, and housing</td>
<td>10/11/2000</td>
<td>3/10/2001</td>
</tr>
</tbody>
</table>

*2/3 if not assessed on first statement
**all due if not assessed on first two statements

All other charges for University services should be paid in the month billed.

Summer session tuition is due when billed.

Late Payments

Payments must reach the University Cashier’s Office, Room 108 Johnson Hall, by 4:00 p.m. on the due date (postmarks do not apply). Penalties will be assessed for late payment of student accounts for the purpose of encouraging prompt payment. Such penalties shall be assessed at a fixed percentage of the past due balance. The current rate is 1.5% of the past due amount each month.

Registration, Transcript, and Diploma Holds

Unpaid, past due balances may cause a hold to be placed on a student’s registration, transcripts, and diploma. A student may not access the telephone registration system, receive official, academic transcripts, nor obtain a diploma, if a hold has not been cleared. Release of the hold can be expedited by making payment in person at the Cashier’s Office, 108 Johnson Hall.

Returned Checks

Any person who presents to the University a check that is not accepted for payment by the bank because of insufficient funds, stopped payment, nonexistent account, or other reason for which the person is responsible is charged a penalty as provided by state law.

The University sends a notice to the person who presents a check that is not accepted for payment by the bank. In the case of students, the notice is mailed to the student’s Fort Collins area address and permanent mailing address. (Every student is required to notify Enrollment Services promptly of any change in his or her Fort Collins area address or permanent address.) Within the time specified in the notice the person is expected to make payment by cash, cashier’s check, or credit card currently accepted by the University. The payment must be equal to the total of the invalid check plus penalty and fee if applicable. Failure to do so will result in action deemed appropriate under the circumstances. If the presentation of the check permits the student to register for an academic term and full payment of the check plus penalty and fee is not made within the time specified in the notice, the student’s class schedule will be cancelled.

Housing Deposit

Residence Halls

The housing deposit for residence hall students serves as both an application fee and a contractual agreement guarantee. Partial refund of this deposit is available if the student cancels his/her request prior to submitting the Residence Hall Contract. For specific information about the refund policy refer to the “Contract/Refund Information” outlined in the Residence Hall Living brochure which accompanies the residence hall reservation form.

University Apartments

A deposit is required for students applying for University Apartments. This deposit serves as an application fee and a contractual agreement guarantee. This deposit will be refunded, upon request, anytime prior to assignment. The
refund procedure for current apartment residents is outlined in the Apartment Life Contract Agreement. For further information, refer to the Apartment Life brochure which accompanies the Apartment Life application form.

**Tuition and Fees Adjustments**

Tuition and fees, as applicable, are charged for all courses added during a term. Tuition and fee adjustments for students dropping courses, if applicable, will be allowed only during the schedule change period as listed in the University Calendar in this publication. After this deadline, there is no adjustment in tuition and fees should a student drop a course.

Withdrawal (to drop all courses and leave the University) is accomplished by contacting the HELP/Success Center. Adjustments of tuition and fees are made only for these authorized withdrawals. Once a student completes one or more courses in a term (fall semester, spring semester, or summersession) a withdrawal is not authorized; however, the student can terminate remaining courses by contacting the Office of Records and Registration. Normally a withdrawal is not permitted during the last two weeks of the semester.

Cancellation of assessments is authorized for courses which have not started at the time of withdrawal.

Tuition and fees which will be assessed for authorized withdrawals is the percentage according to the following chart:

<table>
<thead>
<tr>
<th>Withdrawal Assessment for Fall and Spring¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week:</td>
</tr>
<tr>
<td>10%</td>
</tr>
<tr>
<td>Week:</td>
</tr>
<tr>
<td>60%</td>
</tr>
</tbody>
</table>

¹Summer term has a different assessment schedule and the withdrawal policy is in the Summer Class Schedule.

The following guidelines apply:

1. In the case of death, adjustment of tuition and fees will be made any time during the semester.

2. Withdrawal as a result of serious illness, disabling accident, military draft, or activation of reserves or national guard units, initiated at the HELP/Success Center, will be subject to review by the Office of the Vice President for Student Affairs which may recommend to the Vice President for Administrative Services a variation from the normal adjustment policy.

3. Withdrawing students who received financial aid are subject to specific federal, state, and University withdrawal policies regarding tuition and fees, housing charges, refunds to financial aid programs, and repayments resulting from their withdrawal.

A withdrawal may require an immediate refund of financial aid funds to financial aid programs. Refunds are calculated according to Student Assistance General Provisions regulations. The date of a student's withdrawal, financial aid disbursements to the student's account, University charges, and payments by the student or a third party are used to calculate the refund amount.

If a student withdraws a cash balance from their student account to use for living expenses, the student may have to repay those funds which are in excess of an amount determined to be reasonable for their length of enrollment.

All calculated refunds and repayments will be allocated to financial aid programs first, and any remaining amount to the student.

4. University room and board charges will be assessed through the vacate date from University housing.

5. No adjustment will be made for a student who is suspended, dismissed, or expelled for breach of discipline.
Student Rights and Responsibilities

As in any community situation, an individual can be most effective and influential working through an established organization. At Colorado State, the two primary organizations are the department in which the student is majoring, and the University-wide student governing body, Associated Students of Colorado State University (ASCSU).

Academic department heads are required to incorporate student input into decisions affecting academic instruction and advising. This input usually takes form through departmental advisory committees and student evaluation of faculty members. Individual students, however, may make appointments with their department heads to discuss specific problems, plans, or suggestions.

The student governing body, ASCSU, is authorized by the State Board of Agriculture to establish a system of self-government, organized and administered by elected student representatives. It has the responsibility to advise and recommend to the University administration and to allocate funds designated by the Board in support of student programs and activities of authorized student groups and clubs. Additional information on student involvement is available through the ASCSU office and the Office of Campus Activities, both located in the Lory Student Center, and the Faculty Council Committee on Student Affairs.

ACADEMIC RIGHTS AND RESPONSIBILITIES OF STUDENTS

Students’ Educational Records

Students have certain rights concerning their “education records” under the Family Education Rights and Privacy Act, as amended, 20 U.S.C. 1232g et.seq. (FERPA). These include:

1. The right to inspect and review the student's educational records within 45 days of the day the University receives a request for access.

Students should submit to the Office of Enrollment Services, or in the case of graduate studies, to the Graduate School, written requests that identify the record(s) they wish to inspect. The University official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.

All enrolled and former students may have access to their educational records maintained within the University. Those individuals and agencies having access to a student’s records include “school officials,” defined below, with legitimate educational interests; parents claiming a student as a dependent on their federal income tax; scholarship and other financial aid organizations supporting the student; organizations conducting studies for, or on behalf of, educational agencies or institutions for the purpose of developing, validating, or administering predictive tests, student aid programs, or to improve instruction; organizations carrying out accrediting functions of programs offered by the University; appropriate person(s) in an emergency; and any party designated by judicial order or subpoena, provided that, except for subpoenas and orders issued for law enforcement purposes, the University first notifies the student of the order or subpoena. Any other individual or organization must have a student’s written consent to view or have access to the educational record.

A student may receive one copy of each item of information contained in the educational record at a cost of $.25 per page.

2. The right to request the amendment of the student’s education records that the student believes are inaccurate or misleading.

Students may ask the University to amend a record that they believe is inaccurate or misleading. They should write the University official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading.

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

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

An exception exists for public release of “directory information” unless the student has placed a written request that such information be withheld in the Office of Records and Registration by the end of the second week of classes. Colorado State defines “directory information” as a student’s name, current mailing and e-mail address, telephone listing, major field of study, class, dates of attendance, anticipated date/term of graduation and expected award(s), participation in officially recognized activities and sports, weight and height of members of athletic teams, and honors and degrees awarded.

Another exception allows disclosure of information about the student to school officials with legitimate educational interests. A school official is a person employed by the University in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the University has contracted (such as an attorney, auditor, or collection agent); a person serving on the governing board of the University; or a student serving on an official committee, or in a volunteer capacity, such as a peer mentor or member of a disciplinary or grievance committee, or assisting another school official in performing his or her tasks. Such officials have legitimate educational interests when they need to review a student’s educational records to fulfill their responsibilities to the University.

Furthermore, the University discloses students’ educational records without consent, upon request, to officials of other schools in which a student seeks or intends to enroll.

4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by the University to comply with the requirements of FERPA. The name and address of the office that administers FERPA is: Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Ave. SW, Washington, DC 20202-4605.

Academic Integrity

The foundation of a university is truth and knowledge, each of which relies in a fundamental manner upon academic integrity and is diminished significantly by academic dishonesty. Academic integrity is conceptualized as doing and taking credit for one's own work. A pervasive attitude promoting academic integrity enhances the sense of community and adds value to the educational process. All within the University are responsible for and affected by the cooperative commitment to academic integrity.

Academic dishonesty (see examples below) undermines the educational experience at Colorado State University, lowers morale by engendering a skeptical attitude about the quality of education, and negatively affects the relationship between students and instructors.

Instructors are expected to use reasonably practical means of preventing and detecting academic dishonesty. Any student found responsible for having engaged in academic dishonesty will be subject to academic penalty and/or University disciplinary action.

Students are encouraged to share responsibility for the academic integrity of the University by reporting incidents of academic dishonesty.

Examples of academic dishonesty include (but are not limited to):

1. **Cheating in the Classroom**
   Cheating includes using unauthorized sources of information and providing or receiving unauthorized assistance on any form of academic work. Examples include copying the work of another student on an exam, problem set, or quiz; taking an exam or completing homework for another student; possessing unauthorized notes, study sheets, answer codes, programmed calculators, or other materials during an exam; and falsifying exams or other graded paper results.

2. **Plagiarism**
   Plagiarism includes the copying of language, structure, ideas, or thoughts of another, and representing them as one's own without proper acknowledgment. Examples include a submission of purchased research papers as one's own work; paraphrasing and/or quoting material without properly documenting the source.

3. **Unauthorized Possession or Disposition of Academic Materials**
   Unauthorized possession or disposition of academic materials includes the unauthorized selling or purchasing of examinations or other academic work; stealing another student's work; unauthorized entry to or use of material in a computer file; theft or mutilation of library materials; and using information from or possessing exams that an instructor did not
4. **Falsification**

Falsification encompasses any untruth, either verbal or written, in one's academic work. Examples include receiving unauthorized assistance or working as a group on a take-home exam, independent exam or other academic work without authorization, or lying to avoid taking an exam or turning in other academic work.

Furthermore, falsification of any University document is a violation of academic integrity. Examples include student identification numbers, transcripts, grade sheets, credentials, University status, or letters of recommendation. Forging a signature is another specific example of falsification.

5. **Facilitation of Cases of Academic Dishonesty**

Facilitation of any act of academic dishonesty including cheating, plagiarism, and/or falsification of documents also constitutes violation of Colorado State University's academic integrity. Examples include knowingly discussing specifics of the content of a test or examination you have taken with another student who has not yet taken that test or examination or facilitating, by sharing one's own work, a student's efforts to cheat on an exam or other academic work.

**Procedure**

If an instructor has evidence that a student has engaged in an act of academic dishonesty, the instructor will notify the student of the concern and make an appointment to discuss the allegations with the student. The student will be given the opportunity to give his/her position on the matter. If the student admits to engaging in academic dishonesty or if the instructor judges that the preponderance of evidence supports the allegation of academic dishonesty, the instructor may then assign an academic penalty. Examples of academic penalties include receiving a reduced grade for the work, a failing grade in the course, or other lesser penalty as the instructor deems appropriate. If, after making reasonable efforts, the instructor is unable to contact the student or collect all relevant evidence before final course grades are assigned, he/she shall assign an interim grade of incomplete and notify the student of the reason such grade was given.

If the student disputes the allegation of academic dishonesty he/she should request a hearing with the Office of Judicial Affairs. The University Hearing Officer will determine whether or not a preponderance of evidence exists in support of the allegation of academic dishonesty.

If the University Hearing Officer finds insufficient evidence or clears the student of the charges, the instructor will determine a grade based upon academic performance and without reflection of the academic dishonesty charge and change any previously assigned grade accordingly. If the University Hearing Officer finds the student culpable, the Hearing Officer may impose additional University disciplinary sanctions.

Instructors should report to the Office of Judicial Affairs all cases of academic dishonesty in which a penalty is imposed. Instructors may recommend that a hearing be conducted to determine whether additional University disciplinary action should be taken.

Information about incidents of academic dishonesty is kept on file in the Office of Judicial Affairs. No further action is initiated unless the incident constitutes a major infraction, the student has a prior record of University infractions, or there are subsequent reports of misconduct.

Information regarding student rights, administrative hearing procedures, classifications and definitions of University disciplinary action, University Discipline Committee, appeal procedures, and the maintaining of disciplinary records is contained in the “Student Rights and Responsibilities” document available through the Vice President for Student Affairs Office.

**Classroom Behavior**

The classroom instructor is responsible for all classroom conduct, behavior, and discipline. University policy permits only enrolled students, persons authorized by the instructor, and administrative personnel to be admitted to instructional areas during scheduled periods. University policy and Colorado state law also prohibit all forms of disruptive or obstructive behavior in academic areas during periods of scheduled use, or any actions which would disrupt scheduled academic activity. Use of classrooms and other areas of academic buildings during nonscheduled periods is permitted only in accordance with departmental, college, or University practices.

Any person or persons in unauthorized attendance or causing a disturbance during scheduled academic activity shall be identified by the instructor and asked to leave. Persons refusing such a request may be removed by the University police and are liable to legal prosecution and/or disciplinary action.

**Grading and Grade Appeals**

See section in “Scholastic Standards and Grading.”
**STUDENT RIGHTS AND RESPONSIBILITIES**

Colorado State University expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws, and University regulations; and to respect the rights, privileges, and property of other people. Principles of academic honesty, respect for diversity, and pursuit of lifestyles free of alcohol and drug abuse are examples of these standards. Students are not only members of the academic community; they are, additionally, members of the larger society and thus retain the rights, protection, guarantees, and responsibilities which are held by all citizens.

**Students’ Rights**

As members of the University community, students can reasonably expect the following:

1. Students have the right to freedom from discrimination or harassment on the basis of race, ethnicity, gender, sexual orientation, religion, creed, political beliefs, national origin, age, or handicap.

2. The University shall not interfere with the rights of students to join associations.

3. Students should have accurate information relating to maintenance of acceptable academic standing, graduation requirements, and individual course objectives and requirements.

4. Student records will be maintained in keeping with the Family Educational Rights and Privacy Act of 1974 and the guidelines for implementation.

5. In all instances of general discipline, academic discipline, and academic evaluation, the student has the right to fair and impartial treatment.

6. Colorado State University considers freedom of inquiry and discussion essential to a student’s educational development. Thus, the University recognizes the right of all students to engage in discussion, to exchange thought and opinion, and to speak, write, or print freely on any subject in accordance with the guarantees of Federal or State constitutions. This broad principle is the cornerstone of education in a democracy.

7. Students have the right to be free from illegal searches and seizures.

8. Students have the right to freely exercise their full rights as citizens. In this light, the University affirms the right of students to exercise their freedoms without fear of University interference for such activity.

**Students’ Responsibilities**

Students also have an obligation to know and follow the regulations of the University. Violations will form the basis for University intervention or disciplinary action. The following actions are prohibited:

1. Academic dishonesty such as cheating, plagiarism, or knowingly furnishing false information to the University. (Specific procedures for cases of academic dishonesty are reviewed under the Academic Rights and Responsibilities of Students in this section of this publication, the *Graduate and Professional Bulletin*, or the Honor Code of the Professional Veterinary School as applicable.)

2. Forgery, alteration, misuse, or mutilation of University documents, records, identifications, educational materials, University property, or unauthorized use of the University computer system, computer access codes, and University long distance calling identity codes.

3. Obstruction or disruption of teaching, research, administration, disciplinary procedures, and other University activities. Rioting, aiding, abetting, encouraging, participating in, inciting a riot, or any act of misconduct as defined is specifically forbidden on University premises.

4. Abusive conduct which threatens or endangers the physical or psychological health, safety, or welfare of an individual or a group of individuals; harassment of any member of the University community including harassment on the basis of race, sexual orientation, age, gender, religion, physical disability.

5. Intentional unauthorized interference with the right of access to University facilities, or freedom of movement or speech of any person on campus.

6. Failure to comply with the verbal or written directions of University officials acting in the performance of their duties and in the scope of their employment, or resisting police officers while acting in the performance of their duties.

7. Theft of, damage to, use of, or possession of other persons’ or University property in a manner inconsistent with its designated purpose; unauthorized entry, use, or occupation of University facilities, property, or vehicles.
8. Use or possession on University property of firearms or simulated weapons; ammunition or other dangerous weapons, substances, or materials; bombs, explosives, or incendiary devices prohibited by law. Weapons for sporting purposes shall be stored with the University police.

9. Violations of any rules, contracts, or agreements governing residence in or use of University owned or controlled property including authorized special events.

10. Unauthorized soliciting or selling in violation of University solicitation policy.

11. Violation of any federal or state law or local ordinance including but not limited to those covering alcoholic beverages, narcotics and illegal drugs, gambling, arson, sex offenses, assaults, harassment, violation of civil rights, disorderly conduct, or lewd, indecent, or obscene conduct or expression.

12. Aiding, abetting, conspiring, or inciting others to commit any act of misconduct set forth in 1 through 11 above.

13. Conviction of a crime of a serious nature. (Upon the filing of charges in the criminal or civil courts involving an offense of a serious nature and an administrative determination that the continued presence of the student would constitute a threat or danger to the University community, such person may be temporarily suspended pending the disposition of charges.)

**UNDERGRADUATE ADVISING POLICY**

In December 1999, an Advising Task Force of students, faculty, and staff, appointed by the Provost, endorsed the following statements from the June 7, 1999, Colorado Student Association Undergraduate Advising Policy:

“Academic advising is a relationship with mutual responsibilities between an advisor and student advisee, for timely consultation, sharing of accurate and complete information, careful listening, critical evaluation, and respectful interchange. Academic advising can be facilitated by professional staff person or a faculty member.

All students are entitled to a quality advising system to be provided by the college or university they attend. The following factors are characteristic of a quality advising system:

- Accessibility to students;
- An adequate amount of time spent in advising students;
- Familiarity with the requirements of a various university programs;
- Ability to relate successfully to a wide variety of students for the purpose of advising;
- Knowledge of resources available for the meeting of student’s needs and the keeping of adequate records.

**Advisor Role and Responsibilities:**
The academic advisor, whether faculty or staff member, serves as a coordinator of the students’ educational experiences. As such, the academic advisor’s responsibilities include the following:

- Help students define and develop realistic educational and career goals.
- Assist students in planning a program consistent with their abilities and interests.
- Assist students in monitoring and evaluating their educational progress.
- Discuss linkages and relationships between instructional program and occupational career.
- Assist students in identifying career opportunities. This includes utilizing on campus career centers and career counselors.
- Inform students of the nature of the advisor/student advisee relationship.
- Interpret and provide rationale for instructional policies, procedures, and requirements.
- Monitor all designated educational transactions *i.e.*, course selection, changes of major, graduation requirements, etc.
- Maintain an advising record for each student.
- Designate and post hours available for advising.

**Advisee Role and Responsibilities:**
Students carry a portion of responsibility in the advising process. In the interest of successfully completing a degree program, a student must be proactive in finding the necessary resources needed for attaining a degree. In order to contribute to an effective advising relationship, students are expected to:

- Schedule and attend advising sessions each semester prior to course registration. Advising sessions may be conducted via email or telephone, depending on the advisor or the advisee.
- Clarify personal values, abilities, interests, and goals.
- Become knowledgeable of all graduation requirements and adhere to institutional
policies, procedures, and deadlines.

- Prepare for each advising session.
- Follow through on actions identified during each advising session.
- Responsibly evaluate his/her advisor in order to strengthen the quality of advisement.
- Become familiar with career services and other campus resources."

Victims’ Rights

The University is committed to providing appropriate support and referrals to persons who have been the victims of crimes or violations of University policy. Persons who have been victimized by a Colorado State University student may choose to report the incident to the Colorado State University Police or the Office of Judicial Affairs to initiate criminal and/or disciplinary action. Victims also have the opportunity to receive personal support from appropriate University resources.

A complete, formal text of the Rights and Responsibilities of Students and disciplinary procedures is available in the Office of the Vice President for Student Affairs, 201 Administration Building.
Student Programs and Services

Office in Administration Building, Room 201
Grant Sherwood, Interim Vice President for Student Affairs

Student development programs and services, coordinated by the Division of Student Affairs, strive to develop graduates who assume their responsibilities as citizens. Much of citizen development takes place outside the classroom through student programs, activities, organizations, and services. Academic work and student life are interrelated. Student affairs faculty work closely with academic faculty to build an environment maximizing student growth.

ADVOCACY PROGRAMS

Asian/Pacific American Student Services
Office in Lory Student Center, Room 212

A major objective of the Asian/Pacific American Student Services (A/PASS) is to promote and support the academic success of Asian/Pacific students while providing opportunities for them to have an enriching overall University experience. In addition to the cultural, educational, and social programs it initiates and sponsors, A/PASS also provides direct support to students in a variety of ways. These include counseling in areas of financial, academic, personal, and career concerns. In addition, because the Office works with many other campus offices, it serves as an access to other support services and resources. Students are encouraged to take advantage of those services that will contribute to the achievement of their personal and academic goals.

Black Student Services
Office in Lory Student Center, Room 204

Black Student Services assists African-American students by providing support and encouragement for their academic, professional, cultural, and personal development. Black Student Services provides and coordinates services for African-American students with the Admissions Office, Financial Aid Office, HELP/Success Center, Academic Advancement Program, the University Counseling Center, and the general faculty. Black Student Services is committed to the philosophy of multiculturalism—recognizing and appreciating the differences within the African-American culture and appreciating other cultures.

El Centro Student Services
Office in Lory Student Center, Room 178

El Centro Student Services promotes and encourages the success of Hispanic/Chicano/Latino students at Colorado State University. Aimed at maximizing the students’ success potential while enrolled at the University, support services are provided in the areas of academic, cultural, and personal development. The services include academic advising, referrals, individual counseling, and the coordination of cultural activities that may facilitate adaptation to the University environment.

Native American Student Services
Office in Lory Student Center, Room 218

Native American Student Services is available to direct new and continuing students to University programs and services developed to help them enjoy and succeed in their college career. Native Student Services assists students in their personal, social, and academic growth at Colorado State by empowering students with the skills and strategies that will ensure a successful transition from their traditional home culture to university life; helps students make a positive transition to college life while maintaining the best of their traditional culture by emphasizing harmony and balance in their daily life; educates the University and Fort Collins communities about Native American history, culture, and philosophies, and about the unique needs of Native American students; recruits Native American students through professional and personal contacts with Native American reservation schools and other communities with large Native American student populations; and serves as an advocate for students during their time at Colorado State University.
Off-Campus Student Services/Resources for Adult Learners

Lory Student Center, Lower Level

The Resources for Adult Learners Office was established to provide support services to students age 23 and older, and other students of traditional age with nontraditional life circumstances. The Office strives to assist adult learners to become oriented to the University, adjust to the demands of academic life, and identify and use appropriate student support services. It is also a meeting place for students to gather with others of similar age and concerns to discuss issues and share information.

The Resources for Adult Learners Office provides information, counseling, and referral services to a network of University support people. The staff works to promote the self-development of adult learners by supporting them in the pursuit of their educational goals.

Resources for Disabled Students

Office in General Services Building, Room 100

The Office of Resources for Disabled Students coordinates the University’s efforts to seek full access to educational, cultural, and other programs sponsored by the University for any qualified student with a disability. Students with mobility, visual, hearing, or learning disabilities are eligible for support as well as students with chronic health conditions. Compensatory, informational, and advocacy services are available without charge and are provided dependent upon student need. Some of the services include: priority registration, note takers, readers, taped textbooks, interpreters, alternative testing, information on community resources, and advocacy to resolve individual situations.

Women’s Programs and Studies

Office in Student Services Building, Room 112

The Office of Women’s Programs and Studies provides service and programs with women as the focus. The Office serves all students—undergraduate and graduate, women and men. Its programs concentrate on expanding the awareness and interest levels of students while creating conditions that allow both women and men students to share fully and equally in the multitude of opportunities and resources provided by the University.

The support services are designed to reflect and enhance the expectations, goals, and aspirations of women, their concerns, and the contemporary issues confronting them.

Women's Programs and Studies provides the following services and programs to Colorado State University students and the campus community: Counseling and Referral; Women's Studies Program Advising; Materials Resource Center; Campus-wide Programs and Symposia; and Victim Assistance/Advocacy.

ATHLETICS

Intercollegiate Athletics

Offices in the McGraw Athletic Center

Colorado State University recognizes intercollegiate athletics as an integral part of its mission; and the University is committed to the pursuit of excellence with integrity in its athletic programs, as in all of its endeavors. The mission of intercollegiate athletics at Colorado State is to offer a quality experience in intercollegiate athletic competition to male and female student-athletes; to project a favorable public image of the University; to provide a rallying point for students, faculty, alumni, and the community; to ensure equity in men’s and women’s sports; to operate in full compliance with University, conference, and National Collegiate Athletic Association (NCAA) rules and regulations; to ensure that student-athletes are given the opportunity to excel to their best abilities in the classroom and on the playing field; to embrace the principles of ethical conduct and sportsmanship; to guard the physical and mental well-being of its student-athletes; to assure the fair and equitable treatment of student-athletes, coaches, and staff; and to provide an environment that welcomes and encourages diversity among participants, coaches, staff, and administrators.

The University is a member of Division I-A of the NCAA and competes in the Mountain West Conference. Other conference members include Brigham Young University, San Diego State University, the United States Air Force Academy, the University of Nevada-Las Vegas, The University of New Mexico, the University of Utah, and the University of Wyoming.

The Department of Intercollegiate Athletics is organized as an auxiliary enterprise supervised by the Director of Athletics. The Faculty Council Committee on Intercollegiate Athletics serves in an advisory capacity to both the President and the Director of Athletics. Regulations for the conduct of intercollegiate athletics conform to those established by the Mountain West Conference and the NCAA. The University's athletic policies are in harmony with the principles adopted by the North Central Association of Colleges and Schools.
The University sponsors men’s intercollegiate competition in basketball, cross country, football, golf, and track (indoor and outdoor). It sponsors women’s intercollegiate competition in basketball, cross country, golf, softball, swimming/diving, tennis, track (indoor and outdoor), and volleyball.

Student-athletes participating in intercollegiate athletics must comply with all eligibility and academic requirements of the University, the Mountain West Conference, and the NCAA, and are expected to make consistent and satisfactory progress towards completion of their degree programs. Student-athletes are also required to conduct themselves in conformance with the department’s specific expectations in the areas of academics, athletics, and social and outreach activities.

**Recreational Sports**

*Office in Student Recreation Center*

The Recreational Sports Department, located in the Student Recreation Center, offers a variety of recreation services to students. These include *informal recreation, fitness/wellness programs, physical therapy, intramural sports, club sports, and lifestyle classes.*

The Student Recreation Center is available to students paying full fees for informal recreation from early morning to late evening Monday through Friday and from late morning through evening on weekends. The Center houses:

- gymnasium with basketball/volleyball/badminton courts
- racquetball courts
- two Ricochet courts
- aerobics rooms
- swimming pool
- sports equipment check-out
- spa pool
- sun deck
- outdoor volleyball and basketball courts

A variety of drop-in fitness classes are offered throughout the day. A complete schedule of open hours and fitness classes is available at the Student Recreation Center.

In addition to offering fitness classes, the *fitness/wellness program* provides personal training, massage therapy, fitness/nutrition analyses, and exercise program designs. Personal trainers offer students personalized workout programs and certified massage therapists offer students relaxing, healing or therapeutic massages. SWEAT is the personalized fitness and nutrition assessment and exercise design program.

The Colorado State University Hartshorn Health Service provides *physical therapy* at the Student Recreation Center for students in need of rehabilitation. Initial assessment and appointments are made through the Health Service Physical Therapy Department.

The *intramural sports* program provides students an opportunity to compete against other Colorado State students in league sports, individual sports, and tournaments in women, men, and coed divisions during the fall, spring, and summer terms. League sports include:

- basketball
- flag football
- innertube water polo
- soccer
- softball
- volleyball

Individual sports and tournaments are one- or two- day activities including:

- doubles volleyball
- flag football
- golf
- indoor soccer
- innertube water polo
- ski race
- softball
- soccer
- tennis
- 3-on-3 basketball
- racquetball

Most activities take place on the intramural fields and in Moby Complex, both adjacent to the Student Recreation Center. Entries for all intramural programs are taken on the dates and times listed in the Program Calendar, available at the Intramural Sports Office in the Student Recreation Center.

*Club sports* at Colorado State are student-run sport organizations which operate on a modest budget and earn additional funding to run programs. The goal of the club sports program is to provide students with the opportunity to organize, coach, or participate in sports activities that fall beyond the scope of the intramural program.

A variety of both competitive and recreational clubs allows students to learn a sport, practice a sport, and oftentimes compete intercollegiately. Currently 36 club sports exist on campus from the highly competitive (competition is usually against other colleges, universities, and organized clubs):

- alpine ski racing
- baseball
- cycling
- ice hockey
- in-line hockey
- lacrosse
- polo
- rodeo
- rugby
- soccer
- ultimate
- volleyball
to the more recreational in nature (participation and
practice is usually with other Colorado State students; there is very little outside competition):

- badminton - skiing
- gymnastics - tennis
- martial arts - trap and skeet
- racquetball - water polo

Contact the Recreational Sports Office in the Student Recreation Center for the names of student officers of each club sport.

Lifestyle classes are alternative noncredit classes providing opportunities for students to grow and learn outside of the classroom. Students have a chance to learn new skills while having fun. There are over 100 lifestyle classes offered each year including:

- country western dance - martial arts
- CPR - massage
- dance - photography
- fencing - weight training
- guitar - yoga.
- lifeguard training

Specific course offerings are listed in the Lifestyle and Outdoor Adventure magazine available at the Student Recreation Center and the Lory Student Center. Also listed in the magazine are outdoor classes such as:

- backpacking - mountain climbing
- ice climbing - rock climbing
- kayaking - telemarking
- wilderness medicine.

Other recreational programs are provided through residence halls, fraternities and sororities, and the Lory Student Center.

THE CAREER CENTER

*Office in Ammons Hall, Room 105*

Career Center services are designed to assist all students in exploring how personality and workstyle fit educational and career options. Students work with counselors to develop a strategy to establish and achieve career/life goals. Services offered are: career counseling; interest testing; computer-assisted guidance programs (e.g., Sigi-Plus); career resource materials; a videotape library; workshops on skills, decision making, interests and values, and majors; two- and four-hour life-planning workshops; the Colorado State University majors file; and the “Career Connection” alumni contact file. Counselors work with students in a summary session to create a potential career description. Staff members are available to speak to classes regarding Career Center programs.

The Career Center provides career exploration, planning, and marketing services for Colorado State students and alumni. The Center serves all majors and colleges.

Students are provided current job and labor market information to assist them in their career development. The Center also provides specific information on various occupations and employers as well as opportunities for major-related summer jobs and internship positions. In addition, the Center also gathers employment statistics on recent graduates.

Services assisting undergraduates and graduate students as well as alumni in obtaining career employment include on-campus recruitment and interviewing opportunities, job vacancy information through JOBS ONLINE Resume Referral, the Career Resource Center with numerous career and job resources, and publication of *The Career Resource Guide*. Practice interviewing, which helps to increase the individual’s skill level in job interviewing, is also provided. Students may arrange resume and job-related correspondence critiques and have the option of providing a file copy of their resume for Resume Referral to potential employers. Staff members are also available to speak to classes and organizations regarding further information on the Career Center, resume writing, interviewing, and other job search strategies.

UNIVERSITY COUNSELING CENTER

*Office in Clark Building, Room C 36*

Based on a mental health model stressing personal development and prevention as well as remediation of problems, the Counseling Center offers a variety of services and programs to students. These services include individual and group counseling, couples counseling, academic/vocational counseling, and stress management programs for the reduction of personal, test-taking, math, and public speaking anxiety.

The University Testing Service, a service of the Counseling Center, provides testing as an adjunct to counseling, assists faculty with automated test scoring, coordinates Colorado State challenge exams, and administers national tests. Some national tests are available on computer. Call (970) 491-5060 for information and registration. The Testing Service is located in C 81, Clark Building.

The Counseling Center’s Learning Assistance Program provides services in general learning strategies, time
management, test-taking skills, memory and concentration enhancement, and study strategies for reading flexibility. In addition, diagnostic and limited remediation services are available for learning disabled students.

All counseling services are confidential. Hours of operation are 8:00 a.m.-5:00 p.m. Monday through Friday. Emergency consultation is available after hours by calling 491-7111. Call 491-6053 or come to C 36 Clark Building to make an appointment or obtain further information.

STUDENT FINANCIAL SERVICES

Administration Annex, Room 103

Student Financial Services administers a variety of institutional, state, federal, and private financial assistance programs for qualified students. Financial assistance programs include scholarships, grants, loans, and employment. Employment opportunities are also available in this office including the Work-Study Program, on-campus departmental positions, and community part-time employment.

See also, the Financial Assistance section of this publication.

HARTSHORN HEALTH SERVICE

Office in Hartshorn Health Service Building

The Hartshorn Health Service is staffed and equipped to provide outpatient care to meet most student needs. Outpatient services are available 7:30 a.m.-5:00 p.m., Monday through Friday. Saturday hours are 10:00 a.m.-1:00 p.m.; the Health Center is always closed on Sundays. X-ray, laboratory, pharmacy, physiotherapy, optometry, dental services, health education, alcohol education, and nutrition services are available. A pediatric clinic is available for children of students. Hours vary during summer session, breaks, and holidays.

All students carrying six or more credits are eligible to use the Center. Part-time students and spouses may elect to pay the health fee for care by enrolling at the Center. The student health fee allows physician visits without charge to the user.

All students are required to complete a health history form prior to treatment at the Center. This history initiates the student’s medical file and facilitates preventive medicine and emergency care. Medical records are confidential. No information is released without the patient’s written request.

Colorado State University, in compliance with Colorado State laws and Health Department regulations, requires persons born January 1, 1957, or later to show proof of immunity against measles (two doses), mumps (two doses), and rubella (two doses) by submitting an immunization certificate to the University Health Service prior to arrival at school. Additional information concerning immunization should be directed to Colorado State University, Hartshorn Health Service, Immunization, Fort Collins, CO 80523.

The Hartshorn Health Service reserves the right to change services, charges, or hours of operation without notice due to financial or other reasons.

A sickness and accident insurance policy is available for students and student dependents at low cost. This is in addition to the Hartshorn Health Service program funded by student fees. Insurance coverage is in effect during the school year and vacation periods. This policy is optional; however, students are encouraged to have some coverage. It is not necessary to have the student insurance in order to be treated at the Center. A Student Health Insurance brochure is available through the Service.

HELP/SUCCESS CENTER

Office in Durrell Center, Room 101
and Aylesworth NE, Room 202

The HELP/Success Center serves as an advising center for students enrolled in University Open Option, Open Option seeking business and engineering, Applied Human Sciences Open Option, ACCESS, pre-natural resource recreation and tourism, pre-restaurant and resort management, pre-technical journalism, GUEST, and other selected programs in the Division of Educational Outreach. University orientation programs are also coordinated by the Center.

General Services

The staff provides academic support including withdrawal procedures, academic advising, selection of a major, as well as career exploration and values clarification services to an increasing number of students.

Orientation Programs

All freshmen, transfer, readmitted, nontraditional, and international students attending Colorado State for the first time are urged to attend an orientation program. These programs are offered to help new students adjust to university life. During orientation, students meet with
New freshmen and their parents are particularly invited to attend Preview Colorado State, a one-and-a-half day orientation program held during summer. Other orientation programs are held just prior to registration, and The Premier welcomes new students to the University. Students receive orientation information soon after they are admitted. Questions should be directed to the Office of Orientation, HELP/Success Center, 202 Aylesworth Hall, NE.

OFFICE OF HOUSING AND FOOD SERVICES

Office in Palmer Center, 1005 W. Laurel

Residence Halls

Housing in the University residence halls provides services, programs, and facilities which are designed to enhance the student's total educational experience. Each residence hall is under the leadership of trained staff members, who are available to assist students in the development of programs, the understanding of policies, and to aid in the adjustment to University life.

Residence hall living allows students to actively participate in their hall’s student government organization and educational programming opportunities. These activities provide experiences in leadership development and cocurricular education which supplement classroom instruction and greatly enhance the quality of on-campus University life.

First-Year Students

Experience has demonstrated that adjustment to academic and social life is greater for first-year students living in residence halls. For this reason, all newly admitted first-year students without previous college experience, who are single, under 21 years of age, and not living with their parents, are required to live their first two consecutive semesters in residence halls. All residents are required to sign a contractual agreement, which includes meals, and is binding for the entire academic year.

Reservation

The residence hall reservation form, along with an informational brochure, is mailed to newly admitted students as part of the admissions packet. Inquiries from continuing students should be directed to the Office of Housing and Food Services.

Community Living Options

Colorado State University seeks to give students the opportunity to live in residence halls that provide special programs which support the “whole person.” Many of the programs allow residents the chance to interact with faculty members on a more informal basis, as well as provide special facilities for the use of the floor members.

The following programs are offered to give students a choice of environments in which to live. All inquiries should be directed to the Office of Housing and Food Services Assignment Coordinator. More specific information regarding each program is available upon request.

Aerospace Studies/AFROTC Floor is for any student enrolled in aerospace studies/AFROTC courses and interested in a future in the Air Force. Students will enjoy camaraderie with fellow cadets and interact with Air Force instructors and Air Force guest speakers. They will also be offered the opportunity to participate in a variety of activities, projects, and events showcasing Air Force ideals and lifestyle.

Alcohol Free Floors are for students who choose to abstain from the use of alcoholic beverages and wish to live with other students making a similar commitment.

Engineering Program provides the opportunity for engineering students to live and learn in an environment that supports their academic and personal growth. Since eighty-five percent of the average student’s week is spent outside the classroom, the living environment plays a major role in the educational experience.

Equine and Agricultural Science Floors support students who possess an interest in horses and other animals, soil and crop sciences, farm and ranch management, horticulture, landscape design, or agricultural business and economics.

Freshman Experience Program is for students interested in developing knowledge and skills to enhance their learning throughout their college careers. Students will take courses to help develop a deeper understanding of their own learning processes, communications, group dynamics, and human relations within a diverse and sustainable learning community.

Honors Program is a highly independent program where both social and educational programming is determined
by the needs and wants of all floor members. Honors residents provide the same quality leadership and activity as the other residents in the hall while providing themselves with the opportunity to meet other honors students and to enjoy an atmosphere conducive to their academic goals.

*International Awareness Hall* offers a residential experience for American and international students. There will be opportunities to meet friends who are interested in international travel, politics, cultures, foods, and cultural events.

*Key Academic Success Community* is based on high standards for academic performance combined with the support and resources needed to succeed. Students live and learn within a close-knit group and will attend at least three classes with others in the Key Community. Some classes will be linked into clusters by common themes and subject areas. Group study sessions outside class with other Key students and “master students” will reexamine classroom material. A freshman seminar will challenge students to examine the ideas of great thinkers while providing an introduction to the University and methods for effective learning. Key Community resident assistants will be available to help students evaluate their academic performance and progress throughout the year.

*Leadership Floor* residents are encouraged to become involved in the student organizations of Colorado State. Students will have the option of taking a personal development/leadership course that will help them learn new skills. The program provides an opportunity for student leaders across campus to interact with each other.

*Multimedia Floor* is for students with an interest in journalism, photography, graphic design, speech communication, film making, video art, international relations, or communication law. Darkroom facilities are available.

*Natural Resources Floors* support majors in this college with academic and outdoor opportunities as well as contact with student clubs.

*Natural Sciences Floors* are closely connected with the College of Natural Sciences. Tutoring and computer facilities are available to residents.

*Nontraditional-Age Student Floors* are directed toward the needs of the student who is 23 years or older. The floor provides a supportive environment to students, and programs are designed with the specific needs of this age group in mind. Students are encouraged to utilize the supportive services, programming events, and social occasions provided by the Resources for Adult Learners Office and the NTS Club.

*Performing and Fine Arts Floor* provides support and education in the fields of art, dance, music, and theatre. Students in these areas face different types of stress such as auditions, performances, shows, and deadlines. There is a multitude of programming options for this group of students.

*Personal Computer Floor* is open to students interested in computers and their applications. Computers are not provided, but students are encouraged to bring their own. Any students who will be taking computer classes can benefit from this living experience.

*Preventive Medical Floors* have an academic atmosphere. Students should be willing to learn about the prevet program and career alternatives. A mixture of prevet and veterinary medical students live on this floor.

*Spanish Honors Program* offers a unique living experience for Honors students with international interests and a desire to improve their Spanish language skills. Spanish Floor will provide students with the opportunity to experience the language and culture of Spanish-speaking countries. As part of this immersion experience, students will explore music, film, newspapers, and expressions of contemporary life; participate in cocurricular programming and interact with international students; and enroll in Spanish courses taught in the residence halls. Both academic and cocurricular activities will receive support from the University Honors Program, the Office of International Programs, the Department of Foreign Languages and Literatures, and Residence Life.

*Wellness Floor* students participate in a variety of programming and floor functions that center around spiritual, intellectual, emotional, relational, sexual, environmental, physical, and vocational dimensions.

**University Apartment Housing**

**Family Housing**

**Aggie Village**

Aggie Village offers 288 furnished and unfurnished apartments with single-level floor plans in two-story buildings. Centralized laundry facilities, playground areas, a fitness center, and community center are located in the Village. A number of modified apartments for physically disabled students are available upon request. All utilities, including local telephone service and cable television hook-up, are included in the monthly rent.
University Village

University Village is located west of campus. University Village at 1500 W. Plum consists of 150 two-bedroom furnished and unfurnished townhouse apartments. University Village at 1600 W. Plum offers 150 two-bedroom and 50 three-bedroom townhouse units. University Village at 1700 W. Plum consists of 24 three-bedroom and 56 two-bedroom unfurnished apartments. There are one-level apartments in this area which are wheelchair accessible. Central laundry facilities and playground areas are provided. A community center, study area, and fitness center are located in the Village. All utilities, including local telephone service and cable television hook-up, are included in the monthly rent.

Single Student Apartments (Graduate and 23 or Older Undergraduate)

Lory Apartments are located on the northwest side of the main campus. These buildings consist of one- and two-bedroom furnished units. The International House Apartments at 1400 W. Elizabeth consist of 198 one- and two-bedroom apartments. The two-bedroom apartments are designed to be shared with one other student and the one-bedroom apartments are rented to one student. Laundry facilities are available in each of the Lory Apartment buildings and at International House. All areas have community rooms. All utilities, including local telephone service and cable television hook-up, are included in the monthly rent.

Housing Assignments

The University apartment housing application and an informational brochure are mailed to newly admitted students along with their certificate of admission. Inquiries from continuing students should be directed to the Office of Housing and Food Services.

Priority for assignment is determined by date of application. Deposits are refundable in full, prior to assignment, upon request by the applicant. If the applicant is assigned to an apartment, the deposit is held as a damage deposit. Any credits and/or charges (including the damage deposit) will be submitted to the student’s account within 30 days after the resident vacates the apartment.

Pingree Park Campus

Pingree Park, the mountain campus of Colorado State University, is located 53 miles west of Fort Collins. The 1,192-acre campus lies at the foot of the Mummy Range on the north side of Rocky Mountain National Park at an elevation of 9,000 feet. From May through October, Pingree Park offers modern facilities for academic courses, research activities, conferences, workshops, and retreats. The cafeteria menu offers nutritious meals, and meeting rooms, audiovisual equipment, and other conference supplies are available.

The campus is open to the public for educational purposes. For further information, contact: Pingree Park Campus, Palmer Center, 1005 W. Laurel, Fort Collins, CO 80523, (970) 491-7377.

Off-Campus Housing

ASCSU Off-Campus Student Services

Office in Lory Student Center, Lower Level

For those who desire to live off campus, Off-Campus Student Services coordinates a free rental housing listing service for houses, duplexes, mobile homes, apartments, condominiums, rooms-in-homes, and rentals-to-share. The office also provides numerous services to help the student have a successful off-campus living experience. This includes information on tenant’s rights and responsibilities, lease interpretation, and roommate conciliation. Students planning to rent off-campus housing are encouraged to visit Off-Campus Student Services before completing any rental transactions and to personally inspect off-campus housing facilities before signing any rental agreements since the University takes no responsibility for these accommodations. Active listings are only provided in person. For other information and services available, call (970) 491-2248.

STUDENT LEGAL SERVICES

Office in Lory Student Center, Room 200

Student Legal Services is a group legal service providing legal advice, counsel, and representation to full fee-paying students on a variety of legal matters. Some of the more common cases involve tenant issues, traffic citations, consumer complaints, and wills. The staff works to educate clients about their legal rights and responsibilities and assist in the resolution of legal problems. Clients are encouraged to learn about the methods and procedures necessary to deal with legal problems, including negotiation, mediation, and small claims court. The staff is available for educational presentations on campus.
CHARLES A. LORY STUDENT CENTER

The Lory Student Center is the dynamic hub for Colorado State University that both encourages the life-long learning development of students, faculty, staff, and other community members, and serves the campus community’s service needs. Colorado State University advocacy and support offices, Campus Activities, and student organization offices comprise a large portion of the learning opportunities.

The Lory Student Center services and programs aim to create a stimulating and supportive atmosphere to complement academic learning and social enrichment. The recently completed East Addition allows Asian/Pacific American Student Services, Black Student Services, and Native American Student Services to join El Centro in providing more inclusive learning opportunities and cultural diversity in the Lory Student Center. Campus Activities, the Off-Campus Student Services/Resources for Adult Learners, and ASCSU (student government) facilitate many enriching leadership development opportunities, support services, and programming venues. The University Ombudsman Office, Student Legal Services, Office of Community Services, KCSU-FM, campus television, the Silver Spruce yearbook, and The Rocky Mountain Collegian (the daily newspaper) are also located in the Lory Student Center.

The Lory Student Center offers services vital to student and campus community life: the University Bookstore, Curfman Gallery, photocopying service, lounges, video game room, hair salon, floral service, travel agency, credit union, bike repair shop, outdoor equipment rental shop, convenience store, automated teller machines, and computer and technology store. Reservable space includes private dining and meeting rooms, ballrooms, and a 670-seat theater. An average day contains up to 70 meeting reservations with an attendance of 1,400. Student organizations frequently conduct meetings and cocurricular activities in the many available meeting rooms.

The Lory Student Center serves 25,000 Colorado State University community members each day. Dining choices include a full-service restaurant, coffeeshop, snackbars, fast-food restaurants, and a food court. The Lory Student Center Catering can also complement any activity with a full range of dining services from banquet to small meetings.

The expansive lawn and lagoon west of the Lory Student Center provide wonderful views of the foothills and Long’s Peak. The Plaza and Lory Student Center Sculpture Garden serve as gathering places for the Colorado State community.

Student Government

All full-time Colorado State students are members of Associated Students (ASCSU), the student governing body which promotes the interests and welfare of the student. Students are represented by student senators and the ASCSU cabinet.

Programs and services provided by ASCSU include renters’ information, bookswap, and off-campus student services.

Closely affiliated with student government are student-faculty committees including the Committee on Student Affairs, Athletic Advisory Committee, Lory Center Governing Board, Student Health Committee, and Student Fee Review Board.

UNIVERSITY OMBUDSMAN OFFICE

Office in Lory Student Center, Room 182

The University Ombudsman Office helps ensure that students, faculty, administrative professionals, and classified staff receive fair and equitable treatment within the University system. The Ombudsman considers all sides of an issue in an objective manner, then determines how best to help bring about a nonadversarial solution at the lowest administrative level. When appropriate, the Ombudsman can facilitate communication between parties who find themselves in a dispute. Other services offered include: information and referral; consultation on conflict resolution options and approaches; mediation; and training in conflict management. All contacts with the Ombudsman’s office are strictly confidential, as permitted by law.

UNIVERSITY POLICE DEPARTMENT

Office in Green Hall

The University Police Department is a full-service, accredited law enforcement agency whose officers are armed and have full law enforcement authority on all property owned or controlled by Colorado State. Officers possess peace officer commissions from the State of Colorado and the City of Fort Collins. The police department operates 24 hours a day, every day of the year. “911” access is TDD compatible and a TDD service line is available at (970) 491-2323.

University police enforce criminal and traffic laws,
investigate all crimes that occur on campus, make arrests, and maintain full integration with the criminal justice system, including close working relationships with the District Attorney’s Office, Fort Collins Police, Larimer County Sheriff’s Department, and other state and federal law enforcement agencies and investigation bureaus. The programs and services of the department are designed to meet the demands and needs of a growing and thriving University community.

The Bicycle Education and Enforcement Program (BEEP) is a unit of the police department designed to address bicycling issues on campus. Bicyclists on campus are expected to maintain compliance with Colorado State Bicycle Regulations which regulate the operation and parking of bicycles on campus. Bicyclists are expected to obey all traffic laws while operating a bicycle on campus or in the City of Fort Collins. Any persons who are affiliated with Colorado State must register their bicycle with the police department if they intend to ride their bicycle on campus. A copy of the regulations is available at the police department during normal business hours or the department Web site.

The Safe Walk Program is a service designed to assist those who walk during the hours of darkness. Trained Campus Service Officers are available to walk people to and from their destination within a defined service area. Call (970) 491-1155 or use any police service callbox on campus.

Visit the department website at http://www.colostate.edu/Depts/CSUPD/csupd.html for more program information and the Safety Update Report.

University Parking Services

Office in Green Hall, Room 201

Parking at Colorado State University is provided for faculty, staff, students, and visitors. Parking permits are required and can be purchased at the Office of University Parking Services. Colorado State has over 12,000 parking spaces on campus allocated to promote the best interests of the entire University community. For specific information, contact the Office of University Parking Services.
Scholastic Standards and Grading

SCHOLASTIC STANDARDS

HELP/Success Center
Office in 101 Durrell Center and
202 Aylesworth Hall, NE
Paul Shang, Director

Scholastic standards are mandated by the faculty through the University Scholastic Standards and Awards Committee. Procedures relative to scholastic standards are administered through the HELP/Success Center. Those students whose scholastic achievement is less than that required for graduation are placed on probation or dismissed from the University.

Policies on scholastic standards are within the purview of the faculty of Colorado State and may be changed at any time and for any reason. Policies regarding probation, dismissal, and appeal are determined by the faculty and the University in their absolute discretion subject to acceptance by the governing board of Colorado State.

In order to graduate, a minimum cumulative grade point average (CUM GPA) of 2.0 on a 4.0 scale must be earned at Colorado State University. The CUM GPA is based on grades of A, B, C, D, and F. A student is expected to maintain a CUM GPA of 2.0 or higher at all times. Grades earned in regular credit courses through the Division of Educational Outreach or the Colorado State summer session will count toward the CUM GPA regardless of when those classes are taken. Failure to maintain a CUM GPA of 2.0 or higher will result in one of the following actions.

Academic Probation

Failure to maintain a CUM GPA earned at Colorado State University of 2.0 or higher will result in academic probation for a period of two regular semesters (fall and spring). Grades earned in regular credit courses through the Division of Educational Outreach or the Colorado State summer session will count toward the CUM GPA regardless of when those classes are taken. At any time that the CUM GPA is raised to a 2.0 or higher, the student will return to regular academic standing.

Students who withdraw from Colorado State while on probation will remain on probation if they return to the University. Students on academic probation who return to Colorado State after attending another institution will continue their probation, since transfer credits are not computed within the CUM GPA earned at Colorado State.

Academic Dismissal

Students on academic probation who do not raise their CUM GPA to 2.0 or higher after two regular semesters (fall and spring) will be dismissed from the University. Students who have been academically dismissed will not be readmitted to Colorado State until a CUM GPA of 2.0 or higher is achieved by virtue of course work completed during the Colorado State summer session or through the Division of Educational Outreach. At any time that the CUM GPA is raised to 2.0 or higher, the student may apply for readmission to the University in regular academic standing.

Students may apply for readmission to the University provided that they have enrolled at another accredited institution and accumulated more than nine semester credits with a CUM GPA of 2.0 or higher in all courses completed since dismissal. Upon transferring back to Colorado State, students will have two semesters following re-enrollment to raise their CUM GPA earned at Colorado State to 2.0 or higher or face academic dismissal for a second time. Transfer credits are not computed within the CUM GPA earned at Colorado State.

Students who have raised their CUM GPA to a 2.0 or higher or who apply as students transferring from another institution may apply for readmission to the University subject to any enrollment limitation as set by the Colorado Commission on Higher Education or the governing board of the University.

PRIVILEGE OF APPEAL OF ACADEMIC DISMISSAL

Students have the privilege to appeal academic dismissal. A written appeal may be submitted to the HELP/Success Center for consideration by the Scholastic Standards and Awards Committee. All appeals must be submitted to the HELP/Success Center in accordance with the Center’s written instructions. All appeals of academic dismissal will be acted upon by the Scholastic Standards and Awards
ACADEMIC FRESH START

Undergraduate students may apply for an academic fresh start, a policy which allows students to establish a new academic record. A student may be granted a fresh start only once.

An academic fresh start may be granted only after five years have elapsed since the student’s last term of enrollment as a regular student, regardless of the number of credits taken. The time period during which courses were taken through the Division of Educational Outreach or the Colorado State summer session after leaving the University will not count as part of the five-year interval.

Applications for a fresh start will be made through the HELP/Success Center and should be submitted one semester prior to the academic term in which a student wishes to enroll in the University. Receipt of a fresh start does not guarantee admission but may aid the student in normal admissions procedures.

A student granted a fresh start and enrolled will have a demarcation on the permanent academic record to delineate the previous record from the new academic record achieved under the fresh start policy. Credits for those courses in which a grade of at least “C” or “S” was awarded prior to the fresh start may be applied toward graduation requirements under the fresh start policy. Only grades earned after the fresh start demarcation will be computed in the new GPA. The original grade and grades attempted in repeated courses will appear on the official transcript. Repeated credits earned are only used once to fulfill graduation requirements.

GRADING

Term grades are reported using the scale below.

Faculty use of +/- grading is optional. Course instructor(s) should indicate on the course syllabus and/or policy statement the grading system used in the course.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade points per credit</th>
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<tbody>
<tr>
<td>A+</td>
<td>4.00</td>
</tr>
<tr>
<td>A</td>
<td>(Excellent) 4.00</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>(Good) 3.00</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
</tbody>
</table>

C  (Average)  2.00
C-  1.67
D+  1.33
D  (Poor, but passing)  1.00
D-  0.67
I  (Incomplete)  *
F  (Failure)  0.00
W  (Withdrawal)  *
S  (Satisfactory)  **
U  (Unsatisfactory)  *
AU  (Audit)  *
NG  (No Grade Reported)  *

* Credits not used to compute grade point average (GPA) and not counted toward graduation.
** Credits not used to compute GPA but counted toward graduation.

Credits for courses graded F and WF are used to compute GPA, but they do not count toward graduation. (WF grades were not issued after Summer Session 1979.)

When an X is placed before the grade, e.g., XA, XB, etc., the student has been granted an academic fresh start. These grades are not calculated into the grade point average.

Students may contest whether or not an assigned grade was recorded accurately in the educational record by following the procedures described under Grading and Grade Appeals in the Student Rights and Responsibilities section.

Incompletes

At the discretion of the instructor, a temporary grade of “I” may be given to a student who demonstrates that he/she could not complete the requirements of a course due to circumstances beyond the student’s control and not reasonably foreseeable. A student must be passing a course at the time that an incomplete is requested unless the instructor determines that there are extenuating circumstances to assign an incomplete to a student who is not passing the course. When an instructor assigns an I, he/she shall specify in writing the requirements the student shall fulfill to complete the course as well as the reasons for granting an I when the student is not passing the course. The instructor shall retain a copy of this statement in his/her grade records and provide copies to the student and the department head or his/her designee.

After successful completion of the makeup requirements, incomplete grades will be changed by the instructor of record or the department head, in the absence of the instructor of record. After one year or at the end of the semester in which the student graduates (whichever comes first), an incomplete will be automatically changed to an F (failure) unless the course has been previously
completed and a grade change submitted by the instructor or the department head.

Grade Appeals

Instructors are responsible for stating clearly the instructional objectives of the course at the beginning of each term and for evaluating student achievement in a manner consistent with these objectives. Students are responsible for maintaining standards of academic performance established for each course in which they are enrolled. Instructors are responsible for determining and assigning final course grades. Graded examinations, papers, and other materials used as a basis for evaluating a student’s achievement will be available to the student for inspection and discussion.

Students may appeal instructors’ grading decisions. The burden of proof, however, rests with the student to demonstrate that the grading decision was made on the basis of any of the following conditions:

1. A grading decision was made on some basis other than performance and other than as a penalty for academic dishonesty.

2. A grading decision was based on standards unreasonably different from those which were applied to other students.

3. A grading decision was based on a substantial, unreasonable, or unannounced departure from previously articulated standards.

Before making an appeal, the student should discuss the situation with the instructor(s) involved in the decision.

To appeal a grading decision, the student shall submit a written request to the department chairperson. The request must set forth the basis for the appeal, identifying one of the three categories set forth above. The request must be submitted or postmarked, if mailed, no later than 30 calendar days after the first day of classes of the next regular semester following the date the grade was recorded. If no appeal is filed within this time period, the grade shall be considered final.

Within 30 days of receipt of the request for an appeal, the student’s appeal shall be provided to the instructor(s) who assigned the grade and an appeals committee formed in accordance with the departmental code. If the request is received prior to or during the summer session when the instructor(s) who assigned the grade or other faculty members may not be available, then the appeals committee will be formed no later than 30 days from the beginning of the following fall semester. This committee shall be composed of two faculty members and two students from within the department and one outside faculty member who shall serve as a voting chair.

The appeals committee will review the written appeal and response of the instructor(s). They may elect to separately interview both the student and the instructor(s) before rendering a decision. The decision of the appeals committee will be based upon whether one of the conditions for an appeal set forth above has been met. At the conclusion of the deliberations, the committee shall render one of the following decisions: 1) the original grading decision is upheld, or 2) the department chairperson or his/her designee(s) will reevaluate the student’s achievement of the instructional objectives of the course and assign a grade accordingly.

Written notice of the committee’s decision and the reasons for the decision normally will be sent to the student and the instructor(s) within 30 calendar days of the appointment of the committee. The appeal committee’s decision is the final decision of the University. Written summaries of the hearing and decision, together with a rationale for that decision, shall be provided to the student and the instructor who assigned the grade and shall be retained in the department office for a period of one year.
Registration and Student Records

Office of Records and Registration
Administration Annex, Room 100

REGISTRATION

Registration, including schedule changes (adds and drops), will be accomplished by students using touch tone telephones. In order to fully benefit from the system, it is essential that students follow the required procedures and conform to the established deadlines as presented in the applicable class schedule. Being prepared to register by telephone will minimize mistakes and time on the system, thereby reducing the demand during peak registration periods.

Registration Restrictions

Since portions of registration are completed by mail it is essential that students maintain a current mailing address with Enrollment Services. Deadlines for registrations and payments of tuition, fees, and other charges must be met to ensure registrations are confirmed. Therefore, students must respond to correspondence from the University in a timely manner. This may require authorization for others to act in the student’s behalf when they will be unavailable to receive their mail for a period of time.

Late Registration

A late registration charge of $50 is assessed for adding the first course on or after the first day of classes or for late adds after the registration period.

Class Schedule

The class schedule, which is available to students prior to the beginning of registration, announces registration procedures and courses to be offered during a given term. Enrollment must conform to the courses listed in the class schedule or its official addendum.

Faculty Advisers

A faculty adviser provides students with pertinent information about a major and assists in planning a program of study. The faculty adviser is associated with a student’s major department or field and is assigned by the department head or college dean.

Close cooperation and understanding between student and adviser is to a student’s advantage. Therefore, students are responsible for seeking out their advisers for aid in solving academic problems, especially before each registration.

Credit Load

A credit hour is defined as 50 minutes of lecture or discussion/recitation per week for 16 weeks (800 minutes in a semester), 100 minutes of laboratory per week for 16 weeks (1600 minutes in a semester) when outside preparation is required, or 150 minutes of laboratory per week for 16 weeks (2400 minutes in a semester) when no outside preparation is required. For workload planning purposes, students should expect that each credit hour will require approximately three hours (for some students in some classes, more time and in a few classes less time) of effort per week to attend classes and to accomplish readings and out-of-class assignments in preparation for successful completion of the course requirements.

Credit Overload

Undergraduate students who wish to register for more than 18 credits per semester must have an overload approved by their adviser and major department head.

Full-Time/Half-Time Enrollment Status

See information listed under Student Records in this section.

Class Attendance Regulations

At the discretion of the instructor in charge, any full-time student, faculty member, or senior citizen may attend any class without formal registration provided adequate classroom space is available.

Students should attend all classes for which they are registered to obtain maximum educational benefits. Absence or lateness does not excuse students from required course work.

Instructors and departments are responsible for
establishing class attendance policies. These policies must accommodate student participation in University-sanctioned extracurricular/cocurricular activities. Students must inform their instructors prior to the anticipated absence and take the initiative to make up missed work in a timely fashion. Instructors must make reasonable efforts to enable students to make up work which must be accomplished under the instructor’s supervision (e.g., examinations, laboratories). In the event of a conflict in regard to this policy, individuals may appeal using established University procedures.

Academic departments may replace any students in a course who fail to attend both of the first two regularly scheduled meetings of the class (one meeting for laboratory courses or for classes which meet once each week), unless the students have notified the department or the Office of Records and Registration in advance.

Since this procedure is a department option, students remain responsible for dropping courses they do not intend to complete and within the required time period for drops.

Repeating a Course

The original grade and grades earned in repeated courses are used in calculating grade point averages; however, repeated credits earned are only used once to fulfill graduation requirements.

Auditors

A student wanting to attend a class without earning credits may register as an auditor. Auditing a course requires prior approval of the instructor of the course. If an instructor determines that an auditor’s attendance or participation in the course is unsatisfactory, the course will not be recorded on the student’s academic record. Changes to or from audit status must be made during the registration or schedule change period. Tuition and fees are assessed for audited credits. Audits do not count for full-time status for loan deferments, financial aid, etc.

Student Option Pass/Fail

Students may elect pass/fail grading in one course per term in courses offered for student option pass/fail grading under the following conditions:

Undergraduate students, except first-term freshmen and transfers, with a cumulative Colorado State grade point average of 2.00 or better and with the adviser’s consent, may register for approved courses on a student option pass/fail basis. This work may not be in areas of study required in the student’s major or minor or for teacher licensure or for All-University Core Curriculum requirements (i.e., it must consist of free electives not specified as to general area of study. A 20-credit social science requirement, for example, would not be considered free electives.)

Performance equivalent to a grade of D+/D/D- or better is recorded as S (pass). Performance equivalent to F is recorded as U (fail). Neither the S or U grades are used in calculating the Colorado State grade point average; however, courses graded S may apply to graduation requirements. Changes to or from pass/fail grading by students must be made during the schedule change period.

A grade for a course taken as pass/fail may not be converted to a traditional grade for purposes of improving the GPA to meet graduation or scholastic requirements. In situations where students change their major or minor to include required courses taken previously for pass/fail grades, the major department will determine if such courses may be considered as fulfilling degree requirements. When it is determined that an ineligible student is or has been registered for a pass/fail course, a traditional grade will be assigned. Repeating a course on a pass/ fail basis for which a previous traditional grade was assigned will not alter the effect of the previous grade on the GPA. A correct pass/fail registration including adviser approval is the express responsibility of each student.

Schedule Change and Drop Periods

Periods for changing schedules (adds, drops, changes of sections, grading options, or credits) are listed in the University Calendar at the front of this publication and in the applicable class schedule. Courses dropped during this period are not reflected on the student’s academic record, and tuition and fees may be adjusted as a result. Consult the appropriate class schedule for the deadlines for each course.

The drop period begins after the schedule change period and closes at the end of the eighth week of the term. During this period courses may be dropped and a W (withdrawal) will be recorded on the academic record. No drops may be made after this period. See also, Class Attendance Regulations in this section. Tuition and fees will not be adjusted for drops during this period.

Courses taught in terms of less than 16 weeks are subject to proportionately shorter drop periods.

Students withdrawing from the University may not use the drop procedure but must contact the HELP/Success Center. See also Withdrawal from Colorado State in this section.
Discontinuing a Class

If a student discontinues attending a class and has not officially dropped through the Office of Records and Registration, the grade of F (failure) is recorded.

Independent Study

Independent study is a type of learning that supplements regular, supervised classroom instruction by permitting the student to carry such learning even further, working independently under necessary and sufficient guidance of a supervising instructor. While details of each independent study project are negotiated by the student and instructor, the expectation is that at least three hours per week of directed effort on the student’s part is required for each credit. Personal contact (face-to-face, via telephone or Internet, or by other forms of communication) is expected.

When a student registers for an independent study (-94, -95) course, the instructor and the student shall specify in writing the requirements the student shall fulfill to complete the course, including due date, contact expectations, number of credits, and other pertinent information. Instructor, student, and department head shall sign this statement, and each shall retain a copy. Upon completion of the project, a copy or description of the work involved shall be retained in the department for at least seven years.

STUDENT RECORDS

Administration Annex, Room 100

Undergraduate Classification

Student level (class) is determined by the number of credits earned (passed) at Colorado State and credits accepted in transfer. Transfer credits may or may not be acceptable in meeting degree requirements.

<table>
<thead>
<tr>
<th>Student Level</th>
<th>Semester Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>0-29</td>
</tr>
<tr>
<td>Sophomore</td>
<td>30-59</td>
</tr>
<tr>
<td>Junior</td>
<td>60-89</td>
</tr>
<tr>
<td>Senior</td>
<td>90 and over</td>
</tr>
</tbody>
</table>

Change of Address

Each student is required to submit a change of address form to Enrollment Services for any change of current address.

Full-Time/Half-Time Enrollment Status

Enrollment status (full-time, half-time) is determined by the number of credits which the student has completed or is pursuing for the term in which the certification is requested. Courses from which the student has withdrawn or is auditing are not included. (The following schedule for enrollment status differs from the full-time/part-time schedule for tuition and fees.) Credit requirements are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Undergraduates</th>
<th>Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall/Spring Semesters:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>12 or more credits</td>
<td>9 or more credits</td>
</tr>
<tr>
<td>Half-time</td>
<td>6-11 credits</td>
<td>5-8 credits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Summer Session:</th>
<th>Undergraduates</th>
<th>Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>6 or more credits</td>
<td>5 or more credits</td>
</tr>
<tr>
<td>Half-time</td>
<td>3-5 credits</td>
<td>3-4 credits</td>
</tr>
</tbody>
</table>

Contact the Office of Records and Registration for certification of enrollment status, level (class), grade average, and term(s) of attendance.

Change of Undergraduate Major

Any undergraduate student regularly enrolled in the University may transfer from one major to another, exclusive of those majors involving a formal selection process, or those having established course requirements or internal limits on changes.

Students wishing to transfer from one noncontrolled major to another can obtain information about the transfer process and a change of major form from the Office of Records and Registration. All changes of major are processed through this Office.

Information and help with choosing a major, including reviewing controlled majors that have formal selection processes limiting admission to those majors can be obtained from the HELP/Success Center.

Withdrawal from Colorado State

Withdrawal (to drop all courses and leave the University) is different from dropping one or more classes. See also, Schedule Change and Drop Periods in this section. If the first day of the semester has not yet begun, students may
cancel their course schedule on the phone registration system. Students who are planning to drop all courses and leave the University for any reason during a term must contact the HELP/Success Center (Room 101, Durrell Center/Room 202, Aylesworth NE) prior to their departure. Unless this procedure is followed, students are not eligible for an adjustment (if appropriate) of tuition and fees even if withdrawal is within the authorized period. Students leaving the University without officially withdrawing receive failing grades in all courses.

Normally a withdrawal is not permitted during the last two weeks of the semester.

Retroactive Withdrawal

A student may request that all grades in an academic period (one or more semesters of continuous enrollment) be retroactively removed and be replaced by entries of W on his/her transcript. A retroactive withdrawal may be granted only when a student has experienced circumstances or an incident of such trauma and major proportions that reasonably he/she could not have been expected to have possessed normal capabilities necessary to complete the academic period satisfactorily. The student must submit a written request with supporting documentation for the retroactive withdrawal to the HELP/Success Center (101 Durrell or 202 Aylesworth).

Taking Courses at Another Institution

Enrolled students who expect to take undergraduate courses at another institution for transfer to Colorado State University must obtain a Request for Permission to Take Off-Campus Course Work from the Degree and Transfer Evaluation Office. The appropriate academic department must determine if courses will fulfill Colorado State degree requirements before the students enroll for the transfer work.

Students are responsible for insuring an official transcript will be sent to the Degree and Transfer Evaluation Office after the completion of the off-campus course work. No credit will be evaluated until an official transcript has been received. Courses with less than a C- grade are not accepted as transfer credit toward a degree at any time, in any major.

The student must file an Application for Readmission with the Office of Admissions prior to leaving campus if the course work is taken any term other than summer session.

Final Examinations

Final examinations, when appropriate, are given during the final week of each semester. During this week, classes are rescheduled to meet for two-hour periods.

The following procedures apply to all courses during the final week of the semester:

1. Final examination week is part of the regular semester. Student attendance shall be consistent with University policy.

2. The final in-class examination period is intended for the end-of-semester examination. No in-class examination constituting more than 10% of the final course grade may be given in undergraduate courses during the week preceding the final examination period of the semester; laboratory, performance, and other alternative classes (e.g., courses in the individualized mathematics program) excluded. It is the responsibility of the department head, or where appropriate, the school head, to ensure compliance with this policy.

3. Courses for less than four credits shall meet for one period. Courses for four or more credits may meet for two periods.

4. Classes shall meet only at the times indicated on the final examination schedule.

5. Any approved exception of regulations 1, 3, and 4 above, e.g., special types of examinations which need more time or special locations to conduct, shall be announced by the second week of class and communicated in writing to the Registrar.

6. If a student has three or more final examinations (not classes) scheduled for the same day or if conflicts of examination times occur, the student may negotiate a time change with the instructors involved. If the parties involved cannot find a mutually agreeable time, the Registrar's office indicates which courses must be changed.

7. Any student who has a conflict with the examination schedule must inform the instructor as soon as possible before the examination. If an agreement cannot be reached between the instructor and student as to the appropriateness of a make-up examination, the student should appeal to the department head.
Students Called to Active Duty

Any student reservist called to active military duty may, upon presentation of a copy of her/his orders to the HELP/Success Center, be given a grade of incomplete in courses for which she/he is registered. The student or her/his designee may make this request in person, by letter, or by telephone; however, the request will not be processed by the HELP/Success Center until a copy of the orders is received. The HELP/Success Center advisers will counsel with the student or her/his designee and the student’s instructors to select the option (either withdrawal from the University, cancellation of courses, or taking of an incomplete) that is most appropriate to that student’s situation.

The grade of incomplete shall remain on the student’s record for a period not to exceed one year following the end of the semester in which the student re-enrolls at Colorado State. By this date, the grade will be changed by the instructor or department head of record, or it will revert to a grade of F. It will be the responsibility of the HELP/Success Center personnel to track these students and to keep the Office of Records and Registration notified of the status of these students since the time period in which the incomplete grade may remain on the record may vary from the normal University time limits for resolution of incompletes.

Transcripts

Transcripts of students’ official academic records are maintained by and may be requested from the Office of Records and Registration.
All-University Core Curriculum

Office of Vice Provost for Undergraduate Studies
Administration Building, Room 108

All Colorado State University students share a learning experience in common and faculty from across the University contribute to that experience.

Each baccalaureate Program of Study must incorporate the following elements:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. First Year Seminar</td>
<td>2-3</td>
<td></td>
</tr>
<tr>
<td>2. Core Competencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Written Communication</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>B. Additional Communication</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>C. Mathematics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>D. Logical/Critical Thinking</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>3. Foundations and Perspectives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Biological/Physical Sciences</td>
<td>7</td>
<td>(At least one course will have an associated lab)</td>
</tr>
<tr>
<td>B. Arts/Humanities</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>C. Social/Behavioral Sciences</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>D. Historical Perspectives</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>E. Global and Cultural Awareness</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>F. U.S. Public Values and Institutions</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>G. Health and Wellness</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4. Depth and Integration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Each major must designate courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Each major must designate courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Every major must require a capstone</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Credit courses are advised to see if their preferred program of study has particular recommendations for satisfying All-University Core Curriculum requirements.

What follows is a brief description of each category in the All-University Core Curriculum and a list of the courses currently approved to meet that category for the year 2000-2001:

**Category 1. First Year Seminar**

The objective of the First-Year Seminar requirement is to engage students intellectually through rigorous academic study in small-class or group settings and to connect them to faculty, other students, and Colorado State University.

The following first year seminars are being offered during Fall 2000 or Spring 2001.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
<td>3</td>
</tr>
<tr>
<td>BCC 192</td>
<td>Biochemistry Freshman Seminar</td>
<td>2</td>
</tr>
<tr>
<td>BGCC 192</td>
<td>First-Year Seminar in Business</td>
<td>3</td>
</tr>
<tr>
<td>BZCC 192</td>
<td>First-Year Seminar in Life Sciences</td>
<td>2</td>
</tr>
<tr>
<td>CCC 192</td>
<td>Introductory Seminar in Chemistry</td>
<td>2</td>
</tr>
<tr>
<td>CBCC 192</td>
<td>Strategies of Engineering Design</td>
<td>3</td>
</tr>
<tr>
<td>CECC 192</td>
<td>Civil Engineering Principles II</td>
<td>3</td>
</tr>
<tr>
<td>COCC 192</td>
<td>Academic Writing</td>
<td>3</td>
</tr>
<tr>
<td>EDCC 192</td>
<td>Learning and Community</td>
<td>3</td>
</tr>
<tr>
<td>EEC 192</td>
<td>Electrical Engineering Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>ERCC 192A</td>
<td>Physical Geology and Forestry Seminar</td>
<td>4</td>
</tr>
<tr>
<td>ERCC 192B</td>
<td>First-Year Seminar in Earth Resources</td>
<td>2</td>
</tr>
<tr>
<td>F CC 192</td>
<td>Forestry Inquiries</td>
<td>2</td>
</tr>
<tr>
<td>FWCC 192</td>
<td>Wildlife Inquiries</td>
<td>2</td>
</tr>
<tr>
<td>HPCC 192A</td>
<td>First-Year Seminar</td>
<td>4</td>
</tr>
<tr>
<td>HSCC 192</td>
<td>Applied Human Sciences First Year Seminar</td>
<td>2</td>
</tr>
<tr>
<td>IUC 192</td>
<td>The Individual, University, and Society</td>
<td>3</td>
</tr>
<tr>
<td>JTCC 192</td>
<td>Journalistic Writing</td>
<td>3</td>
</tr>
<tr>
<td>KACC 192</td>
<td>Key Academic Community Seminar</td>
<td>3</td>
</tr>
<tr>
<td>L CC 192</td>
<td>Modern Languages/Cultures: Italian and Japanese</td>
<td>3</td>
</tr>
<tr>
<td>LBCC 192</td>
<td>College of Liberal Arts First-Year Seminar</td>
<td>3</td>
</tr>
<tr>
<td>M CC 192</td>
<td>First-Year Seminar in Mathematical Sciences</td>
<td>1</td>
</tr>
<tr>
<td>MBCC 192</td>
<td>Microbiology First-Year Seminar</td>
<td>2</td>
</tr>
<tr>
<td>MECC 192</td>
<td>Introduction to Mechanical Engineering</td>
<td>2</td>
</tr>
<tr>
<td>MUCC 192</td>
<td>Introduction to Music History and Literature</td>
<td>3</td>
</tr>
<tr>
<td>NRCC 192</td>
<td>Natural Resources Freshman Seminar</td>
<td>2</td>
</tr>
<tr>
<td>NSCC 192</td>
<td>Introductory Seminar</td>
<td>2</td>
</tr>
<tr>
<td>PHCC 192</td>
<td>The Flying Circus of Physics</td>
<td>2</td>
</tr>
</tbody>
</table>
Category 2. Core Competencies.

The Core rests upon the acquisition and effective practice of fundamental competencies. These include the ability to write clearly, speak effectively, understand and apply quantitative reasoning, make sense of abstract ideas, reason analytically, and read critically and with comprehension. Acquisition of these competencies is the primary objective of courses in this part of the Core.

A. Written Communication. The ability to write correctly and effectively is necessary for success in any academic program and enhances the possibility of one's success in personal and professional life. The objective of courses in this category is to provide instruction in the skills essential to effective written communication, extensive practice in the use of those skills, and evaluation of students’ writing aimed to guide them in improving their skills.

B. Additional Communication. Building on and adapting basic skills and strategies already developed in the course in Written Communication, the objective of this requirement is structured according to three different options:

1. Oral Communication -- development of effective rhetorical skills in oral communication.

   SPCC 200  Public Speaking  3

2. Advanced Writing -- enhancement of skills in written communication.

   COCC 300  Writing Arguments  3
   COCC 301A-D  Writing in the Disciplines  3
   COCC 302  Writing Online  3
   JTCC 300  Professional and Technical Communication  3

   1 Also listed in category 2D. Course may count in one category or the other, but not both.

3. Second Language -- enhancement of communication competencies in a second, or alternative, language.

   (Between F2000 and F2002, students may satisfy this option if they take and complete LCC 200 or if they reach an equivalent level of competence as measured in an examination procedure.)

C. Mathematics. The objective of the Mathematics requirement is to ensure that students develop mathematical skill and understanding essential for describing events, experiences, and the knowledge base of other disciplines. Mathematics encourages a mode of thought that encompasses abstraction and generalization and permits careful analysis as well as explicit calculation.

   M CC 117  College Algebra in Context I  1
   M CC 118  College Algebra in Context II  1
   M CC 120A-B  College Algebra I  1
   M CC 121  College Algebra II  1
   M CC 124  Logarithmic and Exponential Function  1
   M CC 125  Numerical Trigonometry  1
   M CC 126  Analytic Trigonometry  1
   M CC 130  Math in the Social Sciences  3
   M CC 133  Financial Mathematics  3
   M CC 135  Patterns of Phenomena I  3
   M CC 141  Calculus in Management Sciences  3
   M CC 155  Calculus for Biological Scientists I  4
   M CC 160  Calculus for Physical Scientists I  4
   M CC 161  Calculus for Physical Scientists II  4
   M CC 255  Calculus for Biological Scientists II  4
   M CC 315  Mathematics for Economists  4

D. Logical/Critical Thinking. The objective of the Logical/Critical Thinking requirement is to further develop, in a focused course of study, analytical and reasoning skills that students can use to assess information and concepts in order to make informed judgments and decisions.

   CBCC 104  Strategies of Engineering Problem Solving  3
   CECC 208  Civil Engineering Analysis I  3
   COCC 300  Writing Arguments  3
   CSCC 151  C++ for Scientists and Engineers  4
   CSCC 153  Java Programming  4
   EHC 307  Research in Applied Professions  3
   HSCC 101  Research in Applied Professions  3
   PLCC 110  Logic and Critical Thinking  3
   SPCC 207  Rhetoric and Argumentation  3
   STCC 101  Activity Based Statistics  3
   STCC 110  Statistical Thinking: Concepts and Applications  3
   STCC 201  General Statistics  3
   STCC 204  Statistics for Business Students  3
   STCC 301  Introduction to Statistical Methods  3
   STCC 307  Introduction to Biostatistics  3
   STCC 309  Statistics for Engineers and Scientists  3
   STCC 311  Statistics for Behavioral Sciences I  3

   1 Also listed in category 2B2. Course may count in one category or the other, but not both.
**Category 3. Foundations and Perspectives.**

The Core rests on acquiring foundations of knowledge and understanding intellectual perspectives. Courses in this category of the Core are designed to bring the skills developed in Core Competencies to life and give them direction and purpose. Elements of *foundation* offer exemplary introductions to fields and areas of study that explore their distinctive characteristics as well as critical links within and among them. Elements of *perspective* promote coherence and integration of knowledge within and among fields and areas of study, often through the exploration of significant thematic issues. *Foundation* elements frequently will be introduced in disciplinary contexts. *Perspective* elements typically will be structured comparatively and enlivened through interdisciplinary contexts.

**A. Biological/Physical Sciences.** The objective of the Biological/Physical Sciences requirement is to instill a clear understanding of the basic scientific viewpoint, to master scientific knowledge at a level that facilitates communication in an increasingly technological society, to employ and build on core competencies in mathematics and logical/critical thinking, to enable students to learn and use the scientific method, and to evaluate the impacts of science and technology on society.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AACC 100</td>
<td>Introduction to Astronomy</td>
<td>3</td>
</tr>
<tr>
<td>AACC 101</td>
<td>Astronomy Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>APCC 120</td>
<td>Human Origins and Variation</td>
<td>3</td>
</tr>
<tr>
<td>APCC 121</td>
<td>Human Origins and Variation Laboratory</td>
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<tr>
<td>BZCC 101</td>
<td>Humans and Other Animals</td>
<td>3</td>
</tr>
<tr>
<td>BZCC 104</td>
<td>Basic Concepts of Plant Life</td>
<td>3</td>
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<tr>
<td>BZCC 105</td>
<td>Basic Concepts of Plant Life Laboratory</td>
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<tr>
<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
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<td>Animal Biology Laboratory</td>
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<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
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<td>C CC 103</td>
<td>Chemistry in Context</td>
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<tr>
<td>C CC 104</td>
<td>Chemistry in Context Laboratory</td>
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<tr>
<td>C CC 107</td>
<td>Fundamentals of Chemistry</td>
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<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory</td>
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<tr>
<td>C CC 111</td>
<td>General Chemistry I</td>
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<tr>
<td>C CC 112</td>
<td>General Chemistry I Laboratory</td>
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</tr>
<tr>
<td>ENCC 102</td>
<td>Insects, Science, and Society</td>
<td>3</td>
</tr>
<tr>
<td>ERCC 130</td>
<td>Earth System Science</td>
<td>3</td>
</tr>
<tr>
<td>ERCC 140</td>
<td>Physical Geology</td>
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<tr>
<td>ERCC 304</td>
<td>Principles of Watershed Management</td>
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<tr>
<td>H CC 100</td>
<td>Horticultural Science</td>
<td>4</td>
</tr>
<tr>
<td>L SCC 102</td>
<td>Attributes of Living Systems</td>
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</tr>
<tr>
<td>NSCC 101</td>
<td>Phenomena of Matter and Energy</td>
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<tr>
<td>NSCC 102</td>
<td>Phenomena of Life</td>
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<tr>
<td>PHCC 110</td>
<td>Descriptive Physics</td>
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<td>PHCC 111</td>
<td>Descriptive Physics Laboratory</td>
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<tr>
<td>PHCC 121</td>
<td>General Physics I</td>
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<tr>
<td>PHCC 122</td>
<td>General Physics II</td>
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<tr>
<td>PHCC 141</td>
<td>Physics for Scientists and Engineers I</td>
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</tr>
<tr>
<td>PHCC 142</td>
<td>Physics for Scientists and Engineers II</td>
<td>5</td>
</tr>
</tbody>
</table>

1 At least one course must have a laboratory component.

**B. Arts/Humanities.** The arts and humanities explore expressions that are uniquely human. The objective of the Arts/Humanities requirement is to investigate the cultural character and literatures of human experiences, fundamental questions of value and meaning, and, both in word and beyond words, the symbols and creative expressions of human life.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCC 100</td>
<td>Introduction to the Visual Arts</td>
<td>3</td>
</tr>
<tr>
<td>D CC 110</td>
<td>Understanding Dance</td>
<td>3</td>
</tr>
<tr>
<td>E CC 140</td>
<td>The Study of Literature</td>
<td>3</td>
</tr>
<tr>
<td>E CC 232</td>
<td>Introduction to Humanities</td>
<td>3</td>
</tr>
<tr>
<td>E CC 238</td>
<td>20th Century Fiction</td>
<td>3</td>
</tr>
<tr>
<td>E CC 242</td>
<td>Reading Shakespeare</td>
<td>3</td>
</tr>
<tr>
<td>E CC 245</td>
<td>World Drama</td>
<td>3</td>
</tr>
<tr>
<td>E CC 270</td>
<td>Introduction to American Literature</td>
<td>3</td>
</tr>
<tr>
<td>E CC 275</td>
<td>Introduction to British Literature</td>
<td>3</td>
</tr>
<tr>
<td>ETCC 205</td>
<td>Ethnicity and the Media</td>
<td>3</td>
</tr>
<tr>
<td>ETCC 240</td>
<td>Native American Cultural Expressions</td>
<td>3</td>
</tr>
<tr>
<td>ETCC 256</td>
<td>Americans in a Changing World</td>
<td>3</td>
</tr>
<tr>
<td>E CC 250</td>
<td>Language, Literature, Culture in Translation</td>
<td>3</td>
</tr>
<tr>
<td>MUCC 100</td>
<td>Music Appreciation</td>
<td>3</td>
</tr>
<tr>
<td>MUCC 111</td>
<td>Music Theory Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>MUCC 231</td>
<td>Women in Music</td>
<td>3</td>
</tr>
<tr>
<td>PLCC 100</td>
<td>Appreciation of Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>SPCC 100</td>
<td>Communication and Popular Culture</td>
<td>3</td>
</tr>
<tr>
<td>SPCC 201</td>
<td>Rhetoric in Western Thought</td>
<td>3</td>
</tr>
<tr>
<td>THCC 141</td>
<td>Introduction to Theatre</td>
<td>3</td>
</tr>
</tbody>
</table>

1 Also listed in category 3E. Course may count in one category or the other, but not both.

**C. Social/Behavioral Sciences.** The social/behavioral sciences use similar methods of description and analysis to study the complex behaviors of individuals and their relationships with others in families, public associations, and cultures. The objective of the Social/Behavioral Sciences requirement is to explore the forms and implications of individual and collective behaviors, their ties to formal institutions, and the methods by which they are studied.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>APCC 100</td>
<td>Introductory Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>APCC 101</td>
<td>Cultures of the World</td>
<td>3</td>
</tr>
<tr>
<td>EACC 202</td>
<td>Agricultural and Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECC 101</td>
<td>Economics of Social Issues</td>
<td>3</td>
</tr>
<tr>
<td>ECC 202</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>HDCC 101</td>
<td>Individual and Family Development</td>
<td>3</td>
</tr>
<tr>
<td>JTCC 100</td>
<td>Introduction to Mass Media</td>
<td>3</td>
</tr>
<tr>
<td>POCC 101</td>
<td>American Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>POCC 103</td>
<td>State and Local Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>POCC 232</td>
<td>International Relations</td>
<td>3</td>
</tr>
<tr>
<td>POCC 241</td>
<td>Comparative Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>PYCC 100</td>
<td>General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>S CC 100</td>
<td>General Sociology</td>
<td>3</td>
</tr>
<tr>
<td>S CC 105</td>
<td>Social Problems</td>
<td>3</td>
</tr>
</tbody>
</table>

1 Also listed in category 3D. Course may count in one category or the other, but not both.
### D. Historical Perspectives

The objective of the Historical Perspectives requirement is to engage students in an analytical, chronological study of significant, multi-dimensional human experiences. It should also provide students with a foundation for relating beliefs about the past to aspirations for the future.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>APCC 140</td>
<td>Introduction to Prehistory</td>
<td>3</td>
</tr>
<tr>
<td>APCC 141</td>
<td>Humans in Prehistory</td>
<td>3</td>
</tr>
<tr>
<td>AUCC 200</td>
<td>Self/Community in American Culture, 1600-1877</td>
<td>3</td>
</tr>
<tr>
<td>AUCC 201</td>
<td>Self/Community in American Culture, Since 1877</td>
<td>3</td>
</tr>
<tr>
<td>DMCC 263</td>
<td>Historical Perspectives of Material Culture</td>
<td>3</td>
</tr>
<tr>
<td>E CC 270</td>
<td>Introduction to American Literature</td>
<td>3</td>
</tr>
<tr>
<td>E CC 275</td>
<td>Introduction to British Literature</td>
<td>3</td>
</tr>
<tr>
<td>ETCC 250</td>
<td>African American History, 1619-1865</td>
<td>3</td>
</tr>
<tr>
<td>ETCC 251</td>
<td>African American History Since 1865</td>
<td>3</td>
</tr>
<tr>
<td>ETCC 252</td>
<td>Asian American History</td>
<td>3</td>
</tr>
<tr>
<td>ETCC 253</td>
<td>Chicana/o History and Culture</td>
<td>3</td>
</tr>
<tr>
<td>ETCC 255</td>
<td>Native American History</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 100</td>
<td>Western Civilization, Pre-Modern</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 101</td>
<td>Western Civilization, Modern</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 150</td>
<td>U.S. History to 1876</td>
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</tr>
<tr>
<td>HYCC 151</td>
<td>U.S. History Since 1876</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 170</td>
<td>World Civilizations, Ancient-1500</td>
<td>3</td>
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<tr>
<td>HYCC 171</td>
<td>World Civilizations, 1500-Present</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 216</td>
<td>The Islamic World</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 230</td>
<td>Medieval Europe</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 235</td>
<td>Slavic and East Central European Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 250</td>
<td>African American History</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 251</td>
<td>African American History Since 1865</td>
<td>3</td>
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<tr>
<td>HYCC 253</td>
<td>Asian American History</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 255</td>
<td>Native American History</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 270</td>
<td>Colonial Latin America</td>
<td>3</td>
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<tr>
<td>HYCC 271</td>
<td>Latin America Since Independence</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 273</td>
<td>Asian Civilizations I</td>
<td>3</td>
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<tr>
<td>HYCC 274</td>
<td>Asian Civilizations II</td>
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<tr>
<td>NRCC 320</td>
<td>Natural Resources History and Policy</td>
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<tr>
<td>PLCC 120</td>
<td>History and Philosophy of Scientific Thought</td>
<td>3</td>
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<tr>
<td>POCC 131</td>
<td>Current World Problems</td>
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</tr>
<tr>
<td>POCC 232</td>
<td>International Relations</td>
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</tbody>
</table>

1. Course is also approved in category 1 and can count for both categories if it is taught as a first-year seminar. This course is currently not being offered as a first-year seminar.
2. Also listed in category 3F. Course may count for both categories.
3. Also listed in category 3D. Course may count in one category or the other, but not both.
4. Also listed in category 3E. Course may count in one category or the other, but not both.
5. Also listed in category 3C. Course may count in one category or the other, but not both.

### E. Global and Cultural Awareness

The objective of the Global and Cultural Awareness requirement is to engage students in the study of particular cultural identities, explore the interactions among these cultural identities, and consider the ways in which these patterns of interaction are related to the larger global context in which they take place.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>A CC 116</td>
<td>Plants and Civilization</td>
<td>3</td>
</tr>
<tr>
<td>A CC 270</td>
<td>World Interdependence-Population and Food</td>
<td>3</td>
</tr>
<tr>
<td>AMCC 250</td>
<td>Clothing, Adornment, and Human Behavior</td>
<td>3</td>
</tr>
<tr>
<td>APCC 200</td>
<td>Cultures and the Global System</td>
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<tr>
<td>E CC 238</td>
<td>20th Century Fiction</td>
<td>3</td>
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<tr>
<td>E CC 245</td>
<td>World Drama</td>
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<tr>
<td>ECC 211</td>
<td>Gender in the Economy</td>
<td>3</td>
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<tr>
<td>EDCC 430</td>
<td>Diversity and Communication</td>
<td>3</td>
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<tr>
<td>ETCC 205</td>
<td>Ethnicity and the Media</td>
<td>3</td>
</tr>
<tr>
<td>ETCC 253</td>
<td>Chicana/o History and Culture</td>
<td>3</td>
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<tr>
<td>ETCC 256</td>
<td>Americans in a Changing World</td>
<td>3</td>
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<tr>
<td>HYCC 216</td>
<td>The Islamic World</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 219</td>
<td>Africa-Precolonial States and Empires</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 230</td>
<td>Medieval Europe</td>
<td>3</td>
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<tr>
<td>HYCC 235</td>
<td>Slavic and East Central European Civilization</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 270</td>
<td>Colonial Latin America</td>
<td>3</td>
</tr>
<tr>
<td>HYCC 271</td>
<td>Latin America Since Independence</td>
<td>3</td>
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<tr>
<td>HYCC 273</td>
<td>Asian Civilizations I</td>
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<tr>
<td>IECC 116</td>
<td>Plants and Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>IECC 270A</td>
<td>World Interdependence-Population and Food</td>
<td>3</td>
</tr>
<tr>
<td>L CC 130</td>
<td>Modern Languages/Cultures: Italian and Japanese</td>
<td>3</td>
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<tr>
<td>L CC 215</td>
<td>Translation Between Cultures and Languages</td>
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<tr>
<td>L CC 250</td>
<td>Language, Literature, Culture in Translation</td>
<td>3</td>
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<tr>
<td>L CC 255</td>
<td>Crossing Cultures</td>
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<td>LBCC 170</td>
<td>World Literatures to 1500</td>
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<tr>
<td>LBCC 171</td>
<td>World Literatures-The Modern Period</td>
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<tr>
<td>PFCC 110</td>
<td>Performing Arts Around the World</td>
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<tr>
<td>PLCC 170</td>
<td>World Philosophies</td>
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<tr>
<td>POC 131</td>
<td>Current World Problems</td>
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<tr>
<td>PCC 241</td>
<td>Comparative Government and Politics</td>
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</tr>
<tr>
<td>S CC 205</td>
<td>Contemporary Race and Ethnic Relations</td>
<td>3</td>
</tr>
<tr>
<td>SACC 482V</td>
<td>Study Abroad</td>
<td>3</td>
</tr>
<tr>
<td>SPC 192</td>
<td>Introduction to Intercultural Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

1. Also listed in category 3B. Course may count in one category or the other, but not both.
2. Also listed in category 3D. Course may count in one category or the other, but not both.
3. Course is also approved in category 1 and can count for both categories if it is taught as a first-year seminar. This course is currently not being offered as a first-year seminar.
4. Also listed in category 3C. Course may count in one category or the other, but not both.
the other, but not both.

Course is also listed in category 1 and may count for both categories.

**F. U.S. Public Values and Institutions.** The objective of the U.S. Public Values and Institutions requirement is to engage students in an inquiry into norms, rules, laws, ethical principles, and values that are central to public life in the United States. It should also provide students opportunities to explore questions about individual and group responsibilities and the ethical dilemmas of citizenship.

AUCC 201 Self/Community in American Culture Since 1877
BGCC 205 Fundamentals of Business Law
BGCC 260 Legal Environment of Business
EACC 240 Issues in Environmental Economics
ECCC 204 Principles of Macroeconomics
ECCC 212 Racial Inequality and Discrimination
ECCC 240 Issues In Environmental Economics
EDCC 310 Schooling in the United States
ETCC 200 Ethnicity in America
ETCC 204 Ethnicity in Colorado
HYCC 150 U.S. History to 1876
HYCC 151 U.S. History Since 1876
JTCC 100 Introduction to Mass Media
NRCC 320 Natural Resources History and Policy
PLCC 103 Moral and Social Problems
POCC 101 American Government and Politics
POCC 103 State and Local Government and Politics
S CC 100 General Sociology
S CC 105 Social Problems

1 If a course taken to satisfy the U.S. Public Values and Institutions requirement will also fulfill another Core requirement, the one course can be used to satisfy both requirement; that is, the course can be “double counted.”

2 Also listed in category 3D.

3 Also listed in category 3C.

**G. Health and Wellness.** The objective of the Health and Wellness requirement is to identify those socioeconomic, environmental, physiological, and behavioral factors that affect the health and well-being of humans; and to obtain critical information necessary to make informed choices about health and wellness issues.

EHCC 110 Human Health and Environmental Perspectives
EXCC 123 Fitness and Health
EXCC 143 Survey of Health and Wellness
EXCC 145 Health and Wellness
FNCC 125 Food and Nutrition in Health
FNCC 150 Survey of Human Nutrition
PLCC 130 Bioethics and Society
PSCC 110 Human Health and Environmental Perspectives
PSCC 120 Human Health and Disease
PSCC 122 Drugs and the Human Body
PSCC 124 Sexuality and Health
PYCC 228 Psychology of Human Sexuality

**Some guidelines for the All-University Core Curriculum**

A student must earn a cumulative grade point average of 2.0 or better in a group of courses used to satisfy the All-University Core Curriculum requirements.

Credits earned in the College Board Advanced Placement Program (AP), the College-Level Examination Program (CLEP), and International Baccalaureate (IB) can be used to satisfy particular All-University Core Curriculum requirements.
Graduation Requirements

Administration Annex, Room 100

The following are general graduation requirements and regulations which apply to all students entering Colorado State University, who enroll in programs of study based on the All-University Core Curriculum.

The list is a sufficient guide for academic planning, but does not represent all rules which might apply to a particular student or program of study.

Major Requirements

The student wishing to graduate must complete the requirements for a major and the All-University Core Curriculum (see the Undergraduate Degree Requirements section). A major is a sequence of courses in a subject-matter area or discipline which, when accompanied by appropriate supporting courses, leads to a degree. A minimum of 27 semester credits constitutes a major. Completion of a major is shown on both a student's diploma and academic record. Students may also elect to complete concurrently the requirements for a second major.

Second Major Requirements

Students may elect to complete concurrently the requirements for two majors. Combinations are available in unrelated as well as related majors.

At least one full term before the graduation term, students selecting second majors must contact the Office of Records and Registration to make official declarations and gain departmental approval for the joint curricular plans. Common requirements for either major may count in meeting curriculum requirements for both majors. Students must file an intent-to-graduate form and a contract for graduation in the Degree and Transfer Evaluation Office for both majors. The single degree awarded is that degree appropriate for the first major. A single diploma is issued which displays both majors, and both are recorded on the student's academic record.

Students must complete degree requirements for the first major before they can graduate. Students completing degree requirements for the second major only cannot graduate until the first major's degree requirements have been met.

Concentration Requirements

Some majors have concentrations (or specialization areas). A concentration is a sequence of at least 12 semester credits of designated courses within a major designed to accommodate specific interests of students. Completion of a concentration is shown on a student's academic record.

Option

Some majors have options which are a sequence of courses within a major or concentration of either guided electives or electives selected from areas of interest as approved by the student's adviser. Options do not appear on diplomas or transcripts.

Minor Requirements

Students may elect to pursue a minor program of study in addition to the requirements for a major. Minor programs of study are optional and are offered only at the undergraduate level. A minor program of study consists of a minimum of 21 semester credits of required course work outside the academic discipline which constitutes the student's program of study (major). Students may take minors in their department which are outside their major. A minimum of 12 of the 21 credits must be course work at the upper-division level (300-400) and a minimum of 12 credits must be from course work within the department offering the minor.

A list of currently available minors can be found in the Degree Programs section of this publication.

At least one full term before the graduation term, students declaring minors must contact the Office of Records and Registration to make official declarations and obtain required departmental approvals. Once approval has been obtained, students deciding not to complete minors must drop them officially through the Office of Records and Registration.
Students must complete intent-to-graduate forms and file contracts for graduation in the Degree and Transfer Evaluation Office for the minor programs of study. Minors must be completed the term of graduation. Completion of a minor is shown on the student's academic record, but not on the diploma.

**Course Restrictions**

Undergraduates may enroll for a maximum of nine credits of course work which may be applied toward a graduate degree at Colorado State provided that such course work: 1) is not used to meet bachelor's degree requirements; and 2) has been approved by the chairperson of the department in which a graduate degree will be sought.

Undergraduate students may not enroll in courses numbered 600-699 to satisfy undergraduate degree requirements. Undergraduate students may not enrol in courses numbered 700-799.

**Exclusion of Courses from the Bachelor's Degree**

Undergraduates who enroll in 500-level courses which are not applied toward the bachelor's degree may request that an exclusion statement be placed on their academic records. This makes such courses potentially applicable to a Colorado State graduate degree. Students cannot exclude any courses below the 500 level under this policy. (See Course Restrictions above.) Courses at the 600 level are automatically excluded from use for an undergraduate degree.

A written request must be filed with the Degree and Transfer Evaluation Office, Room 100, Administration Annex, no later than the end of the term in which the excluded course is taken.

Exclusion of these courses from the bachelor's degree does not assure acceptance of this credit toward a graduate degree program. These excluded courses are computed in the undergraduate grade point average.

**Graduation Credit Requirements**

To meet requirements for the bachelor's degree, a student must fulfill:

**Minimum Credit Requirement**

A bachelor's degree requires a minimum of 120 semester credits; however, individual programs in colleges and departments may exceed the minimum.

**Minimum Grade Requirement**

Only credits completed with grades of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, and S may count toward the graduation total. Some majors require a minimum grade of C or C- in required courses. For further information, contact the department offering the major.

**Graduation Average Requirement**

The minimum scholastic average acceptable for graduation is 2.00 computed only for courses attempted at Colorado State.

Total credits earned and counted toward graduation may differ from total credits used in computing a scholastic average, since the scholastic average is computed by dividing the total grade points earned at Colorado State by the total credits attempted including credits for grades of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, and F. Only courses with grades of I, S, U, and W are excluded from computation of averages. Credits graded S may count toward graduation.

**Upper-division Credit Requirement**

A minimum of 42 semester credits in upper-division courses (300-400 level) is required of all students completing a bachelor's degree program. Although 500-level courses cannot be required in undergraduate programs of study, elective credits taken at the 500 level may be used to fulfill the upper-division requirement.

**“In residence” Requirement**

A minimum of 30 upper-division semester credits must be completed in residence at Colorado State University. “In residence” courses include any authorized Colorado State University course recorded as Colorado State credit on the Colorado State transcript. As an approved exception, “in residence” may also be satisfied by pre-approved upper-division credits earned in authorized Study Abroad programs and designated domestic exchange programs, if simultaneously enrolled in designated CSU courses. Pre-approval procedures are required.

**Senior Year Requirement**

Of the last 32 semester credits earned immediately preceding graduation, no more than 16 may be completed at other colleges or universities.
NONTRADITIONAL CREDIT POLICIES

All policies and procedures concerning granting of undergraduate credit are described in detail in the booklet, *University Credit*, available from the Degree and Transfer Evaluation Office. The evaluation of credit is done only after a student has been accepted for admission to Colorado State.

Some kinds of nontraditional credit which might be granted include:
27. College-level courses completed by high school students.
28. The College Board Advance Placement Program
29. College-Level Examination Program (CLEP)
30. International Baccalaureate

Challenging Colorado State Courses for Credit

Whenever feasible, the opportunity to challenge the content of a course on the basis of an examination is permitted. This option is at the discretion of the individual department and may exclude courses where a laboratory or practicum is an integral part of the course being challenged.

A fee of $20 per credit attempted is assessed and is not refundable. Upon successful completion of an exam, a grade of S (satisfactory) is recorded on the student's academic record. No record of unsuccessful attempts is recorded.

A course may not be challenged under the following conditions:
1. To satisfy the residence requirement for graduation.
2. When the person seeking credit is not currently registered at Colorado State at the time the examination is administered.
3. When a student has previously failed a placement or challenge exam for the course.

Students wishing to establish credit by challenge may obtain the application form from the University Testing Service.

Service Schools and Courses of the Armed Services

Credit may be allowed for those service schools with baccalaureate credit recommendation in the latest Guide to the Evaluation of Educational Experiences in the Armed Services prepared by the American Council on Education. Individual departments determine whether those courses clear major curriculum requirements or may be used as elective credit. Evaluations of service school training are made only for currently enrolled students.

Credit for Study Abroad

Students are encouraged to participate in accredited study abroad programs. Credit is granted for courses taken in programs approved in advance by the University, subject to certain conditions. To apply for credit, a student must process a "Request for Permission to Register for Off-Campus Course Work" available in the Degree and Transfer Evaluation Office, Room 100, Administration Annex, and the Study Abroad Office, Room 315, Aylesworth Hall.

Time Limitation on Credit Earned Toward a Bachelor's Degree

Courses completed within the preceding ten years may apply toward a bachelor's degree. After ten years, course work is reviewed by the department head and college dean to determine its appropriateness to the major requirements.

Correspondence and Extension

The number of credits completed by correspondence and/or by extension at other institutions shall not exceed 32 semester credits.

GRADUATION PROCEDURES AND INFORMATION

Checking *University graduation requirements* is the responsibility of the Degree and Transfer Evaluation Office. Curriculum requirements are checked by the department head of the first major and the second major and/or minor if applicable. Requests for waivers of or substitutions for curriculum requirements must be approved by the adviser and department head (see Changes in Undergraduate Curriculum Requirements in this section).

Intent to Graduate

No later than the third week of the term prior to the graduating term, students must file an intent-to-graduate form indicating their first major, and second major and/or minor if applicable, with the Degree and Transfer Evaluation Office. Students will subsequently receive a
GUIDE (Gateway to University and Individual Degree Evaluation) concerning fulfillment of the University graduation requirements.

Contract for Graduation

Candidates for degrees must complete and sign a contract for graduation for majors, second majors, and minors in the first week of their graduation term in the department office(s) of their majors/minors. Students not completing degree requirements that term must file another contract for graduation during the first week of the new graduation term.

Graduation List

The official graduation list is prepared each term by the Degree and Transfer Evaluation Office from the contracts for graduation. Students may not graduate unless their names appear on the list as approved by the Faculty Council during the graduation term.

Off-Campus Completion of Degree Requirements

Seniors who are registered for final course work at another institution, either in residency or by correspondence or extension, must have their contracts for graduation on file in the Degree and Transfer Evaluation Office by the end of the third week of the graduation term. Official transcripts showing completion of work from another institution must be on file in this office by the last day of the graduation term.

Good Standing Status

A student must be in good standing to receive a Colorado State degree. Accordingly, any student who is subject to suspension or probation for scholastic or disciplinary reasons will not graduate until the conditions of suspension or probation have been satisfied.

Financial Indebtedness

See Payment of Student Accounts under Tuition, Fees, Expenses, and Adjustments section of this catalog.

Commencement

Commencement is held each year at the end of each fall and spring semester. Students completing degree requirements during any term receive their diplomas by mail within a few weeks following the close of the graduation term. Candidates must appear in appropriate academic attire at commencement exercises.

GRADUATION WITH DISTINCTION

Colorado State recognizes outstanding scholarship by granting the baccalaureate degree “Cum Laude,” “Magna Cum Laude,” and “Summa Cum Laude” to those students in each college who have achieved unusually high academic excellence in their undergraduate programs. Distinction designations are determined according to the following criteria:

1. “Summa Cum Laude” - Top one percent of graduates in each college;
   “Magna Cum Laude” - Next three percent of graduates in each college;
   “Cum Laude” - Next six percent of graduates in each college.

2. The grade point average minimums used to determine each category are established after graduation, based on the cumulative grade point average at the time of graduation. At the end of the spring and fall semester, the minimums for each category in each college are established, using the actual number of students graduating in this term. The grade point averages, as established for the spring semester, will also apply to students who graduate at the end of the summer session. Graduation with distinction is indicated on the diploma and the transcript of the student.

3. Candidates for graduation with distinction are recognized at the time of commencement. The grade point average minimums used to determine candidacy status for each category are established each spring semester based on the cumulative grade point average through the preceding fall semester of the spring graduating class for each college. The same grade point averages are also used to determine candidacy for the following summer. Candidacy for graduation with distinction does not guarantee graduation with distinction, which is based on the percentage as established at the time of graduation.

4. To qualify for candidacy for graduation with distinction, a minimum of 45 semester credits completed at Colorado State is required prior to the graduation term. To qualify for graduation with distinction, a minimum of 60 credits completed at Colorado State is required. Students who have been granted Fresh Start must have 45 credits to qualify for candidacy and 60 credits to qualify for graduation with distinction completed after the Fresh Start designation.
5. Transfer credits are not considered when determining candidacy for graduation with distinction or graduation with distinction.

6. Students seeking a second bachelor’s degree are eligible for distinction designation. To qualify for candidacy for graduation with distinction, a minimum of 45 semester credits completed at Colorado State is required after completion of the first degree and prior to the graduation term for the second degree. To qualify for graduation with distinction, a minimum of 60 credits completed at Colorado State is required after the first degree. In determining the grade point average of the student, only grades earned after the first degree are considered.

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**GRADUATION AS A UNIVERSITY HONORS SCHOLAR**

Students who complete the University Honors Program Core Curriculum, a thesis/project, and achieve at least a 3.5 grade point average earn the designation of University Honors Scholar. Scholars are recognized at graduation by the Honors Program and during the colleges’ commencement ceremonies, and the Honors Scholar designation appears on their diplomas and transcripts.

For information about admission to the University Honors Program, visit or contact the Honors Program Office, E203 Newsom Hall, Fort Collins, Colorado 80523-1025 (970) 491-5679 or visit online at http://www.honors.colostate.edu.

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**Honors Core Curriculum**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credit</th>
<th>AUCC Category</th>
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<td><strong>FRESHMAN</strong></td>
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<tr>
<td>HPCC 192A</td>
<td>First-Year Seminar (participation in University Honors Program)</td>
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<tr>
<td>HPCC 192B</td>
<td>Seminar (HPCC 192A, participation in University Honors Program)</td>
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<td>2A</td>
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<td><strong>TOTAL</strong></td>
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<td><strong>SOPHOMORE</strong></td>
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<td><strong>JUNIOR</strong></td>
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<tr>
<td>HPCC 392</td>
<td>Seminar (HPCC 192B, participation in University Honors Program)</td>
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<td>3B, 3F</td>
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<tr>
<td>HP 399</td>
<td>Pre-thesis (HPCC 192B, participation in University Honors Program)</td>
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<td>Honors course²</td>
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<td><strong>SENIOR</strong></td>
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<td>HPCC 492</td>
<td>Senior Seminar (HPCC 392, participation in University Honors Program)</td>
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<tr>
<td>HP 499</td>
<td>Senior Honors Thesis (HP 399, participation in University Honors Program)</td>
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<td><strong>TOTAL</strong></td>
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</table>

**PROGRAM TOTAL = 23 credits³**

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¹ Sophomore-level Honors course in the student’s major, department, and/or college.
² Upper-division Honors course in the student’s major, department, and/or college.
³ Students completing the Honors Core Curriculum will fulfill the All-University Core Curriculum (AUCC) core competency requirements in the following categories: 1 – First-Year Seminar; 2A – Written Communication; 2B1 – Oral Communication; 3B – Arts/Humanities; 3C – Social/Behavioral Sciences; 3D – Historical Perspectives; 3E – Global and Cultural Awareness; 3F – U.S. Public Values and Institutions. Students completing some, but not all, of the program will fulfill some of the AUCC core competencies. Complete details are available from the Honors Program office.
Degree Programs

UNIVERSITY OPEN OPTION

University Open Option is a recognized category of registration at Colorado State University for students who are exploring which major they want to pursue. Students choosing to be University Open Option frequently have a rich and diverse set of interests. Through the University Open Option program, students are able to learn about various academic opportunities while keeping their academic major options open as they begin their college experience.

Full-time, professional academic advisers in the HELP/Success Center assist students in the major selection process. Students are advised to choose courses that meet general requirements as well as provide more information about potential majors. Students are encouraged to declare a major by the time they earn 45 credits.

UNDERGRADUATE DEGREES

The following is a list of majors offered by Colorado State. Many of the majors include concentrations and many departments also have minor programs of study. For information on requirements for undergraduate degrees, see Undergraduate Degree Requirements, Graduation Requirements, and college and department sections of this catalog.

Bachelor of Arts (B.A.)

Anthropology
Art
Economics
English
History
Language, Literature, and Culture Studies
Liberal Arts

Music
Performing Arts
Philosophy
Political Science
Social Work
Sociology
Speech Communication
Technical Journalism

Bachelor of Fine Arts (B.F.A.)
Art

Bachelor of Music (B.M.)
Music

Bachelor of Science (B.S.)

Agricultural Business
Agricultural Economics
Agricultural Education
Animal Science
Apparel and Merchandising
Bioagricultural Sciences
Biochemistry
Biological Science
Bioresource and Agricultural Engineering
Botany
Business Administration
Chemical Engineering
Chemistry
Civil Engineering
Computer Science
Construction Management
Consumer and Family Studies
Electrical Engineering
Engineering Science
Environmental Engineering
Environmental Health
Equine Science
Fishery Biology
Forestry
Geology

Health and Exercise Science
Horticulture
Human Development and Family Studies
Industrial Technology Management
Interior Design
Landscape Architecture
Landscape Horticulture
Mathematics
Mechanical Engineering
Microbiology
Natural Resource Recreation and Tourism
Natural Resources Management
Natural Sciences
Nutrition and Food Science
Physics
Psychology
Rangeland Ecology
Restaurant and Resort Management
Soil and Crop Sciences
Technology Education and Training
Watershed Science
Wildlife Biology
Zoology
GRADUATE DEGREES

The following is a list of graduate degree programs offered by Colorado State. For information on requirements for graduate degrees, request a copy of the Graduate and Professional Bulletin from the Graduate School, Colorado State University, Fort Collins, CO 80523.

Academic Degrees

Doctor of Philosophy (Ph.D.)
Agricultural and Resource Economics
Anatomy
Animal Sciences
Atmospheric Science
Biochemistry
Bioresource and Agricultural Engineering
Botany
Cell and Molecular Biology
Chemical Engineering
Clinical Sciences
Computer Science
Earth Resources
Economics
Education and Human Resource Studies
Electrical Engineering
Entomology
Environmental Health

Master of Science (M.S.)
Agricultural and Resource Economics
Anatomy
Animal Sciences
Atmospheric Science
Biochemistry
Bioresource and Agricultural Engineering
Botany
Business Administration
Cell and Molecular Biology
Chemical Engineering
Chemistry
Civil Engineering
Computer Science
Design and Merchandising
Ecology
Electrical Engineering
Entomology
Environmental Health
Fishery and Wildlife Biology
Food Science and Nutrition
Forestry Sciences
Horticulture
Civil Engineering
Chemistry
Computer Science
Design and Merchandising
Ecology
Electrical Engineering
Entomology
Environmental Health
Fishery and Wildlife Biology
Food Science and Nutrition
Forestry Sciences
Geology
Health and Exercise Science
Horticulture

Master of Art (M.A.)
Anthropology
Design and Merchandising
Economics
English
Foreign Languages and Literatures

Master of Electrical Engineering (M.E.E.)
Electrical Engineering

Professional Degrees

Doctor of Veterinary Medicine (D.V.M.)¹
Master of Agriculture (M.Agr.)
Agricultural Sciences
Master of Business Administration (M.B.A.)
Business Administration
Master of Education (M.Ed.)
Education and Human Resource Studies
Master of Fine Arts (M.F.A.)
Art
Creative Writing
Master of Forestry (M.F.)
Forest Sciences
Master of Music (M.M.)
Music
Master of Social Work (M.S.W.)
Social Work

¹Requirements for the D.V.M. degree are listed in the Graduate and Professional Bulletin.
UNDERGRADUATE MINORS

Information about each program may be found in the 1999-2000 General Catalog.

All-University
Aerospace Studies
Military Science

College of Agricultural Sciences
Agricultural and Resource Economics
Entomology
Horticulture
Landscape Horticulture
Plant Health
Soil Resources and Conservation

College of Applied Human Sciences
Apparel Design
Coaching
Construction Management
Industrial Technology Management
Merchandising
Nutrition

College of Business
None

College of Engineering
Environmental Engineering

College of Liberal Arts
Anthropology
Art History
Dance
Economics
English
French
General Philosophy

German
History
Japanese
Media Studies
Music
Musical Theatre
Political Science
Religious Studies
Russian
Sociology
Spanish
Studio Art
Theatre-Acting/Directing
Theatre-Design/Technical Theatre

College of Natural Resources
Fishery Biology
Forestry
Geology
International Ecotourism
Range Ecology
Spatial Information Management
Watershed Science
Wilderness Management

College of Natural Sciences
Biochemistry
Botany
Chemistry
Computer Science
Mathematics
Physics
Statistics
Zoology

College of Veterinary Medicine and Biomedical Sciences
Anatomy and Neurobiology
Microbiology
UNIVERSITY INTERDISCIPLINARY STUDIES PROGRAMS

An interdisciplinary studies program is a series of courses focused upon a particular problem or area of concern providing a variety of disciplinary perspectives.

Although completion of courses in an interdisciplinary studies program does not lead to a degree, credits earned in these courses can be used in meeting the requirements for a degree.

An interdisciplinary studies program includes a core of required courses, with some selectivity, and also a wide choice from supporting courses.

Completion of requirements for an interdisciplinary studies program is noted on the student’s academic record (transcript) but not on the diploma. The minimum number of credits in an undergraduate interdisciplinary studies program is 20. No minimum number of credits is specified at the graduate level.

Below is a list of interdisciplinary studies programs currently available at Colorado State University. For more information on the requirements for these programs, please see the 1999-2000 General Catalog (pgs. 61-73) or contact the office listed.

<table>
<thead>
<tr>
<th>Interdisciplinary Studies Program</th>
<th>Office to Contact:</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Ethnicity Interdisciplinary Studies Program</td>
<td>Center for Applied Studies in American Ethnicity</td>
</tr>
<tr>
<td>Asian Interdisciplinary Studies Program</td>
<td>Office of International Programs</td>
</tr>
<tr>
<td>Biomedical Engineering Interdisciplinary Studies Program (undergraduate and graduate)</td>
<td>Department of Mechanical Engineering</td>
</tr>
<tr>
<td>Biotechnology Interdisciplinary Studies Program</td>
<td>College of Veterinary Medicine and Biomedical Sciences</td>
</tr>
<tr>
<td>Conservation Biology Interdisciplinary Studies Program</td>
<td>College of Natural Resources</td>
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<tr>
<td>Criminal Justice Interdisciplinary Studies Program</td>
<td>Department of Sociology</td>
</tr>
<tr>
<td>Environmental Affairs Interdisciplinary Studies Program</td>
<td>Department of Sociology</td>
</tr>
<tr>
<td>Exercise Science and Nutrition Interdisciplinary Graduate Program</td>
<td>Department of Health and Exercise Science</td>
</tr>
<tr>
<td>Gerontology Interdisciplinary Studies Program</td>
<td>Department of Human Development and Family Studies</td>
</tr>
<tr>
<td>Integrated Ranch Management Interdisciplinary Studies Program</td>
<td>Western Center for Integrated Resource Management</td>
</tr>
<tr>
<td>International Development Interdisciplinary Studies Program (undergraduate and graduate)</td>
<td>Office of International Programs</td>
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</table>

American Ethnicity Interdisciplinary Studies Program
Center for Applied Studies in American Ethnicity
C 130 Clark Building

Asian Interdisciplinary Studies Program
Office of International Programs
315 Aylesworth Hall NE

Biomedical Engineering Interdisciplinary Studies Program (undergraduate and graduate)
Department of Mechanical Engineering
A 101 Engineering Building

Biotechnology Interdisciplinary Studies Program
College of Veterinary Medicine and Biomedical Sciences
W 102 Anatomy/Zoology Building

Conservation Biology Interdisciplinary Studies Program
College of Natural Resources
101 Natural Resources Building

Criminal Justice Interdisciplinary Studies Program
Department of Sociology
B 258 Clark Building

Environmental Affairs Interdisciplinary Studies Program
Department of Sociology
B 258 Clark Building

Exercise Science and Nutrition Interdisciplinary Graduate Program
Department of Health and Exercise Science
209 Moby Arena
or
Department of Food Science and Human Nutrition
205 Gifford Building

Gerontology Interdisciplinary Studies Program
Department of Human Development and Family Studies
102 Gifford Building

Integrated Ranch Management Interdisciplinary Studies Program
Western Center for Integrated Resource Management
W 127 ARBL, Foothills Campus

International Development Interdisciplinary Studies Program (undergraduate and graduate)
Office of International Programs
315 Aylesworth Hall NE
<table>
<thead>
<tr>
<th>Interdisciplinary Studies Program</th>
<th>Office to Contact:</th>
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</thead>
<tbody>
<tr>
<td>Latin American Interdisciplinary Studies Program</td>
<td>Office of International Programs</td>
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<tr>
<td></td>
<td>315 Aylesworth Hall NE</td>
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<tr>
<td>Molecular Biology</td>
<td>Department of Biochemistry and Molecular Biology</td>
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<tr>
<td></td>
<td>316 Molecular and Radiological Sciences Building</td>
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<tr>
<td>Molecular, Cellular, and Integrative Neurosciences</td>
<td>MCIN Office</td>
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<tr>
<td>Interdisciplinary Graduate Program</td>
<td>W 334 Anatomy-Zoology Building</td>
</tr>
<tr>
<td>Religious Interdisciplinary Studies Program</td>
<td>College of Liberal Arts</td>
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<tr>
<td></td>
<td>C 138 Clark Building</td>
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<tr>
<td>Russian, Eastern, and Central European Interdisciplinary Studies Program</td>
<td>Office of International Programs</td>
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<td>315 Aylesworth Hall NE</td>
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<tr>
<td>Water Resources Interdisciplinary Studies Program</td>
<td>Colorado Water Resources Research Institute</td>
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<td>410 University Services Center North</td>
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<tr>
<td>Women’s Interdisciplinary Studies Program</td>
<td>Office of Women’s Programs and Studies</td>
</tr>
<tr>
<td></td>
<td>112 Student Services Building</td>
</tr>
</tbody>
</table>
College of Agricultural Sciences

Office in Shepardson Building, Room 121
Professor Lee E. Sommers, Acting Dean
Professor James C. Heird, Associate Dean

UNDERGRADUATE MAJORS

Agricultural Business
Agricultural Economics
Agricultural Education
Animal Science
Bioagricultural Sciences
Equine Science
Farm and Ranch Management
Horticulture
Landscape Architecture
Landscape Horticulture
Soil and Crop Sciences

Agriculture was the first science . . . the progenitor of sciences . . . and it remains the science that makes human life possible. It also is a science concerned with improving the quality of life and maintaining a productive, quality environment. Agricultural programs integrate biological, physical, and social sciences with agricultural sciences, and reinforce these with courses in the arts and humanities, to prepare students for a variety of careers. Students may look forward to careers in basic and applied research; production and utilization of food and related products; resource use and conservation; industry and business; education and public service; technical and professional services; professional, scientific, and technical communication; and institutional and governmental positions.

The college, recognizing the computer's ever-increasing importance in agriculture, provides instruction in computer-oriented agriculture through a variety of offerings.

COLLEGE PROGRAMS

Undergraduate Majors

Undergraduate programs lead to a bachelor of science degree which requires a minimum of 120 credits with a minimum of 42 credits in upper-division courses. No more than 16 credits from independent study and/or internship courses may be used in fulfillment of the 120 credits. Information on interdepartmental and departmental majors, the various concentrations available, and career opportunities are described on the following pages. Students should consider simultaneously completing the requirements for a second major. See Second Major Requirements in the Graduation Requirements section of this catalog for a complete description of the program.

Open Option Students

Freshman students planning on an agriculturally related career but uncertain about a specific major should indicate that they wish to be classified as Agricultural Sciences Open Option on their application form. Open Option students will be given special attention and provided with an opportunity to explore many areas during their first semester. They will be assigned special advisers with particular expertise in assisting students in career exploration. Once a major is decided upon, the student can conveniently transfer out of the Open Option program into their new major.

Extension Emphasis

Although some careers with Cooperative Extension require specialized preparation in a particular agricultural specialty, some extension agent positions require a broad base in production agriculture. The majority of the Cooperative Extension positions require an advanced degree. Questions on academic programs that address Cooperative Extension should be directed to the Dean's Office, College of Agricultural Sciences.

International Agriculture Emphasis

Because the United States is the world’s leading food producing and exporting nation, many countries look to us for agricultural expertise. The increasing importance of international trade, world population growth, shifts in living standards, and transfer of agricultural technology add to the dimensions of a career in international agriculture. Students interested in preparing for careers abroad in governmental agencies, including the Peace Corps, or with private firms may do so under most majors in the college. Students should ask their advisers about courses needed for such preparation. Also, general
information about preparation for international careers may be obtained by contacting the Associate Dean, College of Agricultural Sciences, 121 Shepardson Building.

**Career Internships**

Students in certain majors may select a career internship, usually during the junior year, with permission of their department heads and approval of a cooperator. The number of allowable credits is determined by the student's department. Some internships are available each term with a larger number available during the summer term. Internships normally require a minimum of 10 weeks, and a stipend may be provided. Application must be made to the department at least 30 days before the term of the internship.

**Study Abroad**

Study-abroad programs are available to agricultural students. Students interested in study abroad should contact the Office of International Education, 315 Aylesworth NE.

**Transfer of Credits from Other Institutions**

The college makes every effort to accept properly prepared transfer students from other institutions without credit loss. Agricultural courses from land-grant colleges and universities may be transferred at full credit. Credit from out-of-state institutions, other than land-grant, is normally accepted as it would be by the land-grant institution in that state.

Students planning to continue in two-year colleges beyond the freshman year should work closely with their college advisers for curriculum guidance. Attention should be given to the requirements of the student's proposed major. For additional information, contact the Associate Dean of Agricultural Sciences.

For a bachelor's degree, a minimum of 15 credits must be earned from Colorado State's College of Agricultural Sciences. More restrictive requirements may be established by departments.

**INTERDEPARTMENTAL MAJOR**

**Major in Agricultural Education**

**Agricultural Education Concentration**

*College of Agricultural Sciences*

*Associate Dean Jim Heird, Coordinator*

*Office in Shepardson Building, Room 121*

**Agricultural Extension Education Concentration**

*Associate Professor Glen Rask, Coordinator*

*Office in Shepardson Building, Room 124C*

Do you wish to share your passion for agriculture with others? Do you enjoy motivating others? Are you up for the challenge of being a role model and possibly influencing young people's lives or careers? If you answered “yes” to any of these questions, then a major in Agricultural Education may be for you.

Agricultural Education is an interdepartmental major in both the College of Agricultural Sciences and the School of Education and is ranked in the top 20 in the nation. It prepares students for teaching youth and adults in the agricultural industry. Students refine their communication skills and personal qualities necessary to serve as educational leaders and managers.

The Agricultural Education concentration leads to teacher licensure by the State of Colorado. Teachers combine classroom, laboratory, and hands-on experiences to teach high school students about the myriad agricultural topics. The curriculum requires students to demonstrate a competent knowledge of educational theory and a broad-based understanding in agricultural content. Students combine practical experience and technical course work including animal science, plant science, agricultural mechanics, forestry, natural resources, horticulture, agricultural processing and supplies, and services in agriculture. Courses from biological sciences, liberal arts, and social sciences round out a student’s education. Students must apply to the Teacher Licensure Program in the School of Education after they have completed at least 30 college credits, usually during their sophomore or junior year. A few of the requirements for acceptance are: having at least a 2.75 cumulative GPA, completion of an introductory education course, and 20 hours of documented work experience with school-age children. This curriculum includes
instructional methods and assessment, classroom management and technology, exceptionality, and courses specific to teaching in the agricultural field. All students are required to student teach for one semester.

**Agricultural Extension Education** emphasizes preparation for careers in the Cooperative Extension System, which includes working with 4-H youth, agricultural production and economic efficiency, and adult volunteer and leadership development. The curriculum in this concentration is broad based, balancing course work in technical agriculture, professional, general and adult education, journalism, and human development. This program provides students with excellent preparation for graduate studies as well.

**Characteristics and Skills**
- Passion for working in the field of agriculture
- Enjoy working with youth and adults
- Capability to inspire trust and confidence
- Ability to motivate others for peak performance
- Enjoy guiding activities of others
- Work effectively with individuals and groups
- Enjoy planning and organizing courses of study
- Desire to understand emotional and educational needs of students
- Strong ability to communicate clearly
- Ability to maintain order, resolve differences, anticipate and prevent problems
- Aptitude for gathering information, organizing and presenting it in a manner that holds attention
- Ability to adapt and present information to different learning styles
- Ability to accurately assess progress of individuals and programs

**Potential Occupations**

Graduates in agricultural education are in demand to fill a fifteen-year shortage of agricultural teachers in Colorado and nationwide. Two-thirds of the Colorado State graduates have become teachers or administrators in public schools. Other graduates take agribusiness positions with seed, fertilizer, feed, machinery, or finance firms. Students are also prepared to teach in community or junior colleges, area vocational schools, and technical institutes. Within Cooperative Extension, there are opportunities in local, state, and federal agencies for 4-H youth specialists, resource managers, and extension agents. Participation in internships and cooperative education opportunities is highly recommended to enhance practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Listed are some of the careers available to students in this major:
- High school agriculture teacher
- Post secondary vocational agriculture teacher
- Agribusiness representative
- Agriservice representative
- Cooperative Extension agent
- Education specialist
- 4-H association youth specialist
- Youth development specialist
- Science teacher

---

**AGRICULTURAL EXTENSION EDUCATION CONCENTRATION**

**Major in Agricultural Education**

**Agricultural Extension Education Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
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</tr>
<tr>
<td>AC 192</td>
<td>Orientation to Agricultural Systems</td>
<td>3</td>
<td>1</td>
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<tr>
<td>AN 100</td>
<td>Animal Sciences</td>
<td>3</td>
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<td>BZCC 104</td>
<td>Basic Concepts of Plant Life</td>
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<td>BZCC 105</td>
<td>Basic Concepts of Plant Life Laboratory (BZ/BZCC 104 or concurrent reg.)</td>
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<td>Principles of Animal Biology</td>
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<td>BZCC 111</td>
<td>Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>JTCC 100</td>
<td>Introduction to Mass Media</td>
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<td>3C, 3F</td>
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<td>M CC 120A-B</td>
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<tr>
<td>M CC 121</td>
<td>College Algebra II (M/M CC 120A or M/M CC 120 B or placement)</td>
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<td>2C</td>
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<tr>
<td>M CC 124</td>
<td>Logarithmic and Exponential Functions (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>M CC 133</td>
<td>Financial Mathematics (Math Placement Exam)</td>
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<td>SC 100</td>
<td>General Crops</td>
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<td>SC 100</td>
<td>Electives</td>
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**SOPHOMORE**

| A 140 | Technology in Agriculture | 3 | |
| C CC 107 | Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher) | 4 | 3A |
| C CC 108 | Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.) | 1 | 3A |
| EACC 202 | Agricultural and Resources Economics | 3 | 3E |
| H CC 100 | Horticultural Science (high school biology) | 4 | 3A |
| JTCC 300 | Professional and Technical Communication (CO/COCC 150) | 3 | 2B2 |
| OR | | | |
| SPCC 200 | Public Speaking | 3 | 2B1 |
| PLCC 110 | Logic and Critical Thinking | 3 | 2D |
| OR | | | |
| STCC 201 | General Statistics (M/M CC 120A-B) | 3 | 2D |
| SC 240 | Introductory Soil Science (C/C CC 107 or C/C CC 111) | 4 | |
| OR | Arts/humanities¹ | 3 | 3B |
| OR | Health and wellness² | 2 | 3G |
| **TOTAL** | **30** | | |

**JUNIOR**

| A CC 270 | World Interdependence-Population and Food | 3 | 3E |
| OR | | | |
| IECC 270A | World Interdependence-Population and Food | 3 | 3E |
| A 300 | Issues in Agriculture | 2 | |
| A 320F | Computer Applications in Agriculture Presentation Technology (A 140 or BD 150 or CS 110) | 1 | |
| A 346 | Principles of Cooperative Extension | 3 | |
| AN 286 | Livestock Practicums (AN 100 or concurrent reg.) | 2 | |
| AN 300T | Topics in Animal Sciences-Event, Fair, and Show Management | 1 | |
| HDCC 101 | Individual and Family Development | 3 | 3C |
| OR | Historical perspectives³ | 3 | 3D |
| OR | Electives | 12 | |
| **TOTAL** | **30** | | |

**SENIOR**

| A 487 | Internship (A 346) | 12 | 4A, 4B |
| A 492A | Seminar-Agricultural Extension Education (A 346, concurrent reg. in A 487) | 1-3 | 4C |
### Course Title (Prerequisite) Credits AUCC Category

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>HD 310</td>
<td>Infant and Child Development in Context (HD/HDCC 101, PY/PYCC 100) OR Adolescent/Early Adult Development in Context (HD/HDCC 101)</td>
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<td>HD 311</td>
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**Electives**

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**TOTAL**

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<td>28-30</td>
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**PROGRAM TOTAL = 120-122 credits**

1. Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 3G in the AUCC.
3. Select from the list of courses in category 3D in the AUCC.

### APPLIED INFORMATION TECHNOLOGY CONCENTRATION

**Major in Agricultural Education**

**Applied Information Technology Concentration**

<table>
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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td><strong>FRESHMAN</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>ACC 192</td>
<td>Orientation to Agricultural Systems</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>AN 100</td>
<td>Animal Sciences</td>
<td>3</td>
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<tr>
<td>BY 103</td>
<td>Biology of Organisms-Animals and Plants (BY/LSCC 102)</td>
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<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
<td>4</td>
<td>3A</td>
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<tr>
<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>2A</td>
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<tr>
<td>LSCC 102</td>
<td>Attributes of Living Systems</td>
<td>4</td>
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<td>M CC 120A-B</td>
<td>College Algebra I (Math Placement Exam)</td>
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<td>2C</td>
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<tr>
<td>M CC 121</td>
<td>College Algebra II (M/M CC 120A-B or placement)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 124</td>
<td>Logarithmic and Exponential Function (M/M CC 118 or M/M CC 121 or placement)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>SC 100</td>
<td>General Crops</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>STCC 201</td>
<td>General Statistics (M/M CC 120A-B)</td>
<td>3</td>
<td>2D</td>
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<td></td>
<td>Health and wellness$^1$</td>
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**SOPHOMORE**

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<th>AUCC Category</th>
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<tr>
<td>A 140</td>
<td>Technology in Agriculture</td>
<td>3</td>
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<tr>
<td>A 300</td>
<td>Issues in Agriculture</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>EACC 202</td>
<td>Agriculture and Resource Economics</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td>EA 205</td>
<td>Farm and Ranch Management (EA/EACC 202 or EC/ECCC 202)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EN 202</td>
<td>Applied and General Entomology</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>JTCC 100</td>
<td>Introduction to Mass Media</td>
<td>3</td>
<td>3C, 3F</td>
</tr>
<tr>
<td>PYCC 100</td>
<td>General Psychology</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td>SC 240</td>
<td>Introductory Soil Science (C/C CC 107 or C/C CC 111)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SPCC 200</td>
<td>Public Speaking</td>
<td>3</td>
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<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<tr>
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</tr>
<tr>
<td></td>
<td>Arts/humanities³</td>
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<td>3B</td>
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<td></td>
<td>TOTAL</td>
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</table>

**JUNIOR**

A 320A-F  Applications in Agriculture  2
AT 150  Science of Weather and Climate (high school algebra; high school chemistry or physics)  2
AT 151  Weather and Climate Laboratory (AT 150 or concurrent reg.)  1
EA 305  Farm and Ranch Records and Analysis (EA/EACC 202 or EC/ECCC 202)  3
EA 310  Agricultural Marketing (EA/EACC 202 or EC/ECCC 202)  3
NRCC 220  Natural Resource Ecology and Measurements (BY 103 or BZ/BZCC 120; M/M CC 121)  5
PHCC 110  Descriptive Physics  3  3A
SC 322  Principles of Microclimatology (BY 220 or NR 220; PH/PHCC 141)  3

Historical perspectives³  3  3D
Electives  5

TOTAL  30

**SENIOR**

A 346  Principles of Cooperative Extension  3
A 487  Internship  4  4A, 4B
A 492A  Seminar-Agricultural Extension Education  1  4C

CB 204  Agricultural and Environmental Measurements (PH/PHCC 110 or PH/PHCC 141)  3
EV 204  Agricultural and Environmental Measurements (PH/PHCC 110 or PH/PHCC 141)  3

CB 464  Soil and Water and Engineering (CB 331 or CE 300 or SC 240)  4
EA 328  Small Agribusiness Management (EA/EACC 202 or EC/ECCC 202)  3
EA 478  Agricultural Policy (EA/EACC 202 or EC/ECCC 202 or EA/EACC 240 or EC/ECCC 240)  3

SC 360  Geographic Information Systems in Agriculture (CS 110)  3

CB 360  Geographic Information Systems in Agriculture (CS 110)  3

Global and cultural awareness⁴  3  3E

TOTAL  27

**PROGRAM TOTAL = 120 credits**

¹ Select from the list of courses in category 3G of the All-University Core Curriculum (AUCC).
² Select from the list of courses in category 3B in the AUCC.
³ Select from the list of courses in category 3D in the AUCC.
⁴ Select from the list of courses in category 3E in the AUCC.
## TEACHING CONCENTRATION

**Major in Agricultural Education**  
**Teaching Concentration***

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
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<tr>
<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
<td>3</td>
<td>1</td>
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<tr>
<td>AN 100</td>
<td>Animal Sciences</td>
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<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
<td>3</td>
<td>3A</td>
</tr>
<tr>
<td>BZCC 111</td>
<td>Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)</td>
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<td>3A</td>
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<tr>
<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
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<td>COCC 150</td>
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<td>College Algebra I (Math Placement Exam)</td>
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<td>2C</td>
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<tr>
<td>M CC 124</td>
<td>Logarithmic and Exponential Function (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>2C</td>
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<tr>
<td>M CC 130</td>
<td>Math in the Social Sciences (Math Placement Exam)</td>
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<tr>
<td>PLCC 110</td>
<td>Logic and Critical Thinking</td>
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<td>2D</td>
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<tr>
<td>SC 100</td>
<td>General Crops</td>
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<td>Historical perspectives(^1)</td>
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**SOPHOMORE**

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<tbody>
<tr>
<td>A 244E</td>
<td>Topics in Agricultural Mechanics-Small Gas Engines</td>
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<td>A 300</td>
<td>Issues in Agriculture</td>
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<td>Agricultural and Resource Economics</td>
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<td>EXCC 143</td>
<td>Survey of Health and Wellness</td>
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<td>H CC 100</td>
<td>Horticultural Science (high school biology)</td>
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<td>3A</td>
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<tr>
<td>SC 240</td>
<td>Introductory Soil Science (C/C CC 107 or C/C CC 111)</td>
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<tr>
<td>SPCC 200</td>
<td>Public Speaking</td>
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<td>2BI</td>
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<td>Arts/humanities(^2)</td>
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<tr>
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**JUNIOR**

<table>
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<tr>
<td>AN 250</td>
<td>Live Animal and Carcass Evaluation</td>
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<td>EA 205</td>
<td>Farm and Ranch Management (EA/EACC 202 or EC/ECCC 202)</td>
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<td>EDCC 275</td>
<td>Schooling in the United States (consent of Teacher Licensure Office)</td>
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<td>ED 331</td>
<td>Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
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<td>ED 386</td>
<td>Practicum (ED 320 or concurrent reg., admission to Teacher Licensure Program)</td>
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<td>EDCC 430</td>
<td>Diversity and Communication (EDCC 275; admission to Teacher Licensure Program)</td>
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<td>MC 151</td>
<td>Introduction to Manufacturing and Construction</td>
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<td>VE 420</td>
<td>Agricultural Experience and Adult Education</td>
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</table>

**SENIOR**

| EA 308 | Agricultural Finance (EA/EACC 202 or EC/ECCC 202) | 3 | |
| EA 310 | Agricultural Marketing (EA/EACC 202 or EC/ECCC 202) | 3 | |
| ED 450 | Instruction II: Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J) | 4 | |
| ED 486J | Practicum-Methods and Assessment (admission to Teacher Licensure Program) | 1 | |
| ED 493B | Seminar-Assessment of Learning (concurren treg. in ED 485A or B or VE 485) | 1 | 4B |

Select one of the following courses:

| A 330 | Agricultural Ethics | 3 | |
| PL 305E | Philosophical Issues in the Professions-Animal Science | 3 | |
| PL 330 | Agricultural Ethics | 3 | |
| VE 425 | Methods/Materials in Agricultural Education (admission to Teacher Licensure Program; concurrent reg. in ED 450, ED 486J, VE 492) | 4 | |
| VE 485 | Student Teaching | 12 | 4A |
| VE 492 | Seminar | 2 | 4C |

**TOTAL**

| 30 |

**PROGRAM TOTAL = 120 credits**

1 Select from list of courses in category 3D in the All-University Core Curriculum (AUCC).

2 Select from list of courses in category 3B in the AUCC.

*The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned advisor or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned advisor. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.

**DEPARTMENT OF AGRICULTURAL AND RESOURCE ECONOMICS**

*Office in Clark Building, Room B 320
Professor S. Lee Gray, Chair*

**Major in Agricultural Business**

Did you grow up on a farm or ranch, or wish that you had? Are you interested in operating an agricultural business? Do you like the idea of supplying necessary agricultural products to farmers and ranchers? Would you enjoy assisting farmers and ranchers with their business finances? Does buying and selling crops or livestock sound interesting? If you answered “yes” to any of these questions, you should consider a major in Agricultural Business.

The Agricultural Business major teaches students the
operating techniques and business skills used in the modern food and fiber industry. The industry requires a variety of businesses to distribute, process, package, and market agricultural commodities including grain elevators, slaughterhouses, farm real estate firms, bakers, egg processors, canners, trucking companies, breweries, fresh produce centers, wholesalers, retailers, and restaurants. Other businesses supply agricultural producers with capital, fuel, machinery, fertilizer and management services including farm credit services, commercial banks, farm management companies, farm supply coops, feed mills, machinery dealers, and fertilizer and seed companies.

In addition to general requirements and agricultural economics and business courses, majors take agricultural law, agricultural sciences, communications, and statistics. Advanced courses in business areas are available for more specialized study. Agricultural Business majors can easily complete a second major in Animal Sciences, Industries Concentration.

**Characteristics and Skills**

- A strong interest in agriculture
- An aptitude for business
- Enjoy working with people
- Good organizational skills
- Analytical
- Problem solving skills
- Strong oral and written communication skills
- Well organized and can manage multiple tasks
- Can work in a group or alone
- Work well with people

**Potential Occupations**

Although several students from farms and ranches choose this major each year; a diversity of business-oriented students have found careers in this highly diverse industry. Graduates seek careers in agricultural finance, management, marketing, and sales. As the public trend toward more food processing and farm services continues, the demand for agribusiness personnel will remain strong, especially in sales, services and purchasing agent positions. Participation in internships and cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Some of the career opportunities for graduates in Agricultural Business are listed below:

- Agricultural loan officer
- Commodity merchandiser
- Commodity broker
- Feedlot manager
- Food broker
- Land and water manager
- Landscape contractor
- Mortgage broking
- Farm real estate appraiser
- Grain merchandiser
- Assistant elevator manager
- Agricultural chemical representative
- Farm machinery company representative
- Assistant farm supply manager
- Flour mill territory manager
- Meat marketing representative
- Livestock feed marketing representative
- Agricultural consultant
- Pharmaceutical product representative

**Major in Agricultural Business**

<table>
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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td>ECC 204</td>
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<td>M CC 124</td>
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**SOPHOMORE**

| BA 205 | Fundamentals of Accounting                                                         | 3       |               |
| COCC 300 | Writing Arguments (CO/COCC 150)                                                   | 3       | 2B2 or 2D     |
| JT 301 | Business Communication (CO/COCC 150)                                              | 3       |               |
| M CC 141 | Calculus in Management Sciences (M/M CC 118 or M/M CC 121)                        | 3       | 2C            |
| SPCC 200 | Public Speaking                                                                     | 3       | 2B1           |
| Agricultural sciences electives |                                                                                     | 6       |               |
| Foundations and perspectives |                                                                                     | 12      | 3B-3F         |
| TOTAL |                                                                                        | 30      |               |

**JUNIOR**

| BF 305 | Fundamentals of Finance (BA 205, EC/ECCC 204)                                      | 3       |               |
| BK 305 | Fundamentals of Marketing (EC/ECCC 101 or EC/ECCC 202 or EA/EACC 202)              | 3       |               |
| BK 362 | Professional Selling (BK 300 or BK 305)                                            | 3       |               |
| EA 310 | Agricultural Marketing (EA/EACC 202 or EC/ECCC 202)                                | 3       |               |
| EA 335 | Introduction to Econometrics (EC/ECCC 204, ST/STCC 301)                            | 3       |               |
| EC 335 | Introduction to Econometrics (EC/ECCC 204, ST/STCC 301)                            | 3       |               |
| EC 306 | Intermediate Microeconomics (EC/ECCC 204, M/M CC 141)                              | 3       |               |
| STCC 301 | Introduction to Statistical Methods (M/M CC 121)                                     | 3       | 2D            |
| Agricultural science electives |                                                                                     | 3       |               |
| Electives |                                                                                     | 6       |               |
| TOTAL |                                                                                        | 30      |               |

**SENIOR**

| EA 305 | Farm and Ranch Records and Analysis (EA/EACC 202 or EC/ECCC 202)                   | 3       |               |
| EA 308 | Agricultural Finance (EA/EACC 202 or EC/ECCC 202)                                  | 3       |               |
| EA 405 | Agricultural Production Management (EA/EACC 202 or EC/ECCC 202)                    | 3       | 4A, 4C        |
| EA 409 | Farm and Ranch Appraisal (EA 205 or EA 305)                                        | 3       |               |
Major in Agricultural Economics

How will humanity feed a growing population? How do agricultural markets function? What role does agribusiness play in markets at home and abroad? Can environmental costs be measured and mitigated? How will the world’s scarce natural resources be allocated? These are a few of the issues that agricultural and resource economists deal with every day.

Agricultural economics focuses on the production and marketing of agricultural products while natural resource economics focuses on the supply and demand for natural resources, and the impacts of economic activity on resource availability and the environment. Economic theory provides a framework for understanding agricultural and resource issues, predicting the likely effects of government policies and regulations, and devising solutions to pressing economic and environmental problems. Most decisions by governments, businesses, or individuals must weigh tradeoffs or balance costs and benefits. Most human endeavors involve the production, distribution, or consumption of goods and services.

The curriculum in the Agricultural Economics concentration begins with classes in agricultural economics, physical and biological sciences, and technical agriculture. During junior and senior years, students select courses in advanced agricultural economics, mathematics, statistics, and economic theory. In the Natural Resource Economics concentration, agricultural and natural resource economics, physical and biological sciences, and social sciences are required the first two years; then advanced classes in natural resource economics, economic theory, statistics and mathematics round out the last two years. The concentration in Farm and Ranch Management is designed to prepare students to organize and manage a farm or ranch in today’s complex economy, or to represent companies that deal with farmers and ranchers. The curriculum consists of course work in agricultural production economics, agricultural marketing and finance, farm and ranch record analysis, animal sciences, crop production and other agricultural disciplines. Students who complete this concentration seek careers in agricultural finance, farm and ranch management, and agricultural consulting.

Characteristics and Skills

- A strong interest in agriculture or natural resources
- A strong interest in economic and social issues
- Aptitude for mathematics and logic
- Analytical and critical thinking ability
- Creative
- Able to identify key issues
- Able to integrate a variety of concepts
- Good written and oral communication skills
- Desire to understand how political and social contexts affect behavior
- Enjoy working outdoors
- Enjoy living in a rural setting
- Love and respect for working the land
- Enjoy raising livestock and crops
- Ability to do strenuous work for long hours
- Well organized and able to organize numerous tasks
- Enjoy doing business related functions
- Energy resource analyst
- Wholesaler, importer or exporter
- Commodity futures broker
- Foreign trade analyst
- Agriculture and resource policy analyst
- Land use planner
- Natural resource analyst
- Environmental policy analyst
- Agricultural program administrator
- Research scientist
- Cost-benefit analyst
- Extension agent
- Overseas development specialist
- Environmental pollution analyst
- Educator
- Program administrator
- Rural community organizer
- Community development specialist
- Environmental researcher/analyst
- Agricultural chemical representative
- Farm machinery company representative
- Agricultural loan officer
- Assistant feedlot manager
- Farm manager
- Farmer
- Livestock feed marketing representative
- Livestock pharmaceutical product representative
- Farm and ranch appraiser
- Agricultural consultant
- Ranch manager
- Cattle rancher
- Diversified crop farmer
- Livestock producer
- Animal breeder

Potential Occupations

Agricultural and resource economists are employed in a wide variety of fields from education and research to business and government. Profit and non-profit organizations also use economists in overseas development, environmental conservation, pollution control, and international relations. Participation in internships, volunteer activities, and cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations might include:

- Commodities/stock broker
- Financial analyst
- Economic analyst/forecaster
- Manager of agricultural business
- Agricultural loan officer
- Market forecaster
- Agriculture production analyst
- Commodities/stock broker
- Financial analyst
- Economic analyst/forecaster
- Manager of agricultural business
- Agricultural loan officer
- Market forecaster
- Agriculture production analyst

AGRICULTURAL ECONOMICS CONCENTRATION

Major in Agricultural Economics
Agricultural Economics Concentration

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<tr>
<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
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</table>

Select one of the following courses:

- AN 100 Animal Sciences
- FT 110 Introduction to Food Sciences and Technology (high school chemistry)
- H CC 100 Horticultural Science (high school biology)
- SC 100 General Crops

SC 100 General Crops | 3 | 3A |
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Select one pair of the following:

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Health and wellness\(^2\)

**TOTAL**

30-31

**SOPHOMORE**

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**TOTAL**

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**JUNIOR**

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<td>PROGRAM TOTAL = 120 credits</td>
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<sup>1</sup> Students planning to take SC 240 should take C/C CC 107 and C/C CC 108.

<sup>2</sup> Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).

<sup>3</sup> Select four courses to meet the core requirements in arts/humanities (3B), social/behavioral sciences [excluding EACC and ECCC] (3C), historical perspectives (3D), global and cultural awareness (3E), and U.S. public values and institutions (3F). The course selected for category 3F must also fulfill the requirement for category 3C or category 3D.

<sup>4</sup> Select three credits from courses in A, AN, EA, EN, FT, H, LA, PD, SC, W, FNCC 150, NR 120A-B, NR 260, or NRCC 320. A maximum of three EA credits may be used as agricultural electives.

<sup>5</sup> Select six credits from EA and/or EC courses.

**FARM AND RANCH MANAGEMENT CONCENTRATION**

**Major in Agricultural Economics**

**Farm and Ranch Management Concentration**

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<td>EACC 202</td>
<td>Agricultural and Resource Economics</td>
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<tr>
<td>ECCCC 204</td>
<td>Principles of Macroeconomics (EC/ECCC 202 or EA/EACC 202)</td>
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<td>M CC 118</td>
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<tr>
<td>M CC 121</td>
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<td>2C</td>
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<tr>
<td>M CC 124</td>
<td>Logarithmic and Exponential Functions (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>Health and wellness¹</td>
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**SOPHOMORE**

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<tr>
<td>BA 205</td>
<td>Fundamentals of Accounting</td>
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<td>Writing Arguments (CO/COCC 150)</td>
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<td>JTCC 300</td>
<td>Professional and Technical Communication (CO/COCC 150)</td>
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<td>Farm and Ranch Management (EA/EACC 202 or EC/ECCC 202)</td>
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<td>Calculus in Management Sciences (M/M CC 118 or M/M CC 121)</td>
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<td>Public Speaking</td>
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**JUNIOR**

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<td>Fundamentals of Marketing (EC/ECCC 101 or EA/EACC 202 or EC/ECCC 202)</td>
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<td>BK 362</td>
<td>Professional Selling (BK 300 or BK 305)</td>
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<td>EA 305</td>
<td>Farm and Ranch Records and Analysis (EA/EACC 202 or EC/ECCC 202)</td>
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<td>EA 335</td>
<td>Introduction to Econometrics (EC/ECCC 204; ST/STCC 301)</td>
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<tr>
<td>EC 335</td>
<td>Introduction to Econometrics (EC/ECCC 204; ST/STCC 301)</td>
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<tr>
<td>EC 306</td>
<td>Intermediate Microeconomics (EC/ECCC 204, M/M CC 141)</td>
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<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
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**SENIOR**

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<th>Title (Prerequisite)</th>
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<tr>
<td>EA 308</td>
<td>Agricultural Finance (EA/EACC 202 or EC/ECCC 202)</td>
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<td>EA 409</td>
<td>Farm and Ranch Appraisal (EA 205 or EA 305)</td>
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<td>EA 310</td>
<td>Agricultural Marketing (EA/EACC 202 or EC/ECCC 202)</td>
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<td>EA 412</td>
<td>Agricultural Commodities Marketing (EA 310)</td>
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<td>Agricultural Business Management II</td>
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### Course Title (Prerequisite) Credits AUCC Category

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<td>Economics of World Agriculture(^1) (EA/EACC 202 or EC/ECCC 202)</td>
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<td>EA 478</td>
<td>Agricultural Policy(^4) (EA/EACC 202 or EC/ECCC 202 or EA/EACC 240 or EC/ECCC 240)</td>
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<td>4A, 4B, 4C</td>
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<td>EA 375</td>
<td>Agricultural Law</td>
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<td>EA 415</td>
<td>International Agricultural Trade (EC/ECCC 204)</td>
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<td>EA 405</td>
<td>Agricultural Production Management (EA/EACC 202 or EC/ECCC 202)</td>
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<td>4A, 4B, 4C</td>
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<tr>
<td>OR</td>
<td>Agricultural economics or economics(^5)</td>
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<td>OR</td>
<td>Agricultural science electives(^3)</td>
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<td>OR</td>
<td>Electives</td>
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**PROGRAM TOTAL = 120-121 credits**

\(^1\) Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).

\(^2\) Select four courses to meet the AUCC requirements in arts/humanities (3B), social/behavioral sciences [excluding EACC and ECCC] (3C), historical perspectives (3D), global and cultural awareness (3E), and U.S. public values and institutions (3F). The course selected for category 3F must also fulfill the requirement for category 3C or category 3D.

\(^3\) Select a total of 15 credits from courses in A, AN, EA, EN, FT, H, LA, PD, SC, W, FNCC 150, NR 120A-B, NR 260, or NRCC 320. A maximum of three EA credits may be used as agricultural science electives.

\(^4\) If both EA 460 and EA 478 are taken, EA 478 may be substituted for either EA 375 or EA 415.

\(^5\) Select from EA and/or EC courses.

---

### NATURAL RESOURCE ECONOMICS CONCENTRATION

**Major in Agricultural Economics**

**Natural Resource Economics Concentration**

<table>
<thead>
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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td>FRESHMAN</td>
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<tr>
<td>A 140</td>
<td>Technology in Agriculture</td>
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<tr>
<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
<td>3</td>
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<tr>
<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
<td>3</td>
<td>3A</td>
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<td>BZCC 111</td>
<td>Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)</td>
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<td>3A</td>
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<td>OR</td>
<td>Principles of Plant Biology</td>
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<td>EACC 202</td>
<td>Agricultural and Resource Economics</td>
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<td>ECCC 204</td>
<td>Principles of Macroeconomics (EC/ECCC 202 or EA/EACC 202)</td>
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<td>M CC 117</td>
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<td>M CC 118</td>
<td>College Algebra in Context II (M/M CC 117)</td>
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<tr>
<td>OR</td>
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<td>M CC 124</td>
<td>Biological/physical science(^1)</td>
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\(^1\) Select one pair of the following courses:

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<td>3G</td>
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<td></td>
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<td><strong>TOTAL</strong></td>
<td><strong>30</strong></td>
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<tr>
<td><strong>SOPHOMORE</strong></td>
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<td>Fundamentals of Accounting</td>
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<td>Business Communication (CO/COCC 150)</td>
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<td>Public Speaking</td>
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<td>3B-3F</td>
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<td></td>
<td>Foundations and perspectives(^4)</td>
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<td>Agriculture, forestry, or natural science elective(^3)</td>
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<td>Electives</td>
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<tr>
<td>BF 305</td>
<td>Fundamentals of Finance (BA 205, EC/ECCC 204)</td>
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<td>CB 462</td>
<td>Environmental Law (CO/COCC 150)</td>
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<td>EA 375</td>
<td>Agricultural Law</td>
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<td>EACC 240</td>
<td>Issues in Environmental Economics</td>
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<td>Issues in Environmental Economics</td>
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<td>EA 335</td>
<td>Introduction to Econometrics (EC/ECCC 204, ST/STCC 301)</td>
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<td>Introduction to Econometrics (EC/ECCC 204, ST/STCC 301)</td>
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<td>EA 340</td>
<td>Introduction to Economics of Natural Resources (EA/EACC 202 or EC/ECCC 202)</td>
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<td>EC 340</td>
<td>Introduction to Economics of Natural Resources (EA/EACC 202 or EC/ECCC 202)</td>
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<td>EC 306</td>
<td>Intermediate Microeconomics (EC/ECCC 204, M/M CC 141)</td>
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<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
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<td></td>
<td>Agriculture, forestry, natural science electives(^3)</td>
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<tr>
<td></td>
<td>Social science electives(^3)</td>
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<td>EA 344</td>
<td>Economics of Energy Resources (EA/EACC 202 or EC/ECCC 202)</td>
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<td>EC 344</td>
<td>Economics of Energy Resources (EA/EACC 202 or EC/ECCC 202)</td>
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<td>EA 346</td>
<td>Economics of Outdoor Recreation (EA/EACC 202 or EC/ECCC 202)</td>
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<td>EC 346</td>
<td>Economics of Outdoor Recreation (EA/EACC 202 or EC/ECCC 202)</td>
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<td>Economics of World Agriculture (EA/EACC 202 or EC/ECCC 202)</td>
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<td>EA 478</td>
<td>Agricultural Policy (EA/EACC 202 or EC/ECCC 202 or EA/EACC 240 or EC/ECCC 240)</td>
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</table>
### DEPARTMENT OF ANIMAL SCIENCES

**Office in Animal Sciences Building, Room 106C**

**Professor J. Daryl Tatum, Head**

### Major in Animal Science

Do you like working with animals? Would you enjoy the challenge of creating better animal agricultural systems to meet the needs of the world's population? Are you interested in nutrition, genetics, and reproductive sciences? Would you like to create new and better animal products for consumers? An Animal Science major may help you transform your interests into a career.

Animal scientists study farm animals and develop ways of improving livestock production and processing. They study and do research in the following areas: genetics and breeding systems, reproductive physiology, nutrition, animal health management, muscle biology and meat science, and animal behavior. Animal scientists work in a variety of careers. They may inspect and grade livestock food products, purchase livestock, or work in technical sales or marketing. They may work as extension agents or consultants and advise agricultural producers on how to upgrade animal-housing facilities properly for lower mortality rates. Students have a choice of two concentrations that focus on different career objectives:

- **The Industry concentration** emphasizes economics, business, and management associated with animal and poultry industries as well as basic sciences. This concentration prepares students to work in animal related industries, livestock production, county extension work, livestock marketing, and farm, ranch, or feedlot management.

Animal Science majors in the Industry concentration have an opportunity to complete a second major in Agricultural Business by taking just a few extra classes. Elective credits in one major are used to meet the required courses in the other major.

- The **Science concentration** emphasizes biological sciences, physics, and chemistry along with animal science courses. This concentration prepares students to enter graduate programs and provides students with most of the preprofessional requirements for veterinary medicine. After graduate school, students are prepared for opportunities in research, university teaching, extension, and industry.

### Characteristics & Skills

- Interest in farm/livestock animals
- Interest in business
- Excellent communication skills
- Problem-solving skills
- Enjoy working independently or as a team
- Organizational skills
- Attention to detail
- Critical thinking skills
- Analytical skills
- Problem solving skills
- Manual dexterity
- Self-motivation
- Interest in a variety of work environments
### Potential Occupations

An animal science degree prepares students for a variety of career opportunities in animal health, feed and nutrition companies, seed stock organizations, food processing and distribution firms, livestock production, agricultural policy organizations, livestock marketing associations, animal facilities design, and for graduate or professional school. Participation in internships and cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Listed below are some of the career possibilities in the animal science field:

- Animal nutrition specialist
- Breeding specialist
- Cell biologist
- Animal health care specialist
- Feed lot consultant
- Livestock marketing
- Herd manager
- Livestock publications writer
- Marketing agency staff/manager
- Meat inspector
- Livestock and poultry production operator
- Import/export specialist
- Embryo transfer specialist
- Animal behavior specialist
- Veterinary supplies sales representative
- Research scientist

### INDUSTRY CONCENTRATION

**Major in Animal Science**

**Industry Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td><strong>FRESHMAN</strong></td>
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<td>A 192</td>
<td>Orientation to Agricultural Systems</td>
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<td>Animal Sciences</td>
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<td>Principles of Animal Biology</td>
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<td>Animal Biology Laboratory(BZ/BZCC 110 or concurrent reg.)</td>
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<td>Attributes of Living Systems (high school chemistry)</td>
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<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
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<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
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<td>College Composition (Composition Placement Exam)</td>
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<td>Agricultural and Resource Economics</td>
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<td>3C</td>
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<td>ECC 202</td>
<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
<td>3</td>
<td>3C</td>
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| Health and wellness | 2 | 3G |
| Historical perspectives | 3 | 3D |
| Mathematics | 3 | 2C |

**TOTAL** 29

| **SOPHOMORE** |                                                        |         |               |
| AN 250       | Live Animal and Carcass Evaluation                      | 3       |               |
| AN 286       | Livestock Practicums (AN 100 or concurrent reg.)        | 2       |               |
| AY 230       | Animal Anatomy and Physiology (BY 102/LSCC 102, C/C CC 107) | 3 |               |
| PS 230       | Animal Anatomy and Physiology (BY 102/LSCC 102, C/C CC 107) | 3 |               |

<p>| Additional communication | 3 | 2B |</p>
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<th>Credits</th>
<th>AUCC Category</th>
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<td>Global and cultural awareness(^6)</td>
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<td>3E</td>
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<td>Logical/critical thinking(^7)</td>
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<td>U.S. public values and institutions(^8)</td>
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<td>3F</td>
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<td>Applied courses(^9)</td>
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<td><strong>TOTAL</strong></td>
<td><strong>28</strong></td>
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</table>

**JUNIOR**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN 310</td>
<td>Animal Reproduction (AY 230/PS 230)</td>
<td>3</td>
<td>4B</td>
</tr>
<tr>
<td>AN 320</td>
<td>Principles of Animal Nutrition (AN 286)</td>
<td>3</td>
<td>4B</td>
</tr>
<tr>
<td>AN 330</td>
<td>Principles of Animal Breeding (three credits in statistics)</td>
<td>3</td>
<td>4A, 4B</td>
</tr>
<tr>
<td>RS 320</td>
<td>Forage and Range Management (one course in biological sciences)</td>
<td>3</td>
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<tr>
<td>SC 320</td>
<td>Forage and Range Management (one course in biological sciences)</td>
<td>3</td>
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<tr>
<td>VS 300</td>
<td>Prevention and Control of Livestock Diseases</td>
<td>3</td>
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**Advanced courses\(^{10}\)**

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<tbody>
<tr>
<td></td>
<td>Agricultural economics, economics, or business(^{11})</td>
<td>9</td>
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**SENIOR**

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<th>Category</th>
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</thead>
<tbody>
<tr>
<td>AN 372</td>
<td>Sheep Production (AN 250, AN 310, AN 320, AN 330)</td>
<td>3</td>
<td>4C</td>
</tr>
<tr>
<td>AN 376</td>
<td>Dairy Farm Operations (AN 310, AN 320, AN 330)</td>
<td>3</td>
<td>4C</td>
</tr>
<tr>
<td>AN 474</td>
<td>Swine Production (AN 250, AN 310, AN 320, AN 330)</td>
<td>3</td>
<td>4C</td>
</tr>
<tr>
<td>AN 476</td>
<td>Beef Feedlot Management (AN 320)</td>
<td>3</td>
<td>4C</td>
</tr>
<tr>
<td>AN 478</td>
<td>Beef Production and Management (AN 250, AN 310, AN 320, AN 330)</td>
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<td>4C</td>
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**Electives**

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<th>Category</th>
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<tr>
<td></td>
<td></td>
<td>30-31</td>
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<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>33-34</strong></td>
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</table>

**PROGRAM TOTAL = 120 credits**

\(^1\) Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).

\(^2\) Select from the list of courses in category 3D in the AUCC.

\(^3\) Select from the list of courses in category 2C in the AUCC.

\(^4\) Select from the list of courses in category 2B in the AUCC.

\(^5\) Select from the list of courses in category 3B in the AUCC.

\(^6\) Select from the list of courses in category 3E in the AUCC.

\(^7\) Select statistics course from the list in category 2D in the AUCC.

\(^8\) Select from the list of courses in category 3F in the AUCC.

\(^9\) Select 5 credits from at least 3 courses from the department approved list.

\(^{10}\) Select two courses from the department approved list in the department for animal science industry majors.

\(^{11}\) Select nine credits of agricultural economics, economics, or business from the departmental approved list.
### SCIENCE CONCENTRATION

**Major in Animal Science**  
**Science Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>AC 192</td>
<td>Orientation to Agricultural Systems</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>AN 100</td>
<td>Animal Sciences</td>
<td>3</td>
<td></td>
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<tr>
<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
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<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
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<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<td></td>
<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
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<tr>
<td>EACC 202</td>
<td>Agricultural and Resource Economics</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td>ECCC 202</td>
<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
<td>4</td>
<td>3A</td>
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<tr>
<td>M CC 124</td>
<td>Logarithmic and Exponential Function (M/M CC 118 or M/M CC 121 or placement)</td>
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<tr>
<td>M CC 125</td>
<td>Numeric Trigonometry (M/M CC 118 or M/M CC 121 or placement)</td>
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<tr>
<td></td>
<td>Arts/humanities^1</td>
<td>3</td>
<td>3B</td>
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<tr>
<td></td>
<td>Health and wellness^2</td>
<td>2</td>
<td>3G</td>
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<tr>
<td></td>
<td>Historical perspectives^3</td>
<td>3</td>
<td>3D</td>
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<td><strong>TOTAL</strong></td>
<td><strong>31-35</strong></td>
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**SOPHOMORE**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>AN 250</td>
<td>Live Animal and Carcass Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>AN 286</td>
<td>Livestock Practicums (AN 100 or concurrent reg.)</td>
<td>2</td>
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<tr>
<td>AY 230</td>
<td>Animal Anatomy and Physiology (BY/LSCC 102, C/C CC 107)</td>
<td>3</td>
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<tr>
<td>AY 231</td>
<td>Gross Anatomy-Domestic Animals (AY 230/PS 230 or concurrent reg.)</td>
<td>2</td>
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<tr>
<td>PS 230</td>
<td>Animal Anatomy and Physiology (BY/LSCC 102, C/C CC 107)</td>
<td>3</td>
</tr>
<tr>
<td>AY 231</td>
<td>Gross Anatomy-Domestic Animals (AY 230/PS 230 or concurrent reg.)</td>
<td>2</td>
</tr>
<tr>
<td>BY 103</td>
<td>Biology of Organisms (BY/LSCC 102)</td>
<td>4</td>
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<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
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<tr>
<td>--------</td>
<td>---------------------</td>
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<tr>
<td>C 245</td>
<td>Fundamentals of Organic Chemistry (C/C CC 107 or C 113)</td>
<td>4</td>
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<tr>
<td>C 246</td>
<td>Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 245 or concurrent reg.)</td>
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<tr>
<td>C 341</td>
<td>Organic Chemistry I (C 113) AND</td>
<td>3</td>
</tr>
<tr>
<td>C 343</td>
<td>Organic Chemistry II (C 341) AND</td>
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<tr>
<td>C 344</td>
<td>Organic Chemistry Laboratory (C 114; C 343 or concurrent reg.)</td>
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<td>M CC 155</td>
<td>Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)</td>
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<td></td>
<td>Additional communications⁴</td>
<td>3</td>
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<td></td>
<td>Global and cultural awareness⁵</td>
<td>3</td>
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<td></td>
<td>U.S. public values and institutions⁶</td>
<td>3</td>
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<td>32-35</td>
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</table>

**JUNIOR**

| AN 310  | Animal Reproduction (AY 230/PS 230) | 3       | 4B            |
| AN 320  | Principles of Animal Nutrition (AN 286) | 3       | 4B            |
| AN 330  | Principles of Animal Breeding (three credits of statistics) | 3       | 4A/B          |
| PHCC 121 | General Physics I (concurent reg. in M/M CC 125) | 5       | 3A            |
| PHCC 141 | Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160) | 5       | 3A            |
|        | Logical/critical thinking² | 3       | 2D            |
|        | Advanced courses⁴ | 5-7     |                |
|        | Applied courses⁹ | 5       |                |
|        | TOTAL                | 27-29   |                |

**SENIOR**

| AN 372  | Sheep Production (AN 250, AN 310, AN 320, AN 330) | 3       | 4C            |
| AN 376  | Dairy Farm Operations (AN 310, AN 320, AN 330) | 3       | 4C            |
| AN 474  | Swine Production (AN 250, AN 310, AN 320, AN 330) | 3       | 4C            |
| AN 476  | Beef Feedlot Management (AN 320) | 3       | 4C            |
| AN 478  | Beef Production and Management (AN 250, AN 310, AN 320, AN 330) | 3       | 4C            |
| MB 300  | General Microbiology (C 245 or C 341 or concurrent reg.; BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120) | 3       |                |
| MB 302  | General Microbiology Laboratory (MB 300 or concurrent reg.) | 2       |                |
|        | Advanced science¹⁰ | 3-4     |                |
|        | Electives            | 9-19    |                |
|        | TOTAL                | 21-30   |                |

**PROGRAM TOTAL = 120 credits**

---

1 Select from the list of courses in category 3B of the All-University Core Curriculum (AUCC).
2 Select from the list of courses in category 3G of the AUCC.
3 Select from the list of courses in category 3D of the AUCC.
4 Select from the list of courses in category 2B of the AUCC.
5 Select from the list of courses in category 3E of the AUCC.
6 Select from the list of courses in category 3F of the AUCC.
7 Select from the list of courses in category 2D of the AUCC.
8 Select from the list of courses in category 2C of the AUCC.
9 Select from the list of courses in category 2A of the AUCC.
10 Select from the list of courses in category 2D of the AUCC.
Major in Equine Science

Do you enjoy the horse industry? Have you ever wondered how embryo transfer actually occurs? Do the processes that allow horses to run, grow, thrive, and reproduce intrigue you? Have you thought about a career in equine veterinary medicine? If you are curious about the equine industry or about equine sciences, this might be the major for you.

The Equine Science major prepares students to serve the many needs of a growing industry and focuses on providing students with an in-depth scientific knowledge of the varied functions of the horse and how to relate those scientific principles to the industry. It also offers practical experience that will allow you to develop proficiency in working with horses; and a broad understanding of the horse industry and its relationship to the business, recreational and production aspects of the industry. Currently, Colorado State has the most comprehensive equine program in the United States with major efforts in research, teaching, and public service. The curriculum offers an appropriate balance of mathematics, biological, chemical and agricultural sciences, as well as social sciences and humanities. Students have a choice of two concentrations that focus on different career objectives.

The Industry concentration emphasizes economics, business, and management associated with equine and food animal industries. Students are provided the background for employment in a multitude of equine-related industries, management, production, marketing, and extension work. The Science concentration emphasizes basic sciences and provides background for students to enter graduate programs to pursue advanced degrees. Students in this concentration can complete the preprofessional requirements for veterinary medicine. With this concentration and graduate school, students are prepared for opportunities in university teaching, research, extension, or industry.

Characteristics and Skills

- Love for working with horses
- Successful academic background in science and/or business
- Excellent communication skills
- Problem-solving skills
- Enjoy working independently or as a team
- Organizational skills
- Analytical skills
- Attention to detail
- Critical thinking skills
- Self-motivation

Potential Occupations

Career opportunities in the equine industry not only involve horses but business, scientific, and service-related positions. Approximately 20% of equine science graduates go on for advanced degrees. Another 20% work directly with horses at breeding and training farms. The remainder are employed in education, by breed associations, and in journalism and related industries. Participation in internships, volunteer activities, and cooperative education opportunities is highly recommended to enhance your practical training and development. The following are some examples of potential companies and organizations that employ graduates with a degree in equine science:

- Drug and pharmaceutical companies—management, sales, service
- Bloodstock companies—management, sales, buyers, pedigree evaluators
- Equine breed registries and associations
- Embryo transfer organizations
- Feed companies—product development, management, sales
- Horse equipment companies—sales, designers, manufacturers
- Transportation companies
- Peace Corps
- Foreign agriculture services
- Government
- Public relations specialist
- Computerized management system manager
- Insurance agent
- Publications—editors, writers, advertiser, photographer, artist
- Finance specialist
- Farm/ranch real estate agent
- Import/export broker
- Guest ranch manager
- Extension agent
- Trainer
- Judge
- Show steward
- Course designer
- Equitation instructor
- Professional rider
- Brand inspector
- Marketing—analyst, appraiser
- Racetrack personnel
- With graduate and professional degrees
- Veterinarian
- University research, teaching and extension
- Reproduction specialist
- Geneticist
- Medical degree
- Pharmacy degree/nutritionist
- Sales/consultant

**INDUSTRY CONCENTRATION**

**Major in Equine Science**

**Industry Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
<td>3</td>
<td>1</td>
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<tr>
<td>AN 100</td>
<td>Animal Sciences</td>
<td>3</td>
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<tr>
<td>BZCC 110</td>
<td>Select from the following: Principles of Animal Biology AND Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)</td>
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<tr>
<td>BZCC 111</td>
<td>Attributes of Living Systems (high school chemistry)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>LSCC 102</td>
<td>Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 107</td>
<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>EACC 202</td>
<td>Agricultural and Resource Economics</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td>ECC 202</td>
<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td>Health and wellness¹</td>
<td>3</td>
<td>3G</td>
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</tr>
<tr>
<td>Historical perspectives²</td>
<td>3</td>
<td>3D</td>
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<tr>
<td>Mathematics³</td>
<td>3</td>
<td>2C</td>
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<td><strong>TOTAL</strong></td>
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</table>

| **SOPHOMORE** | | | |
| AN 240 | Equine Management | 3 | |
| AN 245 | Equine Evaluation | 3 | |
| AN 286 | Livestock Practicums (AN 100 or concurrent reg.) | 2 | |
| AY 230 | Animal Anatomy and Physiology (BY/LSCC 102, C/C CC 107) | 3 | |
| PS 230 | Animal Anatomy and Physiology (BY/LSCC 102, C/C CC 107) | 3 | |
| Additional communication⁴ | 3 | 2B |
| Applied courses⁵ | 5 | |
| Arts/humanities⁶ | 3 | 3B |
| Global and cultural awareness⁷ | 3 | 3E |
| Statistics⁸ | 3 | 2D |
| U.S. public values and institutions⁹ | 3 | 3F |
| **TOTAL** | | | 31 |

<p>| <strong>JUNIOR</strong> | | | |
| AN 310 | Animal Reproduction (AY 230/PS 230) | 3 | 4B |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN 320</td>
<td>Principles of Animal Nutrition (AN 286)</td>
<td>3</td>
<td>4B</td>
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<tr>
<td>AN 330</td>
<td>Principles of Animal Breeding (three credits in statistics)</td>
<td>3</td>
<td>4A, 4B</td>
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<tr>
<td>AN 346</td>
<td>Equine Disease Management (AY 230/PS 230)</td>
<td>3</td>
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<tr>
<td>RS 320</td>
<td>Forage and Range Management (one course in biological sciences)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 320</td>
<td>Forage and Range Management (one course in biological sciences)</td>
<td>3</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>OR Agricultural economics, economics, business electives</td>
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<td>Electives</td>
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**SENIOR**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC</th>
<th>Category</th>
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<tbody>
<tr>
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<td>Equine Production and Industry (AN 240, AN 346, AN 444, AN 446)</td>
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<td>4C</td>
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<tr>
<td>AN 444</td>
<td>Equine Reproductive Management (AN 310)</td>
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<td>AN 446</td>
<td>Equine Nutrition (AN 320)</td>
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<td>21</td>
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<tr>
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<td>29</td>
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</table>

**PROGRAM TOTAL = 120 credits**

1. Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 3D in the AUCC.
3. Select from the list of courses in category 2C in the AUCC.
4. Select from the list of courses in category 2B in the AUCC.
5. Select five credits from three different courses; see approved department list.
6. Select from the list of courses in category 3B in the AUCC.
7. Select from the list of courses in category 3E in the AUCC.
8. Select statistics course from category 2D in the AUCC.
9. Select from the list of courses in category 3F in the AUCC.
10. Select nine credits from the department approved list.

**SCIENCE CONCENTRATION**

Students in the science concentration of the equine science major having less than a 2.75 cumulative grade point average after completion of 80 credits must change to the industry concentration in equine science. M CC 120A-B and M CC 121 are considered review courses; credits in these courses may not be used toward a degree in the science concentration in the major in equine science.

**Major in Equine Science**

**Science Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
<td>3</td>
<td>1</td>
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<tr>
<td>AN 100</td>
<td>Animal Sciences</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<tr>
<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
<td>4</td>
<td>3A</td>
<td></td>
</tr>
<tr>
<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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</tr>
<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
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<td>Agricultural and Resource Economics</td>
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<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120)</td>
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<td>M CC 124</td>
<td>Logarithmic and Exponential Function (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>M CC 125</td>
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<td></td>
<td>Health and wellness¹</td>
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<td>Historical perspectives²</td>
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**SOPHOMORE**

| AN 240 | Equine Management                                                                  | 3       |               |
| AN 245 | Equine Evaluation                                                                  | 3       |               |
| AN 286 | Livestock Practicums (AN 100 or concurrent reg.)                                   | 2       |               |

Select five credits from the following:

| AY 230 | Animal Anatomy and Physiology (BY/LSCC 102, C/C CC 107)                              | 3       |               |

AND

| AY 231 | Gross Anatomy-Domestic Animals (AY 230/PS 230 or concurrent reg.)                     | 2       |               |

OR

| PS 230 | Animal Anatomy and Physiology (BY/LSCC 102, C/C CC 107)                               | 3       |               |

AND

| AY 231 | Gross Anatomy-Domestic Animals (AY 230/PS 230 or concurrent reg.)                     | 2       |               |

| BY 103 | Biology of Organisms (BY/LSCC 102)                                                   | 4       |               |

Select from the following:

| C 245 | Fundamentals of Organic Chemistry (C/C CC 107 or C 113)                               | 4       |               |

AND

| C 246 | Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent reg.) | 1       |               |

OR

| C 341 | Organic Chemistry I (C 113)                                                          | 3       |               |

AND

| C 343 | Organic Chemistry II (C 341)                                                         | 3       |               |

AND

| C 344 | Organic Chemistry Laboratory (C 114; C 343 or concurrent reg.)                       | 2       |               |

| M CC 155 | Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)           | 4       | 2C            |

Additional communications³                                                | 3       | 2B            |
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<td>Arts/humanities ⁴</td>
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**JUNIOR**

| AN 310 | Animal Reproduction (AY 230/PS 230) | 3 | 4B |
| AN 320 | Principles of Animal Nutrition (AN 286) | 3 | 4B |
| AN 330 | Principles of Animal Breeding (three credits of statistics) | 3 | 4A, 4B |
| AN 346 | Equine Disease Management (AY 230/PS 230) | 3 |

**OR**

| BC 351 | Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343) | 4 |
| PHCC 121 | General Physics I (concurrent reg. in M/M CC 125) | 5 | 3A |
| PHCC 141 | Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160) | 5 | 3A |

**OR**

|        | Applied course ⁵   | 5       |
|        | Global and cultural awareness ⁶ | 3 | 3E |
|        | Logical/critical thinking ⁷ | 3 | 2D |
|        | U.S. public values and institutions ⁸ | 3 | 3F |
|        | TOTAL                | 34-35   |

**SENIOR**

| AN 440 | Equine Production and Industry (AN 240, AN 346, AN 444, AN 446) | 3 | 4C |
| AN 444 | Equine Reproductive Management (AN 310) | 3 |
| AN 446 | Equine Nutrition (AN 320) | 2 |
| MB 300 | General Microbiology (C 245 or C 341 or concurrent reg.; BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120) | 3 |
| MB 302 | General Microbiology Laboratory (MB 300 or concurrent reg.) | 2 |
|        | Advanced science ⁹ | 3-4 |
|        | Electives ¹⁰ | 1-10 |
|        | TOTAL | 18-26 |

**PROGRAM TOTAL = 120 credits**

¹ Select from the list of courses in category 3G of the All-University Core Curriculum (AUCC).
² Select from the list of courses in category 3D of the AUCC.
³ Select from the list of courses in category 2B of the AUCC.
⁴ Select from the list of courses in category 3B of the AUCC.
⁵ Select from approved departmental list.
⁶ Select from the list of courses in category 3E of the AUCC.
⁷ Select from the list of courses in category 2D of the AUCC.
⁸ Select from the list of courses in category 3F of the AUCC.
⁹ Pick one course from the departmental approved list.
¹⁰ Select enough credits to bring total to the minimum of 120.

---

**Preveterinary Medicine**

Preveterinary medical students interested in animal or equine science are encouraged to follow the science concentration listed under the animal science and equine science majors in this section of the catalog. Maximum flexibility in career direction can be obtained by meeting the requirements for a degree in animal or equine science while simultaneously completing the admission requirements for the professional veterinary medical
program. Students accepted into the professional veterinary medical program after receiving this degree will benefit from the background in nutrition, breeding, marketing, and management of livestock or nutrition, genetics, and marketing. Students not entering the veterinary medical program use this background in pursuing career suggestions mentioned in the science concentration of the animal science or equine science majors.

DEPARTMENT OF BIAOGROCUTURAL SCIENCES AND PEST MANAGEMENT

Office in Plant Sciences Building, Room C 120
Professor Thomas O. Holtzer, Head

Major in Bioagricultural Sciences

Are you interested in biology? Do you like bugs? Often wonder about how to protect plants from diseases, weeds, and insects? Would you like to help others in growing better crops, or assist in having more healthy forests? How about being involved in research to control or eliminate harmful pests in specific areas, and developing products that are not harmful to the natural environment? Would you like to know how to change the genetics of a plant to prevent it from acquiring a disease? If you can answer “yes” to any of these questions, then you may want to consider a major in bioagricultural sciences.

Bioagricultural scientists study how to control or eliminate the presence of insects, plant pathogens, and weeds in field and horticultural crops, landscape plants, forests, livestock, or households without damaging the environment. Graduates will have expertise in several of the following areas related to pests, pathogens, and their hosts: management, behavior, physiology, taxonomy, biodiversity, ecology, population dynamics, molecular biology, biotechnology, traditional and biological control methods, resistance to pesticides, and the balance of treatments that leads to sustainable, safe, and cost effective control. The curriculum combines biology courses with agricultural sciences and includes coursework in genetics, evolution, chemistry, economics, statistics, and computer applications. Three concentrations are offered within the major:

Agricultural Biotechnology is an interdisciplinary approach designed for students interested in cellular and molecular processes, or the commercial production of agriculturally related products. The core curriculum in biological sciences may be combined with a specialization in a specific agricultural science, or with courses that provide a broader perspective. This concentration offers an excellent foundation for continuing with graduate work or careers involving scientific research and applications in agriculture.

Plant Health combines the study of weeds, insects and plant diseases. The science option focuses on biological sciences and prepares students for careers in research, industry or graduate work. For those interested in pursuing a master’s in business administration or business positions in industry, the business management option is available.

Entomology focuses on and provides a broad knowledge of the biology and control of insects. Entomologists conduct research and develop new strategies and technologies to control or eliminate pests in infested areas and prevent the spread of harmful pests to new areas, while always considering the method’s compatibility with the environment. Graduates are prepared for technical, research, and regulatory positions with the federal and state governments, high school and college teaching, insecticide manufacturers and processors, or their own businesses as beekeepers, pest control operators, or entomological consultants. Students have access to well-equipped laboratories and an insect collection of 800,000 specimens.

Characteristics and Skills

- A strong interest in the biological and other natural sciences
- A strong interest in agriculture
- Analytical ability
- Ability to work independently or in a team
- Enjoy working outdoors as well as indoors
- Strong oral and written communication skills
- Organizational skills
- Ability and desire to understand basic business principles

Potential Occupations

An expanding population and a public increasingly focused on health and food safety will result in growing opportunities for agricultural scientists. Further research is necessary as insects and diseases continue to adapt to pesticides. The practice of “sustainable agriculture” is necessary in order to reduce the use of harmful chemicals and do little damage to the natural environment. Products developed using biotechnology methods will assist in these challenges. Participation in internships and cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility
of rising to top professional levels. Listed below are some of the possible careers in this major:
- Agricultural producer
- Biological control specialist
- Chemical ecologist
- College teacher
- Consultant
- Entomologist
- Entomology technician
- Environmental specialist
- Extension agent
- Field consultant
- Forest resource manager
- Government specialist on pesticides
- Greenhouse disease/pest specialist
- Insect behavior researcher
- International consultant
- Nematology technician
- Pest control applicator
- Plant pathologist
- Plant physiologist
- Research scientist
- Science teacher
- Technical representative for chemical company
- Toxicologist
- University or government researcher
- Urban plant disease specialist
- Weed scientist

M CC 120A-B and M CC 121 are considered review courses; credits in these courses may not be used toward a degree in the major in bioagricultural sciences or the agricultural biotechnology or entomology concentrations.

Major in Bioagricultural Sciences

<table>
<thead>
<tr>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>A 140</td>
<td>Technology in Agriculture</td>
<td>3</td>
<td>1</td>
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<tr>
<td>CS 110</td>
<td>Personal Computing</td>
<td>4</td>
<td>2D</td>
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<tr>
<td>CSCC 151</td>
<td>C++ for Scientists and Engineers (M/M CC 124, M/M CC 126)</td>
<td>4</td>
<td>2D</td>
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<tr>
<td>LI 301</td>
<td>Library Research Methods</td>
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<tr>
<td>PLCC 110</td>
<td>Logic and Critical Thinking</td>
<td>3</td>
<td>2D</td>
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<tr>
<td>PL 210</td>
<td>Introduction to Formal Logic (sophomore standing or higher or written consent of instructor)</td>
<td>3</td>
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<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
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<td>BZCC 110</td>
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<td>Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.) AND</td>
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<tr>
<td>BZCC 120</td>
<td>Principles of Plant Biology OR</td>
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<td>3A</td>
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<tr>
<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry) AND</td>
<td>4</td>
<td>3A</td>
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<tr>
<td>BY 103</td>
<td>Biology of Organisms-Animals and Plants (LSCC 102)</td>
<td>4</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>M CC 124</td>
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<td>2C</td>
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<tr>
<td>M CC 125</td>
<td>Numerical Trigonometry (M/M CC 118 or M/M CC 121 or placement)</td>
<td>1</td>
<td>2C</td>
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<tr>
<td>M CC 126</td>
<td>Analytic Trigonometry (M/M CC 125 or placement)</td>
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<td>Foundations and perspectives³</td>
<td>6</td>
<td>3B-3F</td>
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<td>Health and wellness²</td>
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SOPHOMORE

C CC 111 | General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher) | 4       | 3A            |
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<td>C CC 112</td>
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<tr>
<td>C 114</td>
<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
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Select one course from the following:

- COCC 300 Writing Arguments (CO/COCC 150) 3 2B2
- COCC 301A-D Writing in the Disciplines (CO/COCC 150) 3 2B2
- JTCC 300 Professional and Technical Communication (CO/COCC 150) 3 2B2

M CC 155 Calculus for Biological Scientists I (M/M CC 124, M/M CC 125) 4

SPCC 200 Public Speaking 3 2B1

Bioagricultural sciences electives 3

Foundations and perspectives 9 3B-3F

TOTAL 31

JUNIOR

Select one course from the following:

- A CC 116 Plants and Civilization 3 3E
- IECC 116 Plants and Civilization 3 3E
- A CC 270 World Interdependence-Population and Food 3 3E
- IECC 270A World Interdependence-Population and Food 3 3E
- A 300 Issues in Agriculture 2
- A 330 Agricultural Ethics 3
- PL 330 Agricultural Ethics 3
- EACC 202 Agricultural and Resource Economics 3 3C

C 245 Fundamentals of Organic Chemistry (C/C CC 107 or C 113) 4

C 246 Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent registration) 1

BY 220 Fundamentals of Ecology (one course in biology; M/M CC 124 or M/M CC 141 or M/M CC 155) 3

OR

NR 120A Environmental Conservation 3

PHCC 110 Descriptive Physics 3 3A

Bioagricultural science electives 12

Electives 6

TOTAL 31-32

SENIOR

BI 402A-F Plant Health Practicum (two classes in plant pathology, entomology or weed science) 3 4A, 4B

BI 450 Advanced Topics in Plant Health (senior standing or written consent of instructor) 3 4A, 4B

BI 451 Integrated Pest Management (EN 302 or PD 361 or W 308 or 10 credits of biology) 3

BI 460 Plant Health Capstone (senior standing) 1 4C

SC 330 Principles of Genetics (BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120) 3

SC 331 Genetics Laboratory (SC 330 or concurrent reg.) 1
### AGRICULTURAL BIOTECHNOLOGY CONCENTRATION

**Major in Bioagricultural Sciences**

**Agricultural Biotechnology Concentration**

<table>
<thead>
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**FRESHMAN**

- Select at least three credits from the following:

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<td>LI 301</td>
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<td>Logic and Critical Thinking</td>
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<tr>
<td>PL 210</td>
<td>Introduction to Formal Logic</td>
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- Select one of the following sets of courses:

- **AND**

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<td>BZCC 110</td>
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- **OR**

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<td>M CC 124</td>
<td>Logarithmic and Exponential Function (M/M CC 118 or M/M CC 121 or placement)</td>
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</table>

1. Select one course each from categories 3B-3F of the All-University Core Curriculum (AUCC).
2. Select from list of courses in category 3G in the AUCC.
3. A total of 27 credits will be selected from a list provided by the department. At least 6 credits must be from BI, EN, PD, W. At least one course each must fit categories 4A and 4B. Selection must be approved by an adviser.
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<th>AUCC Category</th>
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<td>C 245</td>
<td>Fundamentals of Organic Chemistry (C/C CC 107 or C 113)</td>
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<td>C 246</td>
<td>Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent registration)</td>
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<td>2B2</td>
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<td>Writing in the Disciplines (CO/COC 150)</td>
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<td>2B2</td>
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<td>JTCC 300</td>
<td>Professional and Technical Communication (CO/COC 150)</td>
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<td>2B2</td>
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<td>M CC 155</td>
<td>Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)</td>
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<td>SPCC 200</td>
<td>Public Speaking</td>
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<td>Foundations and perspectives¹</td>
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<td>3B-3F</td>
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<tr>
<td></td>
<td><strong>JUNIOR</strong></td>
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<tr>
<td>BY 310</td>
<td>Cell Biology (one semester of organic chemistry or concurrent reg.; 2 semesters of introductory biology)</td>
<td>4</td>
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<tr>
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<td><strong>Select one of the following courses:</strong></td>
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<td></td>
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<tr>
<td>BY 220</td>
<td>Fundamentals of Ecology (one course in biology; M/M CC 124 or M/M CC 141 or M/M CC 155)</td>
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<td></td>
</tr>
<tr>
<td>NR 120A</td>
<td>Environmental Conservation</td>
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<td>MB 300</td>
<td>General Microbiology (C 245 or C 341 or concurrent reg.; BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)</td>
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<td>Principles of Genetics (BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)</td>
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<td>Genetics Laboratory (SC 330 or concurrent reg.)</td>
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<td>Introduction to Biostatistics (M/M CC 121)</td>
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<td>Statistics for Behavioral Sciences I (M 121)</td>
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<td></td>
<td>Agricultural and biological sciences³</td>
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<td></td>
<td>Foundations and perspectives³</td>
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<td>3B-3F</td>
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<td>Electives⁴</td>
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<td>BC 351</td>
<td>Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343)</td>
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<td>Principles of Biochemistry Laboratory (BC 301 or BC 351 or BC 401 or concurrent reg., 2 credits of college chemistry laboratory)</td>
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<td>BC 403</td>
<td>Comprehensive Biochemistry II (BC 401)</td>
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<td>BC 404</td>
<td>Comprehensive Biochemistry Laboratory (BC 401 or concurrent reg.; C 246 or C 344; NS 204)</td>
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<td>BC 463</td>
<td>Molecular Genetics (NS 201; BC 401 or concurrent reg. or BC 351)</td>
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<tr>
<td>BI 460</td>
<td>Plant Health Capstone (senior standing)</td>
<td>1</td>
<td>4C</td>
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<tr>
<td>Agricultural and biological sciences</td>
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<td>Electives</td>
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**PROGRAM TOTAL = 120 credits**

1 Select one course each from categories 3B-3F of the All-University Core Curriculum (AUCC). The course selected for category 3F should also be listed in category 3C or 3D.
2 Select from list of courses in category 3G of the AUCC.
3 Select from the following list. At least two of the courses selected must be in categories 4A and 4B.

**Agricultural and Biological Sciences**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credit</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>AN 430</td>
<td>Applied Animal Breeding (AN 330)</td>
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<tr>
<td>BC 406A</td>
<td>Investigative Biochemistry-Protein Biochemistry (BC 404)</td>
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<td>BC 406B</td>
<td>Investigative Biochemistry-Molecular Genetics (BC 404)</td>
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<tr>
<td>BC 406C</td>
<td>Investigative Biochemistry-Cellular Biochemistry (BC 404)</td>
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<tr>
<td>BI 200</td>
<td>Principles of Plant Health</td>
<td>3</td>
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<tr>
<td>BI 402A</td>
<td>Practicum in Plant Health (2 classes in plant pathology, entomology, or weed science)</td>
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<td>4A, 4B</td>
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<td>BI 402A-F</td>
<td>Advanced Topics in Plant Health (senior standing or written consent of instructor)</td>
<td>3</td>
<td>4A, 4B</td>
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<td>BI 450</td>
<td>Integrated Pest Management (EN 302 or PD 361 or W 308 or 10 credits of biology)</td>
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<tr>
<td>BI 451</td>
<td>Developmental Biology (BY 310 or written consent of instructor)</td>
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<td>BY 311</td>
<td>Evolution and Heredity (BY 103 or BZ/BZCC 111)</td>
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<td>BZ 346</td>
<td>Chromosomes of Eukaryotes (BY 310)</td>
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<td>BZ 402</td>
<td>Behavioral Genetics (one course in genetics)</td>
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<td>Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.)</td>
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<td>Plant Physiology Laboratory (BZ 440 or concurrent reg.)</td>
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<td>BZ 455</td>
<td>Human Heredity and Birth Defects (BY 103 or BZ/BZCC 111)</td>
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<td>EN 302</td>
<td>Applied and General Entomology</td>
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<td>EN 303A</td>
<td>Entomology Laboratory-General (EN 302 or concurrent reg.)</td>
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<td>EN 303B</td>
<td>Entomology Laboratory-Horticultural (EN 302 or concurrent reg.)</td>
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<td>EN 303C</td>
<td>Parasilidology and Vector Biology (BY 103 or BZ/BZCC 110; MB 301 or MB 302 or BZ 212)</td>
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<td>MB 462</td>
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<td>Course</td>
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<td>Credit</td>
<td>AUCC Category</td>
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<td>BZ 462</td>
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<tr>
<td>H CC 100</td>
<td>Horticultural Science (high school biology)</td>
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<td>H 460</td>
<td>Plant Breeding (SC 330)</td>
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<tr>
<td>SC 460</td>
<td>OR</td>
<td>1</td>
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<td>H 461</td>
<td>Plant Breeding Laboratory (H 460/SC 460 or concurrent reg.)</td>
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<td>SC 461</td>
<td>OR</td>
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<td>MB 420</td>
<td>Medical and Molecular Virology (MB 342; BC 351 or BC 401 or concurrent reg.)</td>
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<td>MB 425</td>
<td>Virology and Cell Culture Laboratory (MB 301 or MB 302; MB 420 or concurrent reg.)</td>
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<td>MB 450</td>
<td>Microbial Genetics (MB 300; BC 351 or BC 401 or concurrent reg.)</td>
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<td>4A</td>
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<tr>
<td>PD 361</td>
<td>Elements of Plant Pathology (BY/LSCC 102 or BZ/BZCC 104 or concurrent reg.)</td>
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<td>SC 100</td>
<td>BZ/BZCC 120 or H/H CC 100)</td>
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<td>SC 430</td>
<td>General Crops</td>
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<td>W 308</td>
<td>Applications of Plant Biotechnology (SC 330)</td>
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<td>W 308</td>
<td>Biology and Control of Weeds (BY 103 or BZ/BZCC 120; C/C CC 107 or C/C CC 111)</td>
<td>4</td>
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*Courses must be approved by adviser.

ENTOMOLOGY CONCENTRATION

Major in Bioagricultural Sciences
Entomology Concentration

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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td>A 140</td>
<td>Technology in Agriculture</td>
<td>3</td>
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<td>CS 110</td>
<td>Personal Computing</td>
<td>4</td>
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<tr>
<td>CS CC 151</td>
<td>C++ for Scientists and Engineers (M/M CC 124, M/M CC 126)</td>
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<td>LI 301</td>
<td>Library Research Methods</td>
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<td>PL CC 110</td>
<td>Logic and Critical Thinking</td>
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<td>PL 210</td>
<td>Introduction to Formal Logic (sophomore standing or higher or written consent of instructor)</td>
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<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
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<td>BI 200</td>
<td>Principles of Plant Health</td>
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<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
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<td>BZCC 111</td>
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<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
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<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
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<td>BY 103</td>
<td>Biology of Organisms-Animals and Plants (BY/LSCC 102)</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<tr>
<td>M CC 124</td>
<td>Logarithmic and Exponential Function (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>M CC 125</td>
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<td>Foundations and perspectives¹</td>
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<td>3B-3F</td>
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<td>Health and wellness²</td>
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<td>3G</td>
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**SOPHOMORE**

- Select one of the following courses:
  - A CC 116 Plants and Civilizations
    - OR
  - IECC 116 Plants and Civilizations
  - A CC 270 World Interdependence-Population and Food
    - OR
  - IECC 270A World Interdependence-Population and Food
  - A 300 Issues in Agriculture
  - A 330 Agricultural Ethics
    - OR
  - PL 330 Agricultural Ethics
  - EACC 202 Agricultural and Resource Economics
    - 3 3C
  - C CC 111 General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)
    - 4 3A
  - C CC 112 General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)
    - 1 3A
  - C 113 General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)
    - 3
  - C 114 General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)
    - 1
  - Select one from the following courses:
    - COCC 300 Writing Arguments (CO/COCC 150)
      - 3 2B2
    - COCC 301A-D Writing in the Disciplines (CO/COCC 150)
      - 3 2B2
    - JTCC 300 Professional and Technical Communication (CO/COCC 150)
      - 3 2B2
  - M CC 155 Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)
    - 4 2C
  - SPCC 200 Public Speaking
    - 3 2B1
  - Foundations and perspectives¹
    - 9 3B-3F
  - **TOTAL** 30-31

**JUNIOR**

- BY 220 Fundamentals of Ecology (one course in biology; M/M CC 124 or M/M CC 141 or M/M CC 155)
  - 3
  - OR
- NR 120A Environmental Conservation
  - 3
- BZ 212 Animal Biology-Invertebrates (BY 103 or BZ/BZCC 111)
  - 4
- C 245 Fundamentals of Organic Chemistry (C/C CC 107 or C 113)
  - 4
- C 246 Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent reg.)
  - 1
- EN 302 Applied and General Entomology
  - 2 4A, 4B
- EN 303A General Entomology Laboratory (EN 302 or concurrent reg.)
  - 2
- EN 303B Horticultural Entomology Laboratory (EN 302 or concurrent reg.)
  - 1
  - OR
- EN 303C Agricultural Entomology Laboratory (EN 302 or concurrent reg.)
  - 1
- PHCC 110 Descriptive Physics
  - 3
- SC 330 Principles of Genetics (BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)
  - 3
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<td>Electives&lt;sup&gt;4&lt;/sup&gt;</td>
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<td><strong>29-31</strong></td>
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**SENIOR**

| BC 351 | Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343)             | 4       |               |
| BC 352 | Principles of Biochemistry Laboratory (BC 301 or BC 351 or BC 401 or concurrent reg.; two credits of college chemistry laboratory) | 1       |               |
| BI 460 | Plant Health Capstone (senior standing)                                            | 1       | 4C            |
| STCC 201 | General Statistics (M/M CC 120A-B)                                             | 3       | 2D            |
| STCC 301 | Introduction to Statistical Methods (M/M CC 121)                                   | 3       | 2D            |
| STCC 307 | Introduction to Biostatistics (M/M CC 121)                                    | 3       | 2D            |
| EHCC 307 | Introduction to Biostatistics (M/M CC 121)                              | 3       | 2D            |
| ST 311 | Statistics-Behavioral Sciences I (M/M CC 121)                                 | 3       |               |

**Select one course from the following:**

- Departmental electives<sup>1</sup>
- Electives<sup>4</sup>

**TOTAL** 31

**PROGRAM TOTAL = 120 credits**

<sup>1</sup> Select from courses in categories 3B, 3C, 3D, 3E, and 3F, in the All-University Core Curriculum (AUCC). The course selected for 3F must also be listed in category 3C or 3D.

<sup>2</sup> Select from the list of courses in category 3G in the AUCC.

<sup>3</sup> A minimum of 12 credits must be taken from the following list of departmental electives. Select one course each for AUCC categories 4A and 4B.

### Departmental Electives

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<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>BI 402</td>
<td>Plant Health Practica (two classes in plant pathology, entomology, or weed science)</td>
<td>3</td>
<td>4A, 4B</td>
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<tr>
<td>BI 450</td>
<td>Advanced Plant Health (senior standing or written consent of instructor)</td>
<td>3</td>
<td>4A, 4B</td>
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<td>BI 451</td>
<td>Integrated Pest Management (EN 302 or PD 361 or W 308 or ten credits of biology)</td>
<td>3</td>
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<td>BI 487</td>
<td>Internship</td>
<td>Var.</td>
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<tr>
<td>EN 310</td>
<td>Fundamentals of Pesticides (introductory biological science or introductory chemistry)</td>
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**OR**

| PD 310 | Fundamentals of Pesticides (introductory biological science or introductory chemistry) | 2       |               |

**OR**

| W 310  | Fundamentals of Pesticides (introductory biological science or introductory chemistry) | 2       |               |
| EN 423 | Evolution and Classification-Insects (EN 303A or B or C)                                | 4       |               |
| EN 424 | Principles of Systematic Zoology (BY 103 or BZ/BZCC 111)                                 | 3       |               |

**OR**

| BZ 424 | Principles of Systematic Zoology (BY 103 or BZ/BZCC 111)                                 | 3       |               |
| EN 445 | Aquatic Insects (BY 103 or BZ/BZCC 111)                                               | 4       |               |
| EN 462 | Parasitology and Vector Biology (BY 103 or BZ/BZCC 110; MB 301 or MB 302 or BZ 212)     | 5       |               |

**OR**

| BZ 462 | Parasitology and Vector Biology (BY 103 or BZ/BZCC 110; MB 301 or MB 302 or BZ 212)     | 5       |               |
### PLANT HEALTH CONCENTRATION

**Major in Bioagricultural Sciences**  
**Plant Health Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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#### FRESHMAN

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<td>A</td>
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<td>3</td>
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<td>CS</td>
<td>Personal Computing</td>
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<td>CSCC</td>
<td>C++ for Scientists and Engineers (M/M CC 124, M/M CC 126)</td>
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<td>LI</td>
<td>Library Research Methods</td>
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<td>PLCC</td>
<td>Logic and Critical Thinking</td>
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<td>2D</td>
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<tr>
<td>PL</td>
<td>Introduction to Formal Logic</td>
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<td>AC</td>
<td>Orientation to Agricultural Systems</td>
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<tr>
<td>BI</td>
<td>Principles of Plant Health</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Select at least three credits from the following courses:

- BZCC 110 Principles of Animal Biology

Select one of the following sets of courses:

- BZCC 111 Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)

- BZCC 120 Principles of Plant Biology

- LSCC 102 Attributes of Living Systems (high school chemistry)

- BY 103 Biology of Organisms-Animals and Plants (LSCC 102)

- COCC 150 College Composition (Composition Placement Exam) 3 2A
- M CC 124 Logarithmic and Exponential Function (M/M CC 118 or M/M CC 121 or placement) 1 2C

- Health and wellness

**TOTAL** 23

#### SOPHOMORE

Select one of the following:

- COCC 300 Writing Arguments (CO/COC 150) 3 2B2
- COCC 301A-D Writing in the Disciplines (CO/COC 150) 3 2B2
- JTCC 300 Professional and Technical Communication (CO/COC 150) 3 2B2

- SC 240 Introductory Soil Science (C/C CC 107 or C/C CC 111) 4
- SPCC 200 Public Speaking 3 2B1

- Foundations and perspectives

**TOTAL** 22

#### JUNIOR
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 302</td>
<td>Applied and General Entomology</td>
<td>2</td>
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<tr>
<td>EN 303A</td>
<td>General Entomology Laboratory (EN 302 or concurrent reg.)</td>
<td>2</td>
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<tr>
<td>EN 303B</td>
<td>Horticultural Entomology Laboratory (EN 302 or concurrent reg.)</td>
<td>1</td>
<td>OR</td>
</tr>
<tr>
<td>EN 303C</td>
<td>Agricultural Entomology Laboratory (EN 302 or concurrent reg.)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>EN 310</td>
<td>Fundamentals of Pesticides (introductory biological science or introductory chemistry)</td>
<td>2</td>
<td>OR</td>
</tr>
<tr>
<td>PD 310</td>
<td>Fundamentals of Pesticides (introductory biological science or introductory chemistry)</td>
<td>2</td>
<td>OR</td>
</tr>
<tr>
<td>W 310</td>
<td>Fundamentals of Pesticides (introductory biological science or introductory chemistry)</td>
<td>2</td>
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Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
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<tbody>
<tr>
<td>F 210</td>
<td>Dendrology (BZ/BZCC 120)</td>
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<tr>
<td>H 221</td>
<td>Landscape Plants</td>
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<tr>
<td>H 322</td>
<td>Herbaceous Plants (one course in botany or biological science or horticulture)</td>
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<tr>
<td>PD 361</td>
<td>Elements of Plant Pathology (BY/LSCC 102 or BZ/BZCC 104 or BZ/BZCC 120 or H/H CC 100)</td>
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</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
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<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>STCC 201</td>
<td>General Statistics (M/M CC 120A-B)</td>
<td>3</td>
<td>2D</td>
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<tr>
<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>STCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>EHCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>ST 311</td>
<td>Statistics for Behavioral Sciences I (M/M CC 121)</td>
<td>3</td>
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<tr>
<td>W 308</td>
<td>Biology and Control of Weeds (BY 103 or BZ/BZCC 120; C/C CC 107 or C/C CC 111)</td>
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</table>

TOTAL | 20-21 |

SENIOR

Select one course from the following:

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<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>ACC 116</td>
<td>Plants and Civilization</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>IECC 116</td>
<td>Plants and Civilization</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>ACC 270</td>
<td>World Interdependence-Population and Food</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>IECC 270A</td>
<td>World Interdependence-Population and Food</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>A 300</td>
<td>Issues in Agriculture</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>A 330</td>
<td>Agricultural Ethics</td>
<td>3</td>
<td>OR</td>
</tr>
<tr>
<td>PL 330</td>
<td>Agricultural Ethics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EACC 202</td>
<td>Agricultural and Resource Economics</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td>BI 402A-F</td>
<td>Plant Health Practica (two classes in plant pathology, entomology, or weed science)</td>
<td>3</td>
<td>4A, 4B</td>
</tr>
<tr>
<td>BI 450</td>
<td>Advanced Topics in Plant Health (senior standing or written consent of instructor)</td>
<td>3</td>
<td>4A, 4B</td>
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<tr>
<td>BI 451</td>
<td>Integrated Pest Management (EN 302 or PD 361 or W 308 or 10 credits of biology)</td>
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<tr>
<td>BI 460</td>
<td>Plant Health Capstone (senior standing)</td>
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<td>4C</td>
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<tr>
<td>BY 220</td>
<td>Fundamentals of Ecology (one course in biology; M/M CC 124 or M/M CC 141 or M/M CC 155)</td>
<td>3</td>
<td>OR</td>
</tr>
<tr>
<td>NR 120A</td>
<td>Environmental Conservation</td>
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</table>
### Major in Bioagricultural Sciences
### Plant Health Concentration
### Business Management Option

In addition to the plant health concentration courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>15-16</td>
<td></td>
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</tbody>
</table>

**CORE TOTAL = 81 credits**

1. Select from list of courses in category 3G of the All-University Core Curriculum (AUCC).
2. Select one course from each of the AUCC categories 3B to 3F. The course selected for 3F should also be listed in category 3C or 3D.
3. In addition, students must select one of the following options: business management or science.

---

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td></td>
<td></td>
<td>3</td>
<td>3C</td>
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**TOTAL 15-16**

**MAJOR TOTAL = 120 credits**

---

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<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>FRESHMAN</td>
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**TOTAL 5**

**SOPHOMORE**

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<th>AUCC Category</th>
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<tr>
<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120A or placement or CC 121 or higher)</td>
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<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
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<td>3A</td>
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<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement or CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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<tr>
<td></td>
<td>Agricultural management electives¹</td>
<td>3-4</td>
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<td>Business electives²</td>
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**JUNIOR**

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<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>Plant health electives³</td>
<td></td>
<td>4</td>
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<tr>
<td>Electives⁴</td>
<td></td>
<td>4</td>
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<td>8</td>
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**SENIOR**

<table>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
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<tr>
<td>Business electives²</td>
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<td>Plant health electives⁵</td>
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<td>4A, 4B</td>
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<td>Electives⁴</td>
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<td>1-4</td>
<td></td>
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<tr>
<td>TOTAL</td>
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<td>13-16</td>
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**PROGRAM TOTAL = 120 credits**
1. Select from the following list:

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<th>Title (Prerequisite)</th>
<th>Credit</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td></td>
<td>Agricultural Management Electives</td>
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<td></td>
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<tr>
<td>H CC 100</td>
<td>Horticultural Science (high school biology)</td>
<td>4</td>
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</tr>
<tr>
<td>H 310</td>
<td>Greenhouse Management</td>
<td>4</td>
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</tr>
<tr>
<td>H 321</td>
<td>Nursery Production and Management (H/H CC 100)</td>
<td>4</td>
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</tr>
<tr>
<td>H 341</td>
<td>Turfgrass Management (H/H CC 100)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H 464</td>
<td>Arboriculture and Urban Plant Management (H/H CC 100, SC 240)</td>
<td>3</td>
<td></td>
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<tr>
<td>RS 300</td>
<td>240</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SC 100</td>
<td>Principles of Range Management (BY 103 or BZ/BZCC 120)</td>
<td>4</td>
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<tr>
<td>SC 320</td>
<td>General Crops</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>RS 320</td>
<td>Forage and Range Management (one course in biological sciences)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SC 350</td>
<td>Forage and Range Management (one course in biological sciences)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SC 420</td>
<td>Soil Fertility Management (SC 240)</td>
<td>3</td>
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2. Select from the following list:

<table>
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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credit</th>
<th>AUCC Category</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Business Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A 320A</td>
<td>Computer Applications in Agriculture Optimization (A 140 or BD 150 or CS 110)</td>
<td>1</td>
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<tr>
<td>A 320B</td>
<td>Computer Applications in Agriculture Data Base (A 140 or BD 150 or CS 110)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>A 320C</td>
<td>Computer Applications in Agriculture Communications (A 140 or BD 150 or CS 110)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>A 320D</td>
<td>Computer Applications in Agriculture Project Management (A 140 or BD 150 or CS 110)</td>
<td>1</td>
<td></td>
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<tr>
<td>A 320E</td>
<td>Computer Applications in Agriculture Spreadsheets (A 140 or BD 150 or CS 110)</td>
<td>1</td>
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<tr>
<td>BA 205</td>
<td>Fundamentals of Accounting</td>
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<td></td>
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<tr>
<td>BGCC 205</td>
<td>Fundamentals of Business Law</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td>BN 305</td>
<td>Fundamentals of Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BP 310</td>
<td>Human Resource Management</td>
<td>3</td>
<td></td>
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<tr>
<td>BP 350</td>
<td>Employment Law and Policy</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EA 228</td>
<td>Agricultural Business Management I (EA/EACC 202 or EC/ECCC 202)</td>
<td>3</td>
<td></td>
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<tr>
<td>EA 308</td>
<td>Agricultural Finance (EA/EACC 202 or EC/ECCC 202)</td>
<td>3</td>
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<tr>
<td>EA 310</td>
<td>Agricultural Marketing (EA/EACC 202 or EC/ECCC 202)</td>
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<tr>
<td>EA 375</td>
<td>Agricultural Law</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ECC 204</td>
<td>Principles of Macroeconomics (EA/EACC 202 or EC/ECCC 202)</td>
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<td>3F</td>
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</table>

3. Select from the following list:

<table>
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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credit</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Plant Health Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI 487</td>
<td>Internship</td>
<td>1</td>
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<tr>
<td>EN 365</td>
<td>Integrated Tree Health Management (BY/LSCC 102 or BZ/BZCC 120)</td>
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<td>4A, 4B</td>
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<tr>
<td>PD 365</td>
<td>Integrated Tree Health Management (BY/LSCC 102 or BZ/BZCC 120)</td>
<td>4</td>
<td>4A, 4B</td>
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<tr>
<td>EN 423</td>
<td>Evolution and Classification of Insects (EN 303A or B or C)</td>
<td>4</td>
<td>4A, 4B</td>
</tr>
<tr>
<td>EN 424</td>
<td>Principles of Systematic Zoology (BY 103 or BZ/BZCC 111)</td>
<td>3</td>
<td>4A, 4B</td>
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OR
### Major in Bioagricultural Sciences

#### Plant Health Concentration

**Science Option**

In addition to the plant health concentration courses, the following must be completed:

<table>
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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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<tr>
<td>M CC 125</td>
<td>Numerical Trigonometry (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>2C</td>
</tr>
<tr>
<td>M CC 126</td>
<td>Analytic Trigonometry (M/M CC 125 or placement)</td>
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<td>2C</td>
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<th>AUCC Category</th>
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<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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</tr>
<tr>
<td>C 114</td>
<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
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<tr>
<td>M CC 155</td>
<td>Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>8</td>
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</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 245</td>
<td>Fundamentals of Organic Chemistry (C/C CC 107 or C 113)</td>
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<tr>
<td>C 246</td>
<td>Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent reg.)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Plant health electives&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Electives&lt;sup&gt;2&lt;/sup&gt;</td>
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<td>1-3</td>
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<td><strong>TOTAL</strong></td>
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<td>9-11</td>
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<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>BZ 440</td>
<td>Plant Physiology (BY 103 or BZ/BZCC 120, C 245 or concurrent reg.)</td>
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<tr>
<td>PHCC 110</td>
<td>Descriptive Physics</td>
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</tr>
<tr>
<td>SC 330</td>
<td>Principles of Genetics (BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)</td>
<td>3</td>
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</tbody>
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---

<sup>1</sup> Choice must be approved by adviser. Select enough elective credits to bring total number of credits to 120.

<sup>2</sup> Select from the list in note 3. The course selected must satisfy category 4A and 4B.
### Course Structure

<table>
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<tr>
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<th>Credits</th>
<th>AUCC Category</th>
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<td>Genetics Laboratory (SC 330 or concurrent reg.)</td>
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<td></td>
<td>Plant health electives³</td>
<td>3</td>
<td>4A, 4B</td>
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**PROGRAM TOTAL = 120 credits**

1 Select from the list below:

#### Plant Health Electives

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<th>Credits</th>
<th>AUCC Category</th>
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<td>AT 350</td>
<td>Introduction to Weather and Climate</td>
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<tr>
<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>BZ 223</td>
<td>Plant Identification (BY 103 or BZ/BZCC 120)</td>
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<td>BZ 250</td>
<td>Economic Biology (BY 103; or BZ/BZCC 110, BZ/BZCC 120)</td>
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<td>BZ 325</td>
<td>Plant Systematics (BY 103 or BZ/BZCC 120)</td>
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<td>BZ 331</td>
<td>Plant Anatomy (BY 103 or BZ/BZCC 120)</td>
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<td>BZ 333</td>
<td>Introductory Mycology (BY 103 or BZ/BZCC 120 or written consent of instructor)</td>
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<td>BZ 421</td>
<td>Grass Systematics (BZ 223 or BZ 325 or written consent of instructor)</td>
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<td>BZ 441</td>
<td>Integrated Tree Health Management (BY/LSCC 102 or BZ/BZCC 120)</td>
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<td>4A, 4B</td>
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<td>EN 365</td>
<td>Plant Physiology Laboratory (BZ 440 or concurrent reg.)</td>
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<td>PD 365</td>
<td>Integrated Tree Health Management (BY/LSCC 102 or BZ/BZCC 120)</td>
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<td>4A, 4B</td>
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<td>Horticultural Science (high school biology)</td>
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<td>3A</td>
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<td>H 441</td>
<td>Turfgrass Management (H/H CC 100)</td>
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<td>H 464</td>
<td>Turfgrass Science (BZ/BZCC 120, H 341, SC 240)</td>
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<tr>
<td>SC 100</td>
<td>Arboriculture and Urban Plant Management (H/H CC 100, SC 301)</td>
<td>4</td>
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<td>SC 414</td>
<td>General Crops</td>
<td>3</td>
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<td>SC 430</td>
<td>Agricultural Experimental Design (ST/STCC 201 or ST/STCC 301)</td>
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</tbody>
</table>

2 Choice of electives must be approved by adviser.

3 Select from the list in note 1. The course selected must satisfy category 4A and 4B.

### DEPARTMENT OF HORTICULTURE AND LANDSCAPE ARCHITECTURE

**Office in Shepardson Building, Room 111**

**Professor Stephen J. Wallner, Head**

### Major in Horticulture

Do you like working in yards or greenhouses growing flowers, fruits and vegetables? Have you ever thought about owning your own flower shop or nursery? Are you curious about propagating and breeding plants? What about discovering and developing new plant varieties through research? If any of these sound exciting, perhaps a major in horticulture is for you.

Horticulture is the application of scientific principles in the growing, developing, marketing, processing and utilizing of fruits, vegetables, flower and foliage plants, trees, shrubs, and turfgrasses. The major requires a strong grounding in chemistry, horticulture, and business. There are four concentrations in the horticulture major:

- **Floriculture** emphasizes field and greenhouse-grown flower crops and foliage plants. Students study propagation, production, utilization and improvement of plants, and are prepared to grow quality greenhouse products. Courses in the production, use, and marketing of cut flowers, bedding and pot plants, and foliage plants
give this concentration its focus. Students are also required to take a practicum or obtain an internship in their junior year. A number of opportunities exist in floriculture-related professions including: greenhouse production, all phases of retail and wholesale floral business, greenhouse supply sales, greenhouse construction and computerized environmental control, plant breeding and plant research.

**Horticultural Business Management** provides the broadest horticultural background available. The curriculum consists of a core of business, computer, and economics courses. In horticulture, students choose a special emphasis, or take an array of courses that may lead to more job opportunities. Graduates have the knowledge to manage any horticulture business or market associated products. Opportunities exist in the sale of facilities, equipment, and supplies involved in all aspects of horticulture, or, as buyers of horticulture products in the U.S. or in international markets. With careful selection of business courses, horticulture graduates can complete a Master of Business Administration degree in one year.

**Horticultural Food Crops** focuses on systems related to production of fruits and vegetables. Specific courses include fruit and vegetable production, irrigation practices, soil fertility, propagation, breeding, and related plant pest management courses. Students must choose either the production or seed science option. A number of opportunities exist in horticultural food crops-related professions including: greenhouse production, all phases of the retail and wholesale businesses, greenhouse supply sales, greenhouse construction and computerized environmental control, plant breeding and plant research.

**Horticultural Science** graduates conduct research to discover new information about plant growth, development, and environmental response. This research can lead to new plant varieties and production methods. The curriculum consists of a solid foundation in the basic natural and agricultural sciences and prepares students for technical and scientific careers in laboratory, greenhouse, or field research. Exceptional students participate in individual research projects coordinated by professors. Graduates in this area often continue their education.

**Characteristics and Skills**

- Strong interest in growing and propagating plants
- Strong interest in the natural sciences
- Problem solving skills
- Enjoy working, outdoors
- Oral communication skills
- Organizational skills
- Analytical skills
- Written communication skills

**Potential Occupations**

A major challenge facing the horticulture industry today is keeping up with the demand for its services. There is a growing need for well-educated professional horticulturists. The industry will be looking for professionals who can manage greenhouses, nurseries, and floral outlets, buy and sell supplies and equipment, or edit journals and newsletters. Meeting the nutritional needs of the world population is an important challenge. Researchers are needed to develop improved fruit and vegetable varieties. Other professionals are needed to improve production and transportation methods, and to develop and market better fertilizers. Within this field, students can exercise their talents and interests in computers, construction, engineering, chemistry, physics, social services, art, or business management. Participation in internships and cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Some of the career opportunities available to horticulture majors include:

- Biotechnologist
- Commercial fruit and produce buyer
- Environmental landscaper
- Extension specialist
- Floriculturist
- Fruit and vegetable grower
- Golf course superintendent
- Greenhouse supplies/seed sales representative
- Greenhouse production manager
- Interior plant maintenance technician
- Irrigation designer
- Marketing representative
- Ornamental plant breeder
- Produce buyer
- Soil mapper
### FLORICULTURE CONCENTRATION

**Major in Horticulture**  
**Floriculture Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
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<tr>
<td>A CC</td>
<td>192</td>
<td>Orientation to Agricultural Systems</td>
<td>3</td>
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<td>BZCC</td>
<td>120</td>
<td>Principles of Plant Biology</td>
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<td>Select from the following courses:</td>
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<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
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<td>C CC</td>
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<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
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<td>C</td>
<td>113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<td>124</td>
<td>Logarithmic and Exponential Functions (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>Arts/humanities1</td>
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<td>Global and cultural awareness2</td>
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**SOPHOMORE**

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<td>AUCC</td>
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<td>Self/Community in American Culture Since 1877</td>
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<td>HYCC</td>
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<td>U.S. History to 1876</td>
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<tr>
<td>HYCC</td>
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<td>U.S. History Since 1876</td>
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<td>Natural Resources History and Policy</td>
<td>3</td>
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<td>BZ</td>
<td>223</td>
<td>Plant Identification (BY 103 or BZ/BZCC 120)</td>
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<td>C</td>
<td>245</td>
<td>Fundamentals of Organic Chemistry (C/C CC 107 or C 113)</td>
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<td>Agricultural and Resource Economics</td>
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<td>H</td>
<td>260</td>
<td>Plant Propagation (H/H CC 100)</td>
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<td>Introductory to Soil Science (C/C CC 107 or C/C CC 111)</td>
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<td>Logical/critical thinking2</td>
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<td><strong>JUNIOR</strong></td>
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<td>A 320B</td>
<td>Computer Applications in Agriculture-Data Base(^a) (A 140 or BD 150 or CS 110)</td>
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<td>A 320D</td>
<td>Computer Applications in Agriculture-Project Management(^a) (A 140 or BD 150 or CS 110)</td>
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<td>Computer Applications in Agriculture-Spreadsheets(^a) (A 140 or BD 150 or CS 110)</td>
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<td>EN 302</td>
<td>Applied and General Entomology</td>
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<td>Horticultural Entomology Laboratory (EN 302 or concurrent reg.)</td>
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<td>H 310</td>
<td>Greenhouse Management</td>
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<td>H 322</td>
<td>Herbaceous Plants (one course in botany, biological science, or horticulture)</td>
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<td>H 486</td>
<td>Practicum(^b)</td>
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<td>H 487</td>
<td>Internship(^b)</td>
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<td>PD 361</td>
<td>Elements of Plant Pathology (BY/LSCC 102 or BZ/BZCC 104 or BZ/BZCC 120 or H/H CC 100)</td>
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<td>Principles of Genetics (BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)</td>
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<td>H 321</td>
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<td>H 331</td>
<td>Landscape Design (H 221)</td>
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<td>H 450A</td>
<td>Cool Season Vegetable Production (one plant science course)</td>
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<td>H 450B</td>
<td>Warm Season Vegetable Production (one plant science course)</td>
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<td>H 450C</td>
<td>Small Fruit Production (one plant science course)</td>
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<td>H 450D</td>
<td>Tree Fruit Production (one plant science course)</td>
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<td>H 460</td>
<td>Plant Breeding (SC 330)</td>
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<tr>
<td>SC 460</td>
<td>Plant Breeding (SC 330)</td>
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<td>Arboriculture and Urban Plant Management (H/H CC 100, SC 240)</td>
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<td>H 475</td>
<td>Environmental Requirements of Horticultural Plants (BZ 440)</td>
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<p>| <strong>SENIOR</strong> | | | |
| BN 305 | Fundamentals of Management | 3 | |
| BZ 440 | Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.) | 3 | |
| H 412 | Floriculture Crops (H 310) | 4 | |
| H 454 | Horticulture Crop Production and Management (H 310 or H 450A-B) | 2 | 4C |
| H 486 | Practicum(^b) | 2 | |
| JTCC 300 | Professional and Technical Communication (CO/COCC 150) | 3 | 4A |
| JT 301 | Business Communication (CO/COCC 150) | 3 | 4A |
| | Agricultural economics(^b) | 3 | |
| | Health and wellness(^b) | 2 | 3G |
| | Horticulture electives(^b) | 3-4 | |
| | Electives(^b) | 2-6 | |
| <strong>TOTAL</strong> | | 28-31 | |</p>
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<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
<td>4</td>
<td>3A</td>
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<tr>
<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
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<td>COCC 150</td>
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<td>Agricultural and Resource Economics</td>
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<td>3C</td>
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<td>Principles of Macroeconomics (EC/ECCC 202 or EA/EACC 202)</td>
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<tr>
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| SOPHOMORE                                      |                                                     |         |               |
| A 140   | Technology in Agriculture                                                                | 3       |               |
| BD 150  | Business Computing Concepts and Applications                                            | 3       |               |
| BA 205  | Fundamentals of Accounting                                                               | 3       |               |
| C 245   | Fundamentals of Organic Chemistry (C/C CC 107 or C 113)                                  | 4       |               |
| EA 375  | Agricultural Law                                                                        | 3       |               |
| H 260   | Plant Propagation (H/H CC 100)                                                          | 4       |               |
| SC 240  | Introductory Soil Science (C/C CC 107 or C/C CC 111)                                     | 4       |               |
| SPCC 200 | Public Speaking                                                                         | 3       | 2B1           |

¹ Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).
² Select from the list of courses in category 3E in the AUCC.
³ A 140 and C 110 are considered review courses; credits in these courses may not be used toward a degree in the floriculture concentration in the horticulture major.
⁴ All junior-level floriculture majors are required to register for at least one credit of H 486 during each term.
⁵ For internship requirements, refer to departmental policy.
⁶ All senior level floriculture students are required to register for at least two credits of H 486 during each term unless enrolled in H 454.
⁷ Select from the list of courses taught in the Department of Agricultural and Resource Economics.
⁸ Select from the list of courses in category 3G in the AUCC.
⁹ Select from the list of courses in category 3G in the AUCC.
¹⁰ Select three credits from the list of horticulture courses in the junior year.
¹¹ Select the number of credits to bring the program total to 120 credits.

HORTICULTURAL BUSINESS MANAGEMENT CONCENTRATION

Major in Horticulture
Horticultural Business Management Concentration

PROGRAM TOTAL = 120 credits
### HORTICULTURAL FOOD CROPS CONCENTRATION

**Major in Horticulture**  
**Horticultural Food Crops Concentration**

<table>
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<th>Course</th>
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<th>Credits</th>
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<tr>
<td>ACC</td>
<td>192 Orientation to Agricultural Systems</td>
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1 Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).
2 Select from the list of courses in category 3B in the AUCC.
3 Select from the list of courses in category 3E in the AUCC.
4 Select from the list of courses in category 3D in the AUCC.
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<th>Title (Prerequisite)</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
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<td>3A</td>
</tr>
<tr>
<td>C CC 107</td>
<td>Fundamental of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
<td>4</td>
<td>3A</td>
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<tr>
<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
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<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
<td>3</td>
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<tr>
<td>C 114</td>
<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>EACC 202</td>
<td>Agricultural and Resource Economics</td>
<td>3</td>
<td>3C</td>
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<td>H CC 100</td>
<td>Horticultural Science (high school biology)</td>
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<td>M CC 120A-B</td>
<td>College Algebra I (Math Placement Exam)</td>
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<td>2C</td>
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<td>M CC 121</td>
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<td>2C</td>
</tr>
<tr>
<td>M CC 124</td>
<td>Logarithmic and Exponential Functions (M/M CC 118 or M/M CC 121 or placement)</td>
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<td></td>
<td>Health and wellness</td>
<td>2</td>
<td>3G</td>
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<td><strong>27-31</strong></td>
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</table>

**SOPHOMORE**

| C 245    | Fundamentals of Organic Chemistry (C/C CC 107 or C 113)                              | 4       |               |
| H 260    | Plant Propagation (H/H CC 100)                                                       | 4       |               |
| SC 240   | Introductory Soil Science (C/C CC 107 or C/C CC 111)                                 | 4       |               |
| SPCG 200 | Public Speaking                                                                      | 3       | 2B1           |
| STCC 201 | General Statistics (M/M CC 120A-B)                                                  | 3       | 2D            |
| STCC 301 | Introduction to Statistical Methods (M/M CC 121)                                     | 3       | 2D            |
|          | **Arts/humanities**                                                                 | 3       | 3B            |
|          | **Historical perspectives**                                                          | 3       | 3D            |
|          | **Global and cultural awareness**                                                   | 3       | 3E            |
|          | **U.S. public values and institutions**                                             | 3       | 3F            |
|          | **TOTAL**                                                                           | **30**  |               |

**JUNIOR**

| A 140    | Technology in Agriculture                                                           | 3       |               |
| CS 110   | Personal Computing                                                                  | 4       |               |
| BZ 440   | Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.)                  | 3       |               |
| EN 302   | Applied and General Entomology                                                      | 2       |               |
| EN 303B  | Horticultural Entomology Laboratory (EN 302 or concurrent reg.)                    | 1       |               |
| H 486    | Practicum                                                                           | 3       |               |
| H 487    | Internship                                                                          | 3       |               |
|          | **TOTAL**                                                                           | **30**  |               |
## Course Title (Prerequisite) Credits AUCC Category

### FRESHMAN
- Electives 3

### JUNIOR
- H 310 Greenhouse Management 4
- SC 350 Soil Fertility Management (SC 240) 3
- Electives 4-5
- TOTAL 11-12

### SENIOR
- H 450C Small Fruit Production (one plant science course) 1
- H 450D Tree Fruit Production (one plant science course) 1
- SC 370 Irrigation Principles and Management (H/H CC 100 or SC 100; SC 240) 3
- Electives 10-11
- TOTAL 15-16

**PROGRAM TOTAL = 120 credits**
1 Select enough elective credits to bring total to minimum of 120.

Major in Horticulture
Horticultural Food Crop Concentration
Seed Science Option

In addition to the horticultural food crop concentration courses, the following must be completed:

<table>
<thead>
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<th>Title (Prerequisite)</th>
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<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td><strong>SOPHOMORE</strong></td>
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<td>BZ  223</td>
<td>Plant Identification (BY 103 or BZ/BZCC 120)</td>
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<td>BZ  446</td>
<td>Physiology of Seeds (BZ 440)</td>
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<td>H   310</td>
<td>Greenhouse Management</td>
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<td>H   321</td>
<td>Nursery Production and Management (H/H CC 100)</td>
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<td>H   341</td>
<td>Turfgrass Management (H/H CC 100)</td>
<td>3</td>
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<tr>
<td>H   412</td>
<td>Floriculture Crops (H 310)</td>
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<tr>
<td>H   450C</td>
<td>Small Fruit Production (one plant science course)</td>
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<tr>
<td>H   450D</td>
<td>Tree Fruit Production (one plant science course)</td>
<td>1</td>
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<tr>
<td>SC  304</td>
<td>Seed Production, Conditioning and Marketing (SC 100)</td>
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<td>Electives</td>
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<td><strong>SENIOR</strong></td>
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<td></td>
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<tr>
<td>H   461</td>
<td>Plant Breeding Laboratory (H 460/SC 460 or concurrent reg.)</td>
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<tr>
<td>SC  461</td>
<td>Plant Breeding Laboratory (H 460/SC 460 or concurrent reg.)</td>
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PROGRAM TOTAL = 120 credits

¹ Select enough elective credits to bring total to minimum of 120.

HORTICULTURAL SCIENCE CONCENTRATION

Major in Horticulture
Horticultural Science Concentration

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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
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<tr>
<td><strong>FRESHMAN</strong></td>
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<tr>
<td>A CC  192</td>
<td>Orientation to Agricultural Systems</td>
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<tr>
<td>BZCC  120</td>
<td>Principles of Plant Biology</td>
<td>4</td>
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<tr>
<td>C CC  111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
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<td>3A</td>
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<tr>
<td>C CC  112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
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<td>3A</td>
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<tr>
<td>C   113</td>
<td>General Chemistry II (C/C CC 107 or C/ C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
<td>3</td>
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<tr>
<td>C   114</td>
<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
<td>1</td>
<td></td>
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<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>2A</td>
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<tr>
<td>H CC 100</td>
<td>Horticultral Science (high school biology)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>M CC 126</td>
<td>Analytic Trigonometry(^1) (M/M CC 125 or placement)</td>
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<td>2C</td>
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<td></td>
<td>Arts/humanities(^2)</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>Historical perspectives(^3)</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td></td>
<td>Social/behavioral sciences(^4)</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>

**SOPHOMORE**

- A 140 Technology in Agriculture 3

OR

- CS 110 Personal Computing 4

- H 260 Plant Propagation (H/H CC 100) 4

- PHCC 121 General Physics I (Corequisite: M/M CC 125) 5 3A

- PHCC 122 General Physics II (PH/PHCC 121) 5 3A

- SPCC 200 Public Speaking 3 2B1

- Global and cultural awareness\(^5\) 3 3E

- Health and wellness\(^6\) 2 3G

- U.S. public values and institutions\(^7\) 3F

- Electives (3) 2

- TOTAL 27-28

**JUNIOR**

Select from the following courses:

- C 245 Fundamentals of Organic Chemistry (C/C CC 107 or C 113) 4

  AND

- C 246 Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent reg.) 1

  OR

- C 341 Organic Chemistry I (C 113) 3

  AND

- C 343 Organic Chemistry II (C 341) 3

  AND

- C 344 Organic Chemistry Laboratory (C 114; C 343 or concurrent reg.) 2

- M CC 155 Calculus for Biological Scientists I (M/M CC 124, M/M CC 125) 4 2C

- SC 240 Introductory Soil Science (C/C CC 107 or C/C CC 111) 4

- SC 330 Principles of Genetics (BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120) 3

- STCC 301 Introduction to Statistical Methods (M/M CC 121) 3 2D

- Horticulture electives 8

- Electives 0-3

- TOTAL 30

**SENIOR**

- BC 351 Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343) 4

Select two credits from the following courses:

- BC 352 Principles of Biochemistry Laboratory (BC 301 or BC 351 or BC 401 or concurrent reg., two credits of college chemistry laboratory) 1

- BZ 441 Plant Physiology Laboratory (BZ 440 or concurrent reg.) 2

- SC 331 Genetics Laboratory (SC 330 or concurrent reg.) 1
### Major in Landscape Architecture

Are you artistic and visually creative? Do you enjoy drawing and design? Do you appreciate the environment, computers and travel? Does involvement in the planning of a community park or the redesign of an urban environment intrigue you? Would you like to improve local quality of life by designing a mine restoration plan, a new open space, or a new recreation area? If your answer to any of these questions is yes, then a major in landscape architecture may be the choice for you.

Studying landscape architecture at Colorado State is an adventure. Taking part in a challenging course of study, students prepare themselves for careers in a field whose enormous potential has only begun to be recognized. Landscape architecture students study design as accomplished landscape architects see it: shaping spaces as well as planning and preserving them.

Landscape architects create and design detailed landscape plans to be functional, aesthetic, and compatible with the natural environment. Throughout the program, emphasis is on the relationship between design, nature, and society: the impact of environments on the individual as well as the impact of users on the environment. Registration laws for landscape architects in 45 states encourage graduation from programs such as that offered at Colorado State University, which is accredited by the Landscape Architecture Accreditation Board of the American Society of Landscape Architects.

Landscape architects must analyze the natural elements of a site including the climate, soil, slope of the land, drainage, sunlight, and vegetation. Computer-aided design (CAD) has become an essential tool for landscape architects. Landscape architects often work with building architects, surveyors, engineers, and urban planners and collaborate with environmental scientists, foresters and other professionals to find the best way to conserve or restore natural resources. Knowledge of appropriate local, State or Federal regulations such as those protecting wetlands or historic resources is essential.

Nature, culture, form, and space are the classic elements of landscape architecture with which students work in a series of design studies and related courses. Coursework focuses on a variety of landscape projects that grow more complex as the curriculum proceeds. The courses include

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>BZ 440</td>
<td>Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.)</td>
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<tr>
<td>EN 302</td>
<td>Applied and General Entomology</td>
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<tr>
<td>EN 303B</td>
<td>Horticultural Entomology Laboratory (EN 202 or concurrent reg.)</td>
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<td>H 454</td>
<td>Horticulture Crop Production and Management (H 310 or H 450 A-B)</td>
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<td>4A, 4C</td>
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<td>H 460</td>
<td>Plant Breeding (SC 330)</td>
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<td>4B</td>
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<tr>
<td>SC 460</td>
<td>Plant Breeding (SC 330)</td>
<td>3</td>
<td>4B</td>
<td>OR</td>
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<td>H 475</td>
<td>Environmental Requirements of Horticultural Plants (BZ 440)</td>
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<td>PD 361</td>
<td>Elements of Plant Pathology (BY/LSCC 102 or BZ/BZCC 104 or BZ/BZCC 120 or H/H CC 100)</td>
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<tr>
<td>Horticulture electives</td>
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<td>Electives*</td>
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<td>29-30</td>
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</table>

PROGRAM TOTAL = 120 credits

---

1 The equivalent to M/M CC 120, M/M CC 121, and M/M CC 125 are considered background courses and should have been taken prior to admission or made up.
2 Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).
3 Select from the list of courses in category 3D in the AUCC. The course selected for 3C or 3D must also be listed in category 3F.
4 Select from the list of courses in category 3C in the AUCC. The course selected for 3C or 3D must also be listed in category 3F.
5 Select from the list of courses in category 3E in the AUCC.
6 Select from the list of courses in category 3G in the AUCC.
7 Select from the list of courses in category 3F in the AUCC. The course selected for 3F must also be listed in category 3C or category 3D.
8 Select the number of credits to bring the program total to 120 credits.
subjects such as site design, landscape design and construction, surveying, landscape ecology, and urban and regional planning. Other courses specific to the major are history of the designed landscape, plant and soil science, geology, and professional practice. Students are also encouraged to take advantage of summer travel courses available to study highly valued ecological/cultural sites in Colorado and designed landscapes in Europe.

Colorado State University offers the only nationally accredited undergraduate professional landscape architecture program in Colorado. Thirty new students are accepted into the pre-landscape architecture program each year on a first come basis. After the first studio course (LA230), a portfolio review by faculty qualifies up to twenty students to continue through the professional program. Entering freshman may choose to complete their required coursework in either four or five years.

Characteristics and Skills

- Strong interest in computers and drawing as tools for creative and artistic thinking
- Strong interest in spatial and environmental issues applied to landscape
- Strong oral communication skills
- Good presentation skills
- Problem solving skills
- Ability to work well with other professionals
- Strong writing skills
- Analytical skills

Potential Occupations

Many types of organizations and individuals hire landscape architects-from real estate development firms starting new projects, municipalities constructing airports or parks, to home owners desiring garden designs. Many landscape architects are employed by government agencies doing site design for buildings, parks, and other public assets. Others are involved in park and recreation planning in national parks and forests, and restoration of environmentally damaged landscapes. Employment of landscape architects is expected to increase faster than the average for all occupations through the year 2006. Starting in 1998, average salaries for landscape architects exceeded average salaries of architects. Anticipated growth in construction is expected to increase demand for landscape architectural services over the long run. Participation in internships and cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Following are some of the career opportunities for landscape architecture majors:
- Landscape designer and contractor
- Landscape consultant
- Private practice business
- Construction supervisor
- Land or environmental planner
- Urban planner

The program enrolls up to 30 transfer and entering freshman students throughout the year on a first-come, first-served basis for studies beginning each fall semester. After the first year in the studio sequence, a portfolio and grade point review by the faculty enables up to 20 students to continue to the remaining years of the program. Entering freshmen may elect to complete the required credits in either four or five years at their own choosing. Transfer students may complete the program in either three or four years. Professional program candidates should contact a landscape architecture faculty member for additional details. The bachelor of science degree in landscape architecture requires 135 credits.

Major in Landscape Architecture

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
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<td>Select one of the following courses:</td>
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<tr>
<td>ACC 192</td>
<td>Orientation to Agricultural Systems</td>
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<td>BZCC 192</td>
<td>First-Year Seminar in Life Sciences</td>
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<td>EDCC 192</td>
<td>Learning and Community</td>
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<td>ERCC 192B</td>
<td>First-Year Seminar in Earth Resources</td>
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<td>NRCC 192</td>
<td>Natural Resources Freshman Seminar</td>
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<td>SC CC 192</td>
<td>Civic Culture and Social Responsibility</td>
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<td>Agricultural and Resource Economics</td>
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<tr>
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<td>ERCC 140</td>
<td>Physical Geology</td>
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<td>LA 110</td>
<td>Introduction to Landscape Architecture</td>
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<td>LA 120</td>
<td>History of the Designed Landscape</td>
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<td>M CC 120A-B</td>
<td>College Algebra I (Math Placement Exam)</td>
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<td>2C</td>
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<tr>
<td>M CC 121</td>
<td>College Algebra II (M/M CC 117 or M/M CC 120A-B or placement)</td>
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<td>2C</td>
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<tr>
<td>M CC 124</td>
<td>Logarithmic and Exponential Function (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>2C</td>
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<td>M CC 125</td>
<td>Numerical Trigonometry (M/M CC 118 or M/M CC 121 or placement)</td>
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Health and wellness

TOTAL 28-29

**SOPHOMORE**

<table>
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<th>Course</th>
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<tr>
<td>BY 220</td>
<td>Fundamentals of Ecology (one course in biology, M/M CC 124 or M/M CC 141 or M/M CC 155)</td>
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<tr>
<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
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<td>LA 230</td>
<td>Drawing the Landscape</td>
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<td>LA 240</td>
<td>Fundamentals of Landscape Design Process (LA 230)</td>
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<td>PLCC 110</td>
<td>Logic and Critical Thinking</td>
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<td>PYCC 100</td>
<td>General Psychology</td>
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<tr>
<td>SPCC 200</td>
<td>Public Speaking</td>
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Arts/humanities

Historical perspectives

TOTAL 30

**JUNIOR**

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<th>Title (Prerequisite)</th>
<th>Credits</th>
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<td>LA 360</td>
<td>Basic Landscape Design and Construction (LA 240)</td>
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<td>LA 362</td>
<td>Form and Expression in Garden Design (LA 361)</td>
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<td>LA 363</td>
<td>Advanced Landscape Site Engineering (LA 361)</td>
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<tr>
<td>LA 444</td>
<td>Ecology of Landscapes (LA 360)</td>
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Select one of the following courses:

- Landscape Field Studies (LA 444 or written consent of instructor) 5
- Travel Abroad-European Landscape Architecture (LA 362 or written consent of instructor) 5
- Natural Resource Ecology and Measurements (BY 103 or BZ/BZCC 120, M/M CC 121) 5
- Introductory Soil Science (C/C CC 107 or C/C CC 111) 4

Global and cultural awareness

TOTAL 30

**SENIOR**

<table>
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<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td>H 367</td>
<td>Landscape Irrigation</td>
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<td>LA 364</td>
<td>Design and Nature (LA 361)</td>
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<td>LA 365</td>
<td>Landscape Contract Drawing and Specifications (LA 363)</td>
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<td>LA 366</td>
<td>Landscape Design Expression (LA 365)</td>
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<td>LA 445</td>
<td>Environmental Analysis (LA 366)</td>
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<td>PL 345</td>
<td>Environmental Ethics</td>
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**FIFTH YEAR**

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<td>Plant Identification (BY 103 or BZ/BZCC 120)</td>
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<tr>
<td>H 221</td>
<td>Landscape Plants</td>
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<td>LA 392</td>
<td>Seminar-Designed Landscapes Theory and Criticism (LA 365)</td>
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<td>LA 446</td>
<td>Urban Design (LA 366)</td>
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<td>LA 447</td>
<td>Comprehensive Landscape Design (LA 446)</td>
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<td>LA 449</td>
<td>Professional Practice (LA 447 or concurrent reg.)</td>
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<td>NR 323</td>
<td>Remote Sensing of Natural Resources</td>
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**PROGRAM TOTAL = 135 credits**

1. Students placing out of M/M CC 121 are not required to show credit for this course.
2. Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).
3. Select from the list of courses in category 3B in the AUCC.
4. Select from the list of courses in category 3D in the AUCC.
5. Select from the list of courses in category 3E in the AUCC.

**Major in Landscape Horticulture**

Do you enjoy working in yards and making them attractive? Do you want the healthiest grass in the neighborhood? Can you place flowers and shrubs and have them look just as you imagined? Do you like to draw? Do you enjoy starting plants from seed or propagating them? Does designing irrigation or sprinkler systems sound like fun? What about designing landscapes for homes or businesses or creating an aesthetic interior using plants? Have you always wanted to have your own nursery business or garden center, or manage the greens at a golf course or baseball field? If you answered “yes” to some of these questions, a major in Landscape Horticulture may be for you.

Landscape horticulturists are responsible for many tasks necessary to achieve a pleasant and functional outdoor environment. They also care for indoor gardens and plantings in public facilities, such as malls, hotels, and botanical gardens. Three concentrations are offered in the landscape horticulture major:

**Landscape Design and Contracting** prepares students to design and develop landscape plans for residential, commercial, and small-scale public properties. Contractors coordinate and oversee projects including the installation of trees, flowers, shrubs, sod, benches, and other ornamental features. They implement construction plans at the site, which may involve grading the property, installing lighting or sprinkler systems, and building walkways, terraces, patios, decks and fountains. Contractors determine the type and amount of labor, equipment, and materials needed to complete a project and inspect work at various stages. Knowledge of local, state, and Federal environmental regulations and local building codes is essential. Courses in this concentration include design principles, graphics, grading, construction methods, and the creative use of plant materials.

**Nursery and Landscape Management** provides extensive training in landscape plant systems, culture, and use; and also develops skills needed to start and manage a personally owned nursery, garden center, or landscape management firm. Nursery specialists propagate and produce trees, shrubs, groundcovers, and herbaceous perennials for the landscape industry. Nursery and landscape managers oversee general operations, choose...
the type and quantity of horticultural plants to be grown; select and purchase seed, fertilizers, and disease control chemicals; hire employees, direct and coordinate work activities; manage record-keeping, and implement marketing plans. Supporting courses are taught in soils, pest management, business management, horticulture and plant materials.

**Turf Management** trains students for management opportunities ranging from sod production to the establishment and maintenance of private and public grounds. Turfgrass managers are supervisors for golf courses, ski resorts, sports fields, and parks departments. Turfgrass professionals manage and train personnel, draw up work contracts, and allocate labor and financial resources efficiently. Graduates develop expertise in production and maintenance of ornamental and functional turfgrass areas with supplemental courses in nursery and landscape management, plant and soil science, business management, and irrigation design.

**Characteristics and Skills**
- Strong interest in plants and plant propagation
- Interest in designing landscapes
- Enjoy working outdoors
- Creative abilities
- Attention to detail
- Enjoy working with people
- Problem solving skills
- Strong oral communication skills

**Potential Occupations**

Professional management of landscapes is in high demand due to modern lifestyles. Expected growth in construction also contributes to demand in this field. Nursery and garden center businesses are strong, and should remain so in the future. The nursery, landscape management, arboriculture and botanic garden-arboreta industries provide many different career options. Graduates typically receive positions as propagators, superintendents, managers, and salespersons. Graduates completing in turf management command some of the highest salaries in professional agriculture. Other employment opportunities in that field are industrial grounds, erosion control and highway reclamation. Participation in internships and cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Some of the career opportunities available to landscape horticulture majors include:
- Arborist
- Athletic field manager
- Botanic garden or arboretum specialist
- Community forester
- Custom lawn care specialist
- Golf course turf manager
- Landscape designer and contractor
- Interior Plant Maintenance
- Irrigation designer
- Landscape maintenance
- Plant diagnosticians
- Retail garden center manager
- Seed producer
- Sod producer
- Wholesale nursery manager

---

**LANDSCAPE DESIGN AND CONTRACTING CONCENTRATION**

**Major in Landscape Horticulture**

**Landscape Design and Contracting Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
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<tr>
<td>FRESHMAN</td>
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</tr>
<tr>
<td>A 140</td>
<td>Technology in Agriculture</td>
<td>3</td>
<td></td>
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<tr>
<td>OR</td>
<td></td>
<td></td>
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<tr>
<td>BD 150</td>
<td>Business Computing Concepts and Applications</td>
<td>3</td>
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<tr>
<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
<td>3</td>
<td>1</td>
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<tr>
<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
<td>4</td>
<td>3A</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
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<tr>
<td>H CC 100</td>
<td>Horticultural Science (high school biology)</td>
<td>4</td>
<td>3A</td>
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<tr>
<td>H 130</td>
<td>Landscape Graphics Studio</td>
<td>4</td>
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<tr>
<td>Course</td>
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<tr>
<td>H 140</td>
<td>Principles of Landscape Design (H 130)</td>
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Select one of the following pairs of courses:

- M CC 117 College Algebra in Context I (Math Placement Exam) | 1 | 2C |
- M CC 118 College Algebra in Context II (M/M CC 117) | 1 | 2C |
- OR |
- M CC 120A-B College Algebra I (Math Placement Exam) | 1 | 2C |
- M CC 121 College Algebra II (M/M CC 117 or M/M CC 120A-B or placement) | 1 | 2C |
- M CC 125 Numerical Trigonometry (M/M CC 118 or M/M CC 121 or placement) | 1 | 2C |

Health and wellness

Electives | 2 | 3G |

TOTAL | 32 |

**SOPHOMORE**

- BA 205 Fundamentals of Accounting | 3 |
- H 221 Landscape Plants | 4 |
- H 235 Landscape Grading and Drainage Studio (H 140; M/M CC 118 or M/M CC 121) | 4 |
- H 487 Internship | 3-6 |
- L CC 105 First-Year Language I (no previous study of the language) | 5 | 2B3 |
- OR |
- SPCC 200 Public Speaking | 3 | 2B1 |
- LA 120 History of the Designed Landscape | 3 |
- MC 131 Graphic Communications/CAD | 3 |
- MC 261 Construction Surveying (M/M CC 125) | 3 |
- SC 240 Introductory Soil Science (C/C CC 107 or C/C CC 111) | 4 |
- Electives | 3 |

TOTAL | 33-38 |

**JUNIOR**

- H 322 Herbaceous Plants (one course in botany or biological science or horticulture) | 3 |
- H 330 Computers for Landscape Design (one course or knowledge of AutoCAD) | 2 |
- H 335 Landscape Structures (H 140, one CAD class) | 4 |
- H 341 Turfgrass Management (H/H CC 100) | 3 |
- H 367 Landscape Irrigation | 3 |
- H 465 Landscape Business Practices | 3 |
- SPCC 207 Rhetoric and Argumentation | 3 | 2D |
- Advanced writing | 3 | 2B2 |
- Arts/humanities | 3 | 3B |
- Social/behavioral sciences | 3 | 3C |
- Electives | 3 |

TOTAL | 33 |

**SENIOR**

- EN 302 Applied and General Entomology | 2 |
- EN 303B Horticultural Entomology Laboratory (EN 302 or concurrent reg.) | 1 |
<table>
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<tr>
<th>Course</th>
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<th>Credits</th>
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<td>H 332</td>
<td>Planting Design Studio (H 140, H 221, H 322)</td>
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<td>H 432</td>
<td>Intensive Landscape Design Studio (H 332)</td>
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<td>4B, 4C</td>
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<td>H 464</td>
<td>Arboriculture and Urban Plant Management (H/H CC 100, SC 240)</td>
<td>3</td>
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<td></td>
<td>Global and cultural awareness&lt;sup&gt;3&lt;/sup&gt;</td>
<td>3</td>
<td>3E</td>
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<td></td>
<td>Historical perspectives&lt;sup&gt;6&lt;/sup&gt;</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td></td>
<td>U.S. public values and institutions&lt;sup&gt;5&lt;/sup&gt;</td>
<td>3</td>
<td>3F</td>
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<td>Business elective&lt;sup&gt;8&lt;/sup&gt;</td>
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**PROGRAM TOTAL = 128-133 credits**

1. Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 2B2 in the AUCC.
3. Select from the list of courses in category 3B in the AUCC.
4. Select from the list of courses in category 3C in the AUCC.
5. Select from the list of courses in category 3E in the AUCC.
6. Select from the list of courses in category 3D in the AUCC.
7. Select from the list of courses in category 3F in the AUCC.
8. Upper-division business or agricultural business elective.

**NURSERY AND LANDSCAPE MANAGEMENT CONCENTRATION**

**Major in Landscape Horticulture**

**Nursery and Landscape Management Concentration**

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<tr>
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<th>Title (Prerequisite)</th>
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<td>FRESHMAN</td>
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<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
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<tr>
<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
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<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
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<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>EACC 202</td>
<td>Agricultural and Resource Economics</td>
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<td>H CC 100</td>
<td>Horticultural Science (high school biology)</td>
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<td>M CC 120A-B</td>
<td>College Algebra I (Math Placement Exam)</td>
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<tr>
<td>M CC 124</td>
<td>Logarithmic and Exponential Function (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>Health and wellness&lt;sup&gt;1&lt;/sup&gt;</td>
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<td><em>Select one of the following courses:</em></td>
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<tr>
<td>HYCC</td>
<td>U.S. History to 1876</td>
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<td>3D, 3F</td>
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<td>HYCC</td>
<td>U.S. History Since 1876</td>
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<td>3D, 3F</td>
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<td>NRCC</td>
<td>Natural Resources History and Policy</td>
<td>3</td>
<td>3D, 3F</td>
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<td>BZ</td>
<td>Plant Identification (BY 103 or BZ/BZCC 120)</td>
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<td>H</td>
<td>Landscape Plants</td>
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<td>H</td>
<td>Plant Propagation (H/H CC 100)</td>
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<td>L CC</td>
<td>First-Year Language I</td>
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<tr>
<td>L CC</td>
<td>First-Year Language II (L/L CC 105 or L 106)</td>
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<td>SPCC</td>
<td>Public Speaking</td>
<td>3</td>
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<td>Introductory Soil Science (C/C CC 107 or C/C CC 111)</td>
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<td>SPCC</td>
<td>Rhetoric and Argumentation</td>
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<td>Global and cultural awareness</td>
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<tr>
<td>A</td>
<td>Technology in Agriculture</td>
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<td>A</td>
<td>Computer Applications in Agriculture-Optimization (A 140 or BD 150 or CS 110)</td>
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<td>A</td>
<td>Computer Applications in Agriculture-Data Base (A 140 or BD 150 or CS 110)</td>
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<td>Computer Applications in Agriculture-Communications (A 140 or BD 150 or CS 110)</td>
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<td>Computer Applications in Agriculture-Project Management (A 140 or BD 150 or CS 110)</td>
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<td>Computer Applications in Agriculture-Spreadsheets (A 140 or BD 150 or CS 110)</td>
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<td>Fundamentals of Chemistry (C/C CC 107 or C 113)</td>
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<td>EN</td>
<td>Applied General Entomology</td>
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<td>EN</td>
<td>Horticultural Entomology Laboratory (EN 302 or concurrent reg.)</td>
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<td>H</td>
<td>Greenhouse Management</td>
<td>4</td>
<td>4B</td>
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<td>H</td>
<td>Nursery Production and Management (H/H CC 100)</td>
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<td>4A</td>
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<tr>
<td>H</td>
<td>Herbaceous Plants (one course in botany or biological science or horticulture)</td>
<td>3</td>
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<td>H</td>
<td>Landscape Design (H 221)</td>
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<td>H</td>
<td>Turfgrass Management (H/H CC 100)</td>
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<td>H</td>
<td>Internship</td>
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<td><strong>SENIOR</strong></td>
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<td>BZ</td>
<td>Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.)</td>
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<td>EA</td>
<td>Small Agribusiness Management (EA/EACC 202 or EC/ECCC 202)</td>
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<td>H</td>
<td>Arboriculture and Urban Plant Management (H/H CC 100, SC 240)</td>
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### TURF MANAGEMENT CONCENTRATION

**Major in Landscape Horticulture**  
**Turf Management Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>H 465</td>
<td>Landscape Business Practices</td>
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<td>PD 361</td>
<td>Elements of Plant Pathology (BY/LSCC 102 or BZ/BZCC 104 or BZ/BZCC 120 or H/H CC 100)</td>
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<tr>
<td>W 308</td>
<td>Biology and Control of Weeds (BY 103 or BZ/BZCC 120; C/C CC 107 or C/C CC 111)</td>
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<td>Electives</td>
<td>10-12</td>
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<td>TOTAL</td>
<td>29-31</td>
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**PROGRAM TOTAL = 120 credits**

1. Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 3B in the AUCC.
3. Select from the list of courses in category 3E in the AUCC.
4. For internship requirement, refer to departmental policy.

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**TURF MANAGEMENT CONCENTRATION**

**Major in Landscape Horticulture**

**Turf Management Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
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<td>3A</td>
</tr>
<tr>
<td>C CC 107</td>
<td>Fundamentals of Chemistry Laboratory (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
<td>4</td>
<td>3-A</td>
</tr>
<tr>
<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C CC 107 or concurrent reg.)</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<tr>
<td>EACC 202</td>
<td>Agricultural and Resource Economics</td>
<td>3</td>
<td>3C</td>
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<tr>
<td>H CC 100</td>
<td>Horticultural Science (high school biology)</td>
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<tr>
<td>M CC 120A-B</td>
<td>College Algebra I (Math Placement Exam)</td>
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<tr>
<td>M CC 121</td>
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<tr>
<td>M CC 125</td>
<td>Numerical Trigonometry (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>Global and cultural awareness&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>Health and wellness&lt;sup&gt;2&lt;/sup&gt;</td>
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**SOPHOMORE**

Select one of the following courses:

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<td>Technology in Agriculture</td>
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<tr>
<td>BD 150</td>
<td>Business Computing Concepts and Applications</td>
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<td>CS 110</td>
<td>Personal Computing</td>
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<td>Fundamentals of Organic Chemistry (C/C CC 107 or C 113)</td>
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<td>H 221</td>
<td>Landscape Plants</td>
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<td>H 487</td>
<td>Internship</td>
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<td>MC 261</td>
<td>Construction Surveying (BD 150, M/M CC 125)</td>
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<tr>
<td>SC 240</td>
<td>Introductory Soil Science (C/C CC 107 or C/C CC 111)</td>
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<tr>
<td>Course</td>
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<td>First-Year Language I (no previous study in the language)</td>
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<td>First-Year Language II (L CC 105 or L 106)</td>
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Arts/humanities

Logical/critical thinking

TOTAL 30-33

**JUNIOR**

Select one course from the following:

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<td>U.S. History to 1876</td>
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<td>151</td>
<td>U.S. History Since 1876</td>
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<td>320</td>
<td>Natural Resources History and Policy</td>
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<td>BZ 440</td>
<td>Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.)</td>
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<td>H 321</td>
<td>Nursery Production and Management (H/H CC 100)</td>
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<td>H 341</td>
<td>Turfgrass Management (H/H CC 100)</td>
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<td>H 464</td>
<td>Arboriculture and Urban Plant Management (H/H CC 100 and SC 240)</td>
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<td>PD 361</td>
<td>Elements of Plant Pathology (BY/LSCC 102 or BZ/BZCC 104 or BY/BZCC 120 and H/H CC 100)</td>
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<td>SC 350</td>
<td>Soil Fertility Management (SC 240)</td>
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TOTAL 30

**SENIOR**

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<td>BN 305</td>
<td>Fundamentals of Management</td>
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<td>EN 302</td>
<td>Applied and General Entomology</td>
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<td>Horticulural Entomology Laboratory (EN 302 or concurrent reg.)</td>
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<td>Landscape Irrigation</td>
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<td>H 441</td>
<td>Turfgrass Sciences (BZ/BZCC 120, H 341, SC 240)</td>
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<td>H 465</td>
<td>Landscape Business Practices</td>
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<td>W 308</td>
<td>Biology and Control of Weeds (BY 103 or BZ/BZCC 120; C/C CC 107 or C/C CC 111)</td>
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Electives

TOTAL 8-11

TOTAL 27-30

**PROGRAM TOTAL = 120 credits**

1 Select from list of courses in category 3E in the All-University Core Curriculum (AUCC).
2 Select from list of courses in category 3G in the AUCC.
3 Select from list of courses in category 3B in the AUCC.
4 Select from list of courses in category 2D in the AUCC.
5 Select enough elective credits to bring the total to 120.
DEPARTMENT OF SOIL AND CROP SCIENCES

Office in Plant Science Building, Room C 117
Professor James S. Quick, Head

Major in Soil and Crop Sciences

Are you interested in how the plants we eat grow, and how to grow them bigger, better, safer and cleaner? Would you like to understand the composition of soil and how it relates to plant or crop growth? Would you like to know more about conserving our soil and water? Do you enjoy the sciences? Would you like to solve problems concerning agriculture? Are you interested in how to make crops more resistant to pests and drought? Are you concerned about our environment? If you answered “yes” to any of the above, you may want to consider a major in Soil and Crop Sciences.

Soil and Crop Science, the study of field crops and soils, is the foundation science underlying the production and management of food, feed, and fiber crops to meet human needs and to protect the environment. The work these scientists do is of great importance worldwide due to the rapidly increasing population, the demand on land for food supplies, and the demand for environmental quality to enhance human comfort and well being. Special emphasis is placed on improved production efficiency and the conservation of soil, chemicals, energy, and water. The curriculum offers broad-based coverage of the basic natural and social sciences, communication skills and opportunity to explore interests and leadership potential. Five concentrations allow for specialization in the major. However, students do not have to choose a concentration but are given the flexibility to tailor the curriculum to their individual interests.

Agronomic Production Management focuses on methods to improve the nutritional value of crops and the quality of seed, as well as increase productivity. This concentration is best suited for students planning careers in production agriculture or agribusiness. The concentration combines courses in basic sciences, economics, and business management with principles and practices of using soil, plant, and water resources for crop production. This concentration offers a Seed Science option available for those who wish to focus on the dynamic science of seeds.

Environmental Soil Science provides extensive training in the prevention of soil and ground water pollution, as well as remediation of existing problems. Graduates are well prepared to work for organizations concerned with environmental and ecological issues such as waste disposal, clean-up of hazardous waste, land management, and reclamation of disturbed lands.

International Soil and Crop Sciences prepares students to work in developing nations by giving them technical soil and crop science skills along with education in the political, social and cultural aspects of countries they may work in. Scientists design appropriate practices that can succeed under a variety of climatic and socioeconomic constraints. Many research opportunities are available. Students may work with the Peace Corps, or other agencies in demonstration and extension positions in developing countries.

Plant Biotechnology, Genetics, and Breeding provides expertise in the fundamentals of plant molecular biology and their application to crop improvement. The focus is in the integration of new DNA-based methods with the principles of plant breeding and genetics to enhance production. Graduates work in plant breeding and biotechnology companies and public research institutions, or continue with graduate work. This concentration requires more science and math than the others.

Soil Resources and Conservation graduates provide technical assistance to farmers, ranchers, state and local governments, and others concerned with the conservation of soil, water, and related natural resources. Emphasis is on interpretations of land suitability for agricultural, urban, industrial and recreational land uses, waste disposal, water management systems, and ecological purposes. Specialists develop programs designed to obtain the most productive use of land while minimizing or mitigating damages. Others help landowners and managers develop management practices to combat erosion. Students are prepared for careers in environmental consulting, government conservation and resource management agencies, farm management, and municipal soil and water resource management agencies.

Characteristics and Skills

- Interest in and aptitude for the natural sciences
- Enjoy working outdoors
- Enjoy doing research
- Problem solving abilities
- Analytical skills
- Ability to work as part of a team or independently
- Strong oral and written communication skills

Potential Occupations

Participation in internships and cooperative education opportunities is highly recommended to enhance your practical training and development. Paid summer
internship positions exist for all students in this major, and often lead to a job after graduation. The job outlook for graduates is very optimistic, with more job openings than can be filled in some areas of study. Graduates work for a variety of federal, state, or local government agricultural agencies, state agricultural colleges or research stations, agricultural service companies, commercial research and development labs, and seed companies. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Some of the career opportunities available include:

- Agronomic production manager
- Cooperative manager
- Genetic engineering scientist
- Land reclamation specialist
- International agronomist
- Land-use planner
- Plant geneticist
- Plant breeder
- Seed, chemical and fertilizer consultant
- Soil conservation specialist
- Soil surveyor
- Waste management specialist
- Water quality specialist
- Crop production
- Chemical fertilizer sales
- Crop consultant
- County agricultural extension agents
- Agricultural products inspector
- Farm manager

### Major in Soil and Crop Sciences

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td><strong>Credits</strong></td>
<td><strong>AUCC Category</strong></td>
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<td>Orientation to Agricultural Systems</td>
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<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
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<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
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<td>3A</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>EACC 202</td>
<td>Agricultural and Resource Economics</td>
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<td>OR</td>
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<td>EA or EC elective</td>
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<td>M CC 120A-B</td>
<td>College Algebra I (Math Placement Exam)</td>
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<td>College Algebra II (M/M CC 120A-B or placement)</td>
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<td>M CC 124</td>
<td>Logarithmic and Exponential Function (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>PHCC 110</td>
<td>Descriptive Physics</td>
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<td>SC 100</td>
<td>General Crops</td>
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<td>Fundamentals of Organic Chemistry (C/C CC 107 or C 113)</td>
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<td>C 246</td>
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<td>Introductory Soil Science (C/C CC 107 or C/C CC 111)</td>
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<td>SPCC 200</td>
<td>Public Speaking</td>
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<td>Global and cultural awareness³</td>
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<td>U.S. public values and institutions⁵</td>
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**JUNIOR**

|        | JTCC 300 Professional and Technical Communication (CO/COSC 150)                   | 3       | 2B2           |
|        | SC 330 Principles of Genetics (BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)        | 3       |               |
|        | Historical perspectives<sup>6</sup>                                               | 3       | 3D            |
|        | Soil and crop science electives<sup>1</sup>                                      | 6       |               |
|        | Statistics<sup>7</sup>                                                            | 3       | 2D            |
|        | Technical electives<sup>8</sup>                                                   | 6       |               |
|        | Electives                                                                         | 6       |               |
|        | **TOTAL**                                                                         | **30**  |               |

**SENIOR**

|        | BZ 440 Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.)        | 3       |               |
|        | BZ 441 Plant Physiology Laboratory (BZ 440 or concurrent reg.)                   | 2       |               |
|        | ERCC 140 Physical Geology                                                         | 4       | 3A            |
|        | SC 421 Crop and Soil Management Systems II (H/H CC 100 or SC 100, SC 240)         | 4       | 4A, 4B, 4C    |
|        | SC 492 Seminar                                                                    | 1       | 4A, 4B, 4C    |
|        | Technical electives<sup>8</sup>                                                   | 15      |               |
|        | Electives                                                                         | 5-6     |               |
|        | **TOTAL**                                                                         | **30**  |               |

**PROGRAM TOTAL = 120 credits**

<sup>1</sup> Select from list in department.

<sup>2</sup> Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).

<sup>3</sup> Select from the list of courses in category 3E in the AUCC.

<sup>4</sup> Select from the list of courses in category 3G in the AUCC.

<sup>5</sup> Select from the list of courses in category 3F in the AUCC.

<sup>6</sup> Select from the list of courses in category 3D in the AUCC.

<sup>7</sup> Select a statistics course from the list of courses in category 2D in the AUCC.

<sup>8</sup> Select from the Colleges of Agricultural Sciences, Business, Engineering, Natural Resources, Natural Sciences, and/or Veterinary Medicine and Biological Sciences.
# AGRONOMIC PRODUCTION MANAGEMENT CONCENTRATION

## Major in Soil and Crop Sciences

Agronomic Production Management Concentration

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<th>Credits</th>
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<td><strong>FRESHMAN</strong></td>
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<td>Orientation to Agricultural Systems¹</td>
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<td>C CC 108</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher) OR</td>
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<td>General Chemistry Laboratory I (C/C CC 111 or concurrent registration) AND</td>
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<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<td>SC 100</td>
<td>General Crops</td>
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<td>Health and wellness²</td>
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<td>Historical perspectives³</td>
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## SOPHOMORE

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<td>Fundamentals of Accounting</td>
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<td>Farm and Ranch Management (EA/EACC 202 or EC/ECCC 202)</td>
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<td>BY 220</td>
<td>Fundamentals of Ecology (one course in biology; M/M CC 124 or M/M CC 141 or M/M CC 155)</td>
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<tr>
<td>PHCC 110</td>
<td>Descriptive Physics</td>
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<td><strong>JUNIOR</strong></td>
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<tr>
<td>BZ 440</td>
<td>Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.)</td>
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<td>BZ 441</td>
<td>Plant Physiology (BZ 440 or concurrent reg.)</td>
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<td>C 245</td>
<td>Fundamentals of Organic Chemistry (C/C CC 107 or C 113)</td>
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<td>C 246</td>
<td>Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent reg.)</td>
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<td>JTCC 300</td>
<td>Professional and Technical Communication (CO/COCC 150)</td>
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<td>SC 330</td>
<td>Principles of Genetics (BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)</td>
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<td>SC 350</td>
<td>Soil Fertility Management (SC 240)</td>
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<tr>
<td>SC 351</td>
<td>Soil Fertility Laboratory (SC 350 or concurrent reg.)</td>
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<tr>
<td>SC 370</td>
<td>Irrigation Principles and Management (H/H CC 100 or SC 100, SC 240)</td>
<td>3</td>
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<tr>
<td>SC 420</td>
<td>Crop and Soil Management Systems I (H/H CC 100 or SC 100, SC 240)</td>
<td>3</td>
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<tr>
<td><strong>SENIOR</strong></td>
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<tr>
<td><strong>Select one course from the following:</strong></td>
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<td>STCC 201</td>
<td>General Statistics (M/M CC 120A-B)</td>
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<td>2D</td>
</tr>
<tr>
<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>STCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td><strong>OR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EHCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>Electives</td>
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<td>1</td>
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<tr>
<td>TOTAL</td>
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</tbody>
</table>

<p>| <strong>SENIOR</strong> | | | |
| <strong>Select three courses from the following:</strong> | | | |
| BZ 223 | Plant Identification (BY 103 or BZ/BZCC 120) | 3 | |
| EN 302 | Applied and General Entomology | 2 | |
| <strong>AND</strong> | | | |
| EN 303C | Agricultural Entomology Laboratory (EN 302 or concurrent reg.) | 1 | |
| PD 361 | Elements of Plant Pathology (BY/LSCC 102 or BZ/BZCC 104 or BZ/BZCC 120 or H/H CC 100) | 3 | |
| W 308 | Biology and Control of Weeds (BY 103 or BZ/BZCC 120; C/C CC 107 or C/C CC 111) | 4 | |
| <strong>Select three credits from the following:</strong> | | | |
| BZ 446 | Physiology of Seeds (BZ 440) | 2 | |
| SC 310 | Agronomic Plant and Seed Identification (SC 100, H/H CC 100 or one course in biology) | 2 | |
| SC 200 | Seed Anatomy and Identification (one course in biology or SC 100 or H/H CC 100 or written consent of instructor) | 1 | |
| SC 201 | Seed Development and Metabolism (one course in biology or SC 100 or H/H CC 100 or written consent of instructor) | 1 | |
| <strong>Select three courses from the following:</strong> | | | |
| SC 304 | Seed Production, Conditioning and Marketing (SC 100) | 3 | |
| SC 320 | Forage and Range Management (one course in biological sciences) | 3 | |
| RS 320 | Forage and Range Management (one course in biological sciences) | 3 | |
| SC 322 | Principles of Microclimatology (BY 220 or NR 220; PH/PHCC 141) | 3 | |
| SC 360 | Geographic Information Systems in Agriculture (CS 110) | 3 | |
| CB 360 | Geographic Information Systems in Agriculture (CS 110) | 3 | |
| SC 414 | Agricultural Experimental Design (ST/STCC 201 or ST/STCC 301) | 3 | |
| SC 440 | Pedology (SC 240) | 3 | |
| SC 460 | Plant Breeding (SC 330) | 3 | |
| <strong>OR</strong> | | | |
| H 460 | Plant Breeding (SC 330) | 3 | |</p>
<table>
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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC 421</td>
<td>Crop and Soil Management Systems II (H/H CC 100 or SC 100, SC 240)</td>
<td>4</td>
<td>4A, 4B, 4C</td>
</tr>
<tr>
<td>SC 492</td>
<td>Seminar</td>
<td>1</td>
<td>4A</td>
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<td>Electives</td>
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<td>TOTAL</td>
<td>29-30</td>
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</table>

**PROGRAM TOTAL = 120-123 credits**

1. Required for students in the seed science option.
2. Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).
3. Select from the list of courses in category 3D in the AUCC.
4. Select from courses in agricultural economics, business, or economics.
5. Select from the list of courses in category 3B in the AUCC.
6. Select from the list of courses in category 3E in the AUCC.
7. Select from the list of courses in category 3F in the AUCC.

---

**ENVIRONMENTAL SOIL SCIENCE CONCENTRATION**

M CC 120A-B and M CC 121 are considered review courses; credits in these courses may not be used toward a degree in the environmental soil science concentration in the major in soil and crop sciences.

---

**Major in Soil and Crop Sciences**

**Environmental Soil Science Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
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<tr>
<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<tr>
<td>C 114</td>
<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
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<tr>
<td>EACC 240</td>
<td>Issues in Environmental Economics</td>
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<td>ECC CC 240</td>
<td>Issues in Environmental Economics</td>
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<td>3F</td>
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<tr>
<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
<td>4</td>
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<tr>
<td>M CC 141</td>
<td>Calculus in Management Sciences (M/M CC 118 or M/M CC 121)</td>
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<td>2C</td>
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<tr>
<td>SC 240</td>
<td>Introductory Soil Science (C/C CC 107 or C/C CC 111)</td>
<td>4</td>
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<td></td>
<td>Arts/humanities(^1)</td>
<td>3</td>
<td>3B</td>
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<td>Health and wellness(^2)</td>
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<td>3G</td>
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**SOPHOMORE**

<table>
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<tr>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>BY 220</td>
<td>Fundamentals of Ecology (one course in biology; M/M CC 124 or M/M CC 141 or M/M CC 155)</td>
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<td>ERCC 140</td>
<td>Physical Geology</td>
<td>4</td>
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<tr>
<td>M CC 125</td>
<td>Numerical Trigonometry (M/M CC 118 or M/M CC 121 or placement)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<tr>
<td>PHCC 121</td>
<td>General Physics I (concurrent reg. in M/M CC 125)</td>
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<tr>
<td>PHCC 122</td>
<td>General Physics II (PH/PHCC 121)</td>
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<td>SC 350</td>
<td>Soil Fertility Management (SC 240)</td>
<td>3</td>
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</tr>
<tr>
<td>SC 351</td>
<td>Soil Fertility Laboratory (SC 350 or concurrent reg.)</td>
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<td>SPC 200</td>
<td>Public Speaking</td>
<td>3</td>
<td>2B1</td>
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<tr>
<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
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<tr>
<td>STCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
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<tr>
<td>EHCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
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<td>2D</td>
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</table>

Select one of the following courses:

- OR

Global and cultural awareness

TOTAL 31

JUNIOR

Select one of following sets of courses:

- C 245 Fundamentals of Organic Chemistry (C/C CC 107 or C 113) 4
  - AND
  - C 246 Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent reg.) 1
    - OR
    - C 341 Organic Chemistry I (C 113) 3
      - AND
      - C 343 Organic Chemistry II (C 341) 3
        - AND
        - C 344 Organic Chemistry Laboratory (C 114; C 343 or concurrent reg.) 2

- C 331 Quantitative Analysis (C 113) 3
- C 334 Quantitative Analysis Laboratory (C 114; C 331 or concurrent reg.) 1

JITCC 300 Professional and Technical Communication (CO/COCC 150) 3 2B2

MB 300 General Microbiology (C 245 or C 341 or concurrent reg.; BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120) 3

SC 440 Pedology (SC 240) 4

SC 467 Soil Chemistry (C 331, SC 240) 3

- Historical perspectives 3 3D
- Social/behavioral sciences 3 3C
- Technical electives 4

TOTAL 32-35

SENIOR

Select one of the following courses:

- BC 301 Survey of Biochemistry (C 245) 3
- BC 351 Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343) 4
- BZ 440 Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.) 3

- SC 455 Soil Microbiology (MB 300 or SC 240) 3
- SC 456 Soil Microbiology Laboratory (SC 455 or concurrent reg.) 1
- SC 470 Soil Physics (SC 240) 3
- SC 471 Soil Physics Laboratory (SC 470 or concurrent reg.) 1
- SC 478 Advanced Environmental Soil Sciences (SC 378) 3 4A, 4B, 4C
- SC 479 Environmental Soil Science Laboratory (SC 478 or concurrent reg.) 1 4A, 4B, 4C
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
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<th>AUCC Category</th>
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<tbody>
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<td>Technical electives</td>
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<td>Electives</td>
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**PROGRAM TOTAL = 120-122 credits**

1. Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 3G in the AUCC.
3. Select from the list of courses in category 3E in the AUCC.
4. Select from the list of courses in category 3D in the AUCC.
5. Select from the list of courses in category 3C in the AUCC.
6. Select from departmental list.

### INTERNATIONAL SOIL AND CROP SCIENCES CONCENTRATION

**Major in Soil and Crop Sciences**

**International Soil and Crop Sciences Concentration**

<table>
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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>FRESHMAN</td>
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<td></td>
<td></td>
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<tr>
<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
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<tr>
<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
<td>4</td>
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<tr>
<td>C CC 107</td>
<td>Select one of the following pairs of courses:</td>
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<tr>
<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
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<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
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<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent registration)</td>
<td>1</td>
<td>3A</td>
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<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
<td>3</td>
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<tr>
<td>C 114</td>
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<td>EACC 202</td>
<td>Agricultural and Resource Economics</td>
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<td>3C</td>
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<td>M CC 120A-B</td>
<td>College Algebra I (Math Placement Exam)</td>
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<tr>
<td>M CC 124</td>
<td>Logarithmic and Exponential Functions (M/M CC 118 or M/M CC 121 or placement)</td>
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<tr>
<td>SC 100</td>
<td>General Crops</td>
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**SOPHOMORE**
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<th>Credits</th>
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<td>ACC</td>
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<td>3E</td>
</tr>
<tr>
<td>ECCC</td>
<td>World Interdependence-Population and Food <strong>OR</strong></td>
<td>3</td>
<td>3E</td>
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<td>Fundamentals of Ecology (one course in biology; M/M CC 124 or M/M CC 141 or M/M CC 155)</td>
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<tr>
<td>C</td>
<td>Fundamentals of Organic Chemistry (C/C CC 107 or C 113)</td>
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<tr>
<td>C</td>
<td>Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent reg.)</td>
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<td>ECC</td>
<td>Principles of Macroeconomics (EC/ECCC 202 or EA/EACC 202)</td>
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<td>3F</td>
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<td>PHCC</td>
<td>Descriptive Physics</td>
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<td>3A</td>
</tr>
<tr>
<td>POCC</td>
<td>Current World Problems</td>
<td>3</td>
<td>3D or 3E</td>
</tr>
<tr>
<td>SC</td>
<td>Introductory Soil Science (C/C CC 107 or C/C CC 111)</td>
<td>4</td>
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<tr>
<td>SPCC</td>
<td>Public Speaking</td>
<td>3</td>
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</tr>
<tr>
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<td>Arts/humanities²</td>
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<td>3B</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

**JUNIOR**

|        |                                                                                   |         |               |
| BZ     | Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.)                | 3       |               |
| BZ     | Plant Physiology Laboratory (BZ 440 or concurrent reg.)                            | 2       |               |
| JTCC   | Professional and Technical Communication (CO/COCC 150)                             | 3       | 2B2           |
| PO     | International Political Economy (EA/EACC 202 or EC/ECCC 202 or PO/POCC 232)       | 3       |               |
|        | **OR**                                                                            |         |               |
| EC     | International Political Economy (EA/EACC 202 or EC/ECCC 202 or PO/POCC 232)       | 3       |               |
|        | **Select one of the following courses:**                                           |         |               |
| S      | Sociology of Rural Life (S/S CC 100 or S/S CC 105)                                 | 3       |               |
| S      | Agricultural and Global Society (S/S CC 100 or S/S CC 105)                         | 3       |               |
| S      | Peoples and Institutions of Latin America (S/S CC 100 or S/S CC 105)              | 3       |               |
| SC     | Principles of Genetics (BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)                | 3       |               |
| SC     | Soil Fertility Management (SC 240)                                                 | 3       |               |
| SC     | Soil Fertility Laboratory (SC 350 or concurrent reg.)                              | 1       |               |
| SC     | Crop and Soil Management Systems I (H/H CC 100 or SC 100, SC 240)                 | 3       |               |
|        | **Select one course from the following:**                                          |         |               |
| STCC   | General Statistics (M/M CC 120A-B)                                                 | 3       | 2D            |
| STCC   | Introduction to Statistical Methods (M/M CC 121)                                   | 3       | 2D            |
| STCC   | Introduction to Biostatistics (M/M CC 121)                                        | 3       | 2D            |
|        | **OR**                                                                            |         |               |
| EHCC   | Introduction to Biostatistics (M/M CC 121)                                        | 3       | 2D            |
|        | Electives                                                                         | 3       |               |
|        | TOTAL                                                                              | 30      |               |

**SENIOR**

|        |                                                                                   |         |               |
| EA     | Economics of World Agriculture (EA/EACC 202 or EC/ECCC 202)                       | 3       |               |
|        | **OR**                                                                            |         |               |
| EC     | Economic Development (EC 304)                                                     | 3       |               |
Select two courses from the following:

- **EN 302**
  - Applied and General Entomology
  - **EN 303C**
  - Agricultural Entomology Laboratory (EN 302 or concurrent reg.)

Select two course from the following:

- **PD 361**
  - Elements of Plant Pathology (BY/LSCC 102 or BZ/BZCC 104 or BZ/BZCC 120 or H/H CC 100)
- **W 308**
  - Biology and Control of Weeds (BY 103 or BZ/BZCC 120; C/C CC 107 or C/C CC 111)

- **SC 304**
  - Seed Production, Conditioning and Marketing (SC 100)
- **SC 320**
  - Forage and Range Management (one course in biological sciences)
- **OR**
  - **RS 320**
    - Forage and Range Management (one course in biological sciences)
- **SC 322**
  - Principles of Microclimatology (BY 220 or NR 220; PH/PHCC 141)
- **SC 360**
  - Geographic Information Systems in Agriculture (CS 110)
- **OR**
  - **CB 360**
    - Geographic Information Systems in Agriculture (CS 110)
- **SC 440**
  - Pedology (SC 240)
- **SC 460**
  - Plant Breeding (SC 330)
- **OR**
  - **H 460**
    - Plant Breeding (SC 330)
- **SC 370**
  - Irrigation Principles and Management (H/H CC 100 or SC 100, SC 240)
- **SC 421**
  - Crop and Soil Management Systems II (H/H CC 100 or SC 100, SC 240)
- **SC 475**
  - Tropical Soils, Crops and Farming Systems
- **SC 492**
  - Seminar
  - **Electives**
  - **TOTAL**

**PROGRAM TOTAL = 120 credits**

1. Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 3B in the AUCC.

### PLANT BIOTECHNOLOGY, GENETICS, AND BREEDING CONCENTRATION

*CC 120A-B and M CC 121 are considered review courses; credits in these courses may not be used toward a degree in the plant biotechnology, genetics, and breeding concentration in the major in soil and crop sciences. An introductory computer course, such as A 140, is considered a review course; previous background in computers is expected. If a computer course is needed, A 140 must be taken as a free elective.*

**Major in Soil and Crop Sciences**

**Plant Biotechnology, Genetics, and Breeding Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
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<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
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<tr>
<td>BY 103</td>
<td>Biology of Organisms (BY/LSCC 102)</td>
<td>4</td>
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<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
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<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
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<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<td>C 114</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>2A</td>
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<tr>
<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
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<td>M CC 124</td>
<td>Logarithmic and Exponential Function (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>M CC 125</td>
<td>Numerical Trigonometry (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>M CC 126</td>
<td>Analytic Trigonometry (M/M CC 125 or placement)</td>
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<td>M CC 155</td>
<td>Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)</td>
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<tr>
<td>SC 100</td>
<td>General Crops</td>
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<td>TOTAL</td>
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**SOPHOMORE**

Select one of the following courses:

- A CC 116 Plants and Civilization: 3 credits, 3E
  - OR
  - IECC 116 Plants and Civilization: 3 credits, 3E
  - A CC 270 World Interdependence-Population and Food: 3 credits, 3E
  - OR
  - IECC 270A World Interdependence-Population and Food: 3 credits, 3E

- BY 310 Cell Biology (one semester of organic chemistry or concurrent reg.; two semester of introductory biology): 4 credits
- C 245 Fundamentals of Organic Chemistry (C/C CC 107 or C 113): 4 credits
- C 246 Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent reg.): 1 credit

- EACC 202 Agricultural and Resource Economics: 3 credits, 3C
- PHCC 110 Descriptive Physics: 3 credits, 3A
- SC 240 Introductory Soil Science (C/C CC 107 or C/C CC 111): 4 credits
- SPCC 200 Public Speaking: 3 credits, 2B1
  - Arts/humanities\(^1\): 3 credits, 3B
  - Health and wellness\(^2\): 2 credits, 3G
  - Historical perspectives\(^3\): 3 credits, 3D
- U.S. public values and institutions\(^4\): (3) credits, 3F
- TOTAL: 33 credits

**JUNIOR**

- BC 351 Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343): 4 credits
  - Select at least six credits from the following courses:
    - BC 352 Principles of Biochemistry Laboratory (BC 301 or BC 351 or BC 401 or concurrent reg., two credits of college chemistry laboratory): 1 credit
    - BZ 331 Plant Anatomy (BY 103 or BZ/BZCC 120): 4 credits
    - BZ 346 Evolution and Heredity (BY 103 or BZ/BZCC 111): 3 credits
    - BZ 402 Chromosomes of Eukaryotes (BY 310): 4 credits
    - BZ 476 Topics in Advanced Genetics (BZ 350 or SC 330): 3 credits
    - MB 300 General Microbiology (C 245 or C 341 or concurrent reg.; BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120): 3 credits
    - MB 450 Microbial Genetics (MB 300; BC 351 or BC 401 or concurrent reg.): 3 credits
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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
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<tr>
<td>BC 463</td>
<td>Molecular Genetics (NS 201; BC 401 or concurrent reg. or BC 351)</td>
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<td>BZ 440</td>
<td>Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.)</td>
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<td>BZ 441</td>
<td>Plant Physiology Laboratory (BZ 440 or concurrent reg.)</td>
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<td>EN 302</td>
<td>Applied and General Entomology</td>
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<td>EN 303C</td>
<td>Agricultural Entomology Laboratory (EN 302 or concurrent reg.)</td>
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<td>PD 361</td>
<td>Elements of Plant Pathology (BY/LSCC 102 or BZ/BZCC 104 or BZ/BZCC 120 or H/H CC 100)</td>
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<tr>
<td>W 308</td>
<td>Biology and Control of Weeds (BY 103 or BZ/BZCC 120; C/C CC 107 or C/C CC 111)</td>
<td>4</td>
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<td>JTCC 300</td>
<td>Professional and Technical Communication (CO/COCC 150)</td>
<td>3</td>
<td>2B2</td>
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<td>SC 330</td>
<td>Principles of Genetics (BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)</td>
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<tr>
<td>SC 331</td>
<td>Genetics Laboratory (SC 330 or concurrent reg.)</td>
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<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
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<td>STCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
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<td>2D</td>
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<td>EHCC 307</td>
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**SENIOR**

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<th>AUCC Category</th>
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<tr>
<td>SC 430</td>
<td>Applications of Plant Biotechnology (SC 330)</td>
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<td>SC 460</td>
<td>Plant Breeding (SC 330)</td>
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<td>H 460</td>
<td>Plant Breeding (SC 330)</td>
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<td>SC 461</td>
<td>Plant Breeding Laboratory (SC 460/H 460 or concurrent reg.)</td>
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<td>4A, 4B, 4C</td>
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<td>H 461</td>
<td>Plant Breeding Laboratory (SC 460/H 460 or concurrent reg.)</td>
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<tr>
<td>SC 492</td>
<td>Seminar</td>
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Soil and crop electives 8

Electives 2-6

TOTAL 18-22

**PROGRAM TOTAL = 120 credits**

1. Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 3G in the AUCC.
3. Select from the list of courses in category 3D in the AUCC. The course selected for category 3D should also be listed in category 3F.
4. Select from the list of courses in category 3F in the AUCC. The course selected for category 3F should also be listed in category 3D.

**SOIL RESOURCES AND CONSERVATION CONCENTRATION**

**Major in Soil and Crop Sciences**

**Soil Resources and Conservation Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>A CC 192</td>
<td>Orientation to Agricultural Systems</td>
<td>3</td>
<td>1</td>
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<tr>
<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
<td>4</td>
<td>3A</td>
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<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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</tr>
<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
<td>3</td>
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<tr>
<td>C 114</td>
<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>2A</td>
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<tr>
<td>EACC 202</td>
<td>Agricultural and Resource Economics</td>
<td>3</td>
<td>3C</td>
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<tr>
<td>ECCC 204</td>
<td>Principles of Macroeconomics (EC/ECCC 202 or EA/EACC 202)</td>
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<td>3F</td>
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<tr>
<td>M CC 120A-B</td>
<td>College Algebra I (Math Placement Exam)</td>
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<td>M CC 121</td>
<td>College Algebra II (M/M CC 120A-B or placement)</td>
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<td>M CC 124</td>
<td>Logarithmic and Exponential Functions (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>MB 149</td>
<td>The Microbial World</td>
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<td>MB 300</td>
<td>General Mirobiology (C 245 or C 341 or concurrent reg.; BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)</td>
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<td>SC 100</td>
<td>General Crops</td>
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<td>TOTAL</td>
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**SOPHOMORE**

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<td>Fundamentals of Organic Chemistry (C/C CC 107 or C 113)</td>
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<td>ERCC 140</td>
<td>Physical Geology</td>
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<td>PHCC 110</td>
<td>Descriptive Physics</td>
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<td>3A</td>
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<tr>
<td>SC 240</td>
<td>Introductory Soil Science (C/C CC 107 or C/C CC 111)</td>
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<td>SPCC 200</td>
<td>Public Speaking</td>
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<td></td>
<td>Global and cultural awareness</td>
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<td>3E</td>
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<td>U.S. public values and institutions</td>
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**JUNIOR**

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<tr>
<td>SC 320</td>
<td>Forage and Range Management (one course in biological sciences)</td>
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<tr>
<td>RS 320</td>
<td>Forage and Range Management (one course in biological sciences)</td>
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<td>SC 330</td>
<td>Principles of Genetics (BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)</td>
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<tr>
<td>SC 350</td>
<td>Soil Fertility Management (SC 240)</td>
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<td>SC 351</td>
<td>Soil Fertility Laboratory (SC 350 or concurrent reg.)</td>
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<td>SC 370</td>
<td>Irrigation Principles and Management (H/H CC 100 or SC 100, SC 240)</td>
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<td>SC 420</td>
<td>Crop and Soil Management Systems I (H/H CC 100 or SC 100, SC 240)</td>
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<tr>
<td>SC 440</td>
<td>Pedology (SC 240)</td>
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Select one of the following courses:

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<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>STCC 201</td>
<td>General Statistics (M/M CC 120A-B)</td>
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<tr>
<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>STCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>EHCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
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<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
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<td></td>
<td>Health and wellness&lt;sup&gt;4&lt;/sup&gt;</td>
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<td>3G</td>
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<td>Historical perspectives&lt;sup&gt;5&lt;/sup&gt;</td>
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<td>3D</td>
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<td><strong>TOTAL</strong></td>
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**SENIOR**

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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>BZ 440</td>
<td>Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.)</td>
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<td>BZ 441</td>
<td>Plant Physiology Laboratory (BZ 440 or concurrent reg.)</td>
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<td>ER 454</td>
<td>Geomorphology (ER/ERCC 140 or ER 150/ERCC 192A or GR 210; M/M CC 155 or M/M CC 160)</td>
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<tr>
<td>JTCC 300</td>
<td>Professional and Technical Communication (CO/COCC 150)</td>
<td>3</td>
<td>2B2</td>
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<td>SC 421</td>
<td>Crop and Soil Management Systems II (H/H CC 100 or SC 100, SC 240)</td>
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<td>SC 470</td>
<td>Soil Physics (SC 240)</td>
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**PROGRAM TOTAL = 120 credits**

---

<sup>1</sup> Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).

<sup>2</sup> Select from the list of courses in category 3E in the AUCC.

<sup>3</sup> Select from the list of courses in category 3F in the AUCC. The course selected should also count for category 3D.

<sup>4</sup> Select from the list of courses in category 3G in the AUCC.

<sup>5</sup> Select from the list of courses in category 3D in the AUCC. The course selected should also count for category 3F.
College of Applied Human Sciences

Office in Gibbons Building, Room 204
Professor Nancy Hartley, Dean
Professor Kevin Oltjenbruns, Associate Dean
Professor Brad Sheafor, Associate Dean

TEACHER LICENSURE

UNDERGRADUATE MAJORS

Apparel and Merchandising
Construction Management
Consumer and Family Studies
Health and Exercise Science
Human Development and Family Studies
Industrial Technology Management
Interior Design
Nutrition and Food Science
Occupational Therapy
Restaurant and Resort Management
Social Work
Technology Education and Training

UNDERGRADUATE PROGRAMS

The College of Applied Human Sciences is comprised of seven academic departments and one school, and is, above all, a human-centered place, with a focus on educating students for people-oriented professions and on applying creative, interdisciplinary research to solving social problems. Each of its units offers professional education for careers and for lifelong learning, through a solid grounding in the natural sciences, social sciences, and humanities as well as courses specific to each field of study. The college currently includes the Departments of Design and Merchandising; Food Science and Human Nutrition; Health and Exercise Science; Human Development and Family Studies; Manufacturing Technology and Construction Management; Occupational Therapy; and Social Work. It also includes the School of Education which offers undergraduate and post-bachelor teacher education preparation programs in 16 areas of endorsement. These academic units offer curricula that lead to the bachelor's degree. Requirements for undergraduate majors are outlined in the departmental sections of this catalog.

Learning takes place in a variety of settings on and off campus, forging strong links between the classroom and the workplace. All of the college’s programs combine classroom instruction with hands-on experience in state-of-the-art computer laboratories, research laboratories, or specialized centers and institutes that emphasize the practical application of new knowledge.

Faculty in the College of Applied Human Sciences maintain valued and useful relationships with a broad range of constituents, bringing the college visibility in the larger community while fulfilling Colorado State’s land-grant mission. These vital connections also provide students in the college with excellent opportunities for working internships in their fields. For all its students, the college places a strong emphasis on experiential learning opportunities that allow students to test new skills in real-world settings.

A student who wishes to pursue a career in a design-related field may choose either the concentration in apparel design and production or the major in interior design.

The college offers the only comprehensive interdisciplinary program in consumer and family studies in the state of Colorado. At the undergraduate level students may complete either the consumer and family studies concentration or the consumer and family studies education concentration. Each of those programs draws information from the more specialized disciplines of apparel, merchandising, interior design, food science and human nutrition, and human development and family studies.

If a student wishes to pursue a degree in a human services field, the college has majors/concentrations in dietetics, human development and family studies, nutritional sciences, nutrition and fitness, occupational therapy, social work, and sports medicine.

Students who wish to incorporate a strong background in natural sciences and/or technology with professional preparation should consider programs in dietetics, food science, industrial technology management, nutritional sciences, or sports medicine.
For a student interested in management-related careers, the college offers programs in apparel design and production, construction management, industrial technology management, merchandising, restaurant and resort management, and health promotion.

The college also offers teacher preparation programs for students who wish to pursue in-depth study in human development and family studies, or technology education and training with courses leading to licensure. Additionally the college prepares students to teach in a variety of major areas offered through other colleges in the University.

Open Option Program

Students who wish to explore the wide variety of choices available to them may enroll in the Applied Human Sciences Open Option Program. Students will be encouraged to take electives that will help them explore the disciplines they are most interested in as possible career choices. At the same time, they will take courses common to one of the themes described earlier: design, consumer and family studies, human services, management, or natural sciences and technology.

INTERDEPARTMENTAL MAJOR

Major in Consumer and Family Studies

Office in Gibbons Building, Room 201

Would you enjoy counseling individuals and families to help them prevent or solve problems that affect daily living and needs? Would you enjoy being a representative for business that manufactures or sells housewares, foods, or home furnishings? Does household product development sound interesting to you? Would you like to do primary school, secondary school or vocational technical teaching? Does family and consumer science research interest you? Are you interested in a career in consumer information or advocacy? If your answer to any of these questions is “yes” then a major in consumer and family studies may be for you.

Consumer and family studies is an interdisciplinary field providing graduates with skills to assist families with daily life challenges in the areas of interpersonal relationships, consumerism, housing, and balancing family and work. Students study the roles of individuals within families, and as consumers. Students gain insight into those choices that impact daily personal and family well being.

The Consumer and Family Studies concentration provides students with an education focused on family well being, the growth and development of family members, and the relationship of the family to their environment. The concentration is interdisciplinary bringing together courses in human development; family studies; consumer sciences; apparel and merchandising; housing and interior design; and nutrition and foods. Graduates work in a variety of settings in business, education, and government.

The Consumer and Family Studies Education concentration prepares students for teaching youth and adults in the broad field of consumer and family studies. The curriculum includes courses in human development, family studies, consumer resource management, and nutrition, to develop knowledge and skills to work with individuals and families in a broad range of contexts. Combined with other majors, this concentration provides background for entering a variety of careers including teaching in primary and secondary schools, community colleges, vocational schools, technical institutes, specialized business and industry education programs, self employment, and in government programs such as cooperative extension, and the Peace Corps.

Characteristics and Skills

- Capability to be dependable and patient
- Strong desire to help people and display compassion and empathy
- Understand clients' and students' emotional and educational needs
- Ability to communicate and teach effectively
- A desire to teach
- Interest in family and consumer issues

Potential Occupations

Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:

- Consumer and family studies professional
- Consumer and family studies program developer
- Product designer
- Product representative
- Consumer information specialist
- Customer assurance specialist
- Extension economist
- Product development specialist
- Peace corps volunteer
- Home economics researcher
- Primary school teacher
- Secondary school teacher
- Vocational technical instructor
- Community college instructor
- Business/industry educator
- Writer/developer of informational or educational materials

CONSUMER AND FAMILY STUDIES CONCENTRATION

Major in Consumer and Family Studies
Consumer and Family Studies Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>FRESHMAN</td>
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<tr>
<td>AR 101</td>
<td>Visual Form</td>
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<td>DM 130</td>
<td>Design Appreciation</td>
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<td>CC 103</td>
<td>Chemistry in Context</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>DM 120</td>
<td>Textiles</td>
<td>3</td>
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<td>FNCC 150</td>
<td>Survey of Human Nutrition</td>
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<td>HDCC 101</td>
<td>Individual and Family Development</td>
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<td>PYCC 100</td>
<td>General Psychology</td>
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<td>SC 100</td>
<td>General Sociology</td>
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<td>First-year seminar(^1)</td>
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<td>Mathematics(^2)</td>
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SOPHOMORE

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<td>Apparel Production I</td>
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<td>BD 150</td>
<td>Business Computing Concepts and Applications</td>
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<td>CS 110</td>
<td>Personal Computing</td>
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<td>BZCC 101</td>
<td>Humans and Other Animals</td>
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<td>LS CC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
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<td>CF 179</td>
<td>Introduction to Consumer and Family Studies</td>
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<td>ECC 202</td>
<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
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<td>EXCC 145</td>
<td>Health and Wellness</td>
<td>3</td>
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<td>SPCC 200</td>
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<td>Arts/humanities(^3)</td>
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<td>Consumer and family studies(^4)</td>
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<td>AY 300</td>
<td>Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
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<tr>
<td>OR</td>
<td>Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
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<td>DM 320</td>
<td>Finance-Personal and Family</td>
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<tr>
<td>FN 300</td>
<td>Food Principles and Application (C/C CC 107, FN/FNCC 150)</td>
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<td>FN 301</td>
<td>Food Principles and Application Laboratory (FN 300 or concurrent reg.)</td>
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<td><strong>Select one course from the following:</strong></td>
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<tr>
<td>HD 310</td>
<td>Infant and Child Development in Context (HD/HDCC 101 or PY/PYCC)</td>
<td>3</td>
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<tr>
<td>HD 311</td>
<td>100</td>
<td>3</td>
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<td>HD 312</td>
<td>Adolescent/Early Adult Development in Context (HD/HDCC 101)</td>
<td>3</td>
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<td></td>
<td>Adult Development-Middle Age and Aging (HD/HDCC 101 or PY/PYCC 100 or S/S CC 100)</td>
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<td>STCC 201</td>
<td>General Statistics (M/M CC 120A-B)</td>
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<td>2D</td>
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<td>OR</td>
<td><strong>STCC 301</strong></td>
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<td>Introduction to Statistical Methods (M/M CC 121)</td>
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<td>AM/DM elective</td>
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<td>FN elective</td>
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<td>Historical perspectives4</td>
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<td>3D</td>
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<td>Support career objective-elective6</td>
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<td><strong>SENIOR</strong></td>
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<tr>
<td>CF 479</td>
<td>Colloquium-Consumer and Family Studies (CF 179 or written consent of instructor)</td>
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<td>4A, 4B, 4C</td>
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<tr>
<td>HD 302</td>
<td>Marriage and Family Relationships (PY/PYCC 100 or S/S CC 100)</td>
<td>3</td>
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<tr>
<td>HD 334</td>
<td>Parenting Across the Lifespan (HD/HDCC 100 or HD 310)</td>
<td>3</td>
<td>4A &amp; 4B</td>
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<tr>
<td>HD 402</td>
<td>Family Studies (HD/HDCC 101)</td>
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<tr>
<td>HD 403</td>
<td>Families and the Legal Environment</td>
<td>3</td>
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<td>Global and cultural awareness</td>
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<td>3E</td>
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<td>Consumer and family studies electives</td>
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<td>Support career objective-electives</td>
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**PROGRAM TOTAL = 123 credits**

1. Select from list of courses in category 1 in the All-University Core Curriculum (AUCC). HSCC 100 is recommended.
2. Take M/M CC 120A or B and M/M CC 121 and one additional credit of math from category 2C in the AUCC.
3. Select from the list of courses in category 3B in the AUCC.
4. Select courses with prefixes AM, DM, FN, ID, or HD. Keep in mind the requirement of 42 upper-division credits when choosing these courses.
5. Select from the list of courses in category 3D in the AUCC. DMCC 263, AUCC 200, or POCC 131 are recommended.
6. Select courses to enhance knowledge and skill in chosen career area.
7. Select from the list of courses in category 3E in the AUCC. AMCC 250 is suggested but not required.
# CONSUMER AND FAMILY STUDIES EDUCATION CONCENTRATION

Major in Consumer and Family Studies  
Consumer and Family Studies Education Concentration*

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
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<tr>
<td>C CC 103</td>
<td>Chemistry in Context</td>
<td>3</td>
<td>3A</td>
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<tr>
<td>C CC 104</td>
<td>Chemistry in Context Laboratory (C CC 103 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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<tr>
<td>C CC 107</td>
<td>Fundamentals of Chemistry (M CC 120A-B or placement in M/M CC 121 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C CC 107 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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<tr>
<td>CF 179</td>
<td>Introduction to Consumer and Family Studies</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td><strong>SOPHOMORE</strong></td>
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<tr>
<td>AM 101</td>
<td>Fashion Industries</td>
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<tr>
<td>AMCC 250</td>
<td>Clothing, Adornment, and Human Behavior</td>
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<td>3E</td>
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<td>DM 320</td>
<td>Finance-Personal and Family</td>
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<tr>
<td>EC</td>
<td>Economics</td>
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<tr>
<td>EXCC 145</td>
<td>Health and Wellness</td>
<td>3</td>
<td>3G</td>
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<tr>
<td>HD 310</td>
<td>Infant and Child Development in Context ((HD/HDCC 101 and PY/PYCC 100))</td>
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<td>ID 275</td>
<td>Interior Design I</td>
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<td>DM 130</td>
<td>Design Appreciation</td>
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<td>SPCC 200</td>
<td>Public Speaking</td>
<td>3</td>
<td>2B1</td>
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<td></td>
<td>Biological/physical sciences</td>
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<td>3A</td>
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<td>Historical perspectives</td>
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<td>EDCC 275</td>
<td>Schooling in the United States (consent of Teacher Licensure Office)</td>
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<td>ED 331</td>
<td>Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<td>ED 340</td>
<td>Literacy and the Learner (completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<tr>
<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
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<td>ED 386</td>
<td>Practicum (ED 320 or concurrent reg.)</td>
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<td>Food Principles and Applications Laboratory (FN 300 or concurrent reg.)</td>
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<td>HD 302</td>
<td>Marriage and Family Relationships (PY/PYCC 100, S/S CC 100)</td>
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<td>HD 311</td>
<td>Adolescent/Early Adult Development in Context (HD/HDCC 101)</td>
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**SENIOR**

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<th>Course</th>
<th>Title (Prerequisite)</th>
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<th>AUCC Category</th>
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<tr>
<td>CF 479</td>
<td>Colloquium-Consumer and Family Studies (CF 179 or written consent of instructor)</td>
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<td>4A, 4B, 4C</td>
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<td>ED 450</td>
<td>Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
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<td>ED 486J</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
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<td>ED 493B</td>
<td>Seminar-Assessment of Learning (concurrent reg. in ED 485A or B or VE 495)</td>
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<td>VE 451</td>
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**PROGRAM TOTAL = 120-121 credits**

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1. Select from list of courses in category 2C in the All-University Core Curriculum (AUCC).
2. Select from list of courses in category 3B in the AUCC.
3. Select from list of courses in category 2D in the AUCC.
4. Select from list of courses in category 3A in the AUCC.
5. Select from consumer and family studies’ list of recommended courses.

*The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.*
SCHOOL OF EDUCATION

Office in Education Building, Room 209
Professor Rick Ginsberg, Director

Are you interested in sharing your passion for a subject with others? Do you enjoy motivating people? Are you up for the challenge of being a role model and possibly influencing young people's lives or careers? If you answered “yes” to the above questions, and have a creative mind for conveying information, you may want to consider being a teacher.

All candidates for teacher licensure must complete a degree program in an approved area of study (English, mathematics, social studies, etc.) plus the professional education requirements for teacher licensure. Licensure coursework is a balance of the specific content area and education courses designed to provide students with in-depth knowledge of a specific discipline and the skills to effectively manage a classroom. Early advising from the School of Education is highly recommended.

Students may pursue endorsement in art and music to teach kindergarten through twelfth grade. All other endorsements lead to secondary teacher licensure or vocational teaching areas. Interdepartmental endorsements include: English as a Second Language in Liberal Arts; the Department of Occupational Therapy graduate program; and the Department of Social Work graduate program. The Colorado State Educator Licensure program is nationally accredited by the National Council for Accreditation of Teacher Education (NCATE). Candidates may complete licensure while enrolled in an undergraduate program or after completing a bachelor's degree at Colorado State or any other accredited university.

Potential Occupations

Nearly one-third of all teachers in the U.S. are 48 years of age or older. The average teacher has at least 15 years of service and future retirements are expected to grow. According to Time Magazine, (Jan. 20, 1997) teaching was ranked as one of the 15 hottest fields with a projected growth of over 600,000 jobs between 1994 and 2005. The 1994 median annual salary for teachers was $34,200. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to licensure students to enhance practical training and development. Graduates who go on for advanced studies can attain higher positions with the possibility of rising to top professional levels.

Licensure Endorsements

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<th>K-12 Endorsement Area</th>
<th>Suggested College Undergraduate Major</th>
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<th>Secondary Endorsement Area</th>
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<td>English</td>
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<tr>
<td>Foreign Languages</td>
<td>*Language, Literature, and Culture Studies</td>
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<tr>
<td>French, German, or Spanish</td>
<td>French, German, or Spanish Concentrations</td>
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<tr>
<td>Industrial Sciences</td>
<td>*Technology Education and Training</td>
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<tr>
<td>Mathematics</td>
<td>*Mathematics, Natural Sciences</td>
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<tr>
<td>Science Education</td>
<td>Biological Science, Botany, Chemistry, Geology, Natural Resource Management, *Natural Sciences, Physics, Zoology</td>
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<tr>
<td>Biology</td>
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<tr>
<td>Biology/Natural Resources</td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
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<tr>
<td>General</td>
<td></td>
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<tr>
<td>Geology</td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td></td>
</tr>
<tr>
<td>Social Studies Education</td>
<td>Economics, *History, *Liberal Arts, Political Science</td>
</tr>
<tr>
<td>Speech</td>
<td>Liberal Arts, Performing Arts (Theatre), *Speech Communication</td>
</tr>
<tr>
<td>General Speech</td>
<td></td>
</tr>
<tr>
<td>Theatre</td>
<td></td>
</tr>
</tbody>
</table>
The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.

### School of Education Professional Licensure Requirements (effective Fall Semester 2001, if approved by Colorado Commission on Higher Education)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCC 275</td>
<td>Schooling in the United States (consent of Teacher Licensure Office)</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td>ED 331</td>
<td>Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
<td>1</td>
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</tr>
<tr>
<td>ED 340</td>
<td>Literacy and the Learner (completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
<td>3</td>
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</tr>
<tr>
<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ED 386</td>
<td>Practicum (ED 320 or concurrent reg.; admission to Teacher Licensure Program)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ED 450</td>
<td>Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ED 485A-B</td>
<td>Student Teaching (ED 450 and appropriate special methods courses)</td>
<td>Var.</td>
<td></td>
</tr>
<tr>
<td>VE 485</td>
<td>Student Teaching</td>
<td>Var.</td>
<td></td>
</tr>
<tr>
<td>ED 486J</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ED 493A-B</td>
<td>Seminar (concurrent reg. in ED 485A or B or VE 485)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>VE 492</td>
<td>Seminar</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ED/VE</td>
<td>Special methods course</td>
<td>2-4</td>
<td></td>
</tr>
<tr>
<td>ED/VE</td>
<td>Additional endorsement area courses</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1 Student teachers in art and music must complete a semester of student teaching which includes an elementary and a secondary experience. Students in all other endorsement areas complete a student teaching experience at the secondary level only.

2 Students must take the appropriate special methods courses based upon their endorsement areas from the following list:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 460</td>
<td>Methods and Materials in Teaching Science (ED 320, admission to Teacher Licensure Program)</td>
<td>4</td>
</tr>
<tr>
<td>ED 462</td>
<td>Methods and Materials in Teaching Languages (ED 320, admission to Teacher Licensure Program; 32 300-400 level credits in one language including phonetics and L 401; foreign language proficiency test)</td>
<td>4</td>
</tr>
<tr>
<td>ED 463</td>
<td>Methods in Teaching Language Arts (ED 320, admission to Teacher Licensure Program)</td>
<td>4</td>
</tr>
<tr>
<td>ED 464</td>
<td>Methods and Materials in Teaching Mathematics (ED 320, 18 credits in mathematics, admission to Teacher Licensure Program)</td>
<td>4</td>
</tr>
<tr>
<td>ED 465</td>
<td>Methods and Materials in Social Studies (ED 320, admission to Teacher Licensure Program)</td>
<td>4</td>
</tr>
<tr>
<td>ED 466</td>
<td>Methods and Materials in Elementary and Secondary School Art (ED 320, admission to Teacher Licensure Program)</td>
<td>4</td>
</tr>
<tr>
<td>ED 475</td>
<td>Elementary School Music Methods (ED 320, MU 217, admission to Teacher Licensure Program)</td>
<td>4</td>
</tr>
<tr>
<td>ED 476</td>
<td>Choral Methods for Secondary Schools (ED 320, MU 217, admission to Teacher Licensure Program)</td>
<td>2</td>
</tr>
<tr>
<td>ED 477</td>
<td>Instrumental Methods for Secondary Schools (ED 320, MU 217, admission to Teacher Licensure Program)</td>
<td>2</td>
</tr>
<tr>
<td>VE 425</td>
<td>Methods/Materials in Agricultural Education (admission to Teacher Licensure Program; concurrent reg. in ED 450, ED 486J, VE 492)</td>
<td>4</td>
</tr>
<tr>
<td>VE 431</td>
<td>Methods/Materials in Business Education (successful completion of Phase II of Teacher Licensure Program or written consent of instructor)</td>
<td>4</td>
</tr>
<tr>
<td>VE 441</td>
<td>Methods/Materials-Vocational Marketing Education (ED 320; VE 431 or concurrent reg.; admission to Teacher Licensure Program or written consent of instructor)</td>
<td>4</td>
</tr>
<tr>
<td>VE 451</td>
<td>Methods-Consumer and Family Studies Education (ED 320, concurrent reg. in ED 450)</td>
<td>4</td>
</tr>
<tr>
<td>VE 465</td>
<td>Methods and Materials in Technology Education</td>
<td>3</td>
</tr>
</tbody>
</table>

1 Students may also need to complete additional professional education courses depending upon their endorsement area.

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**DEPARTMENT OF DESIGN AND MERCHANDISING**

*Office in Aylesworth Hall, Room 150*

*Professor Antigone Kotsiopulos, Head*

**Major in Apparel and Merchandising**

Are you a creative and artistic person who would like to design attractive garments that help people look their best? Have you dreamed of owning or managing a clothing store, or being a buyer for a large department store? Would you like to combine artistic, business, and modern technical skills as a player in the fashion industry? If any of your answers to these questions is “yes” perhaps a major in apparel and merchandising is for you.

There are two concentrations in the major. In the **Apparel Design and Production** concentration, students learn about all facets of the apparel and textile industries from the raw materials to the consumer. This encompasses knowledge of textile science and apparel design and production from product development through promotion and distribution.
The curriculum focuses on apparel design, production, and marketing strategies to enable students to develop the skills to work within the apparel industry. Courses instruct students in all aspects of the industry including:
- Development, organization, and trends of national and foreign fashion
- Fibers, fabrics, and finishes basic to the selection, use, and care of textiles
- Basic apparel production
- Current technology in computer-aided design
- Fashion design and visual analysis
- Apparel sketching, pattern drafting, and grading
- Pattern making techniques
- Apparel production management
- Historic development of costume and textiles

In addition to knowledge of the fashion industry, students may obtain background and skills in art, history, journalism, theater, marketing, business management, production management, finance, accounting, and customer service. A variety of opportunities are available to assess student learning in apparel design, production, and textiles, including judges' comments on garments selected for the annual Student Affiliate of International Textile and Apparel Association Fashion Show, senior portfolio review, and evaluation of interns from their on-site supervisors.

The Merchandising concentration offers in-depth study of the process of planning, negotiating, acquiring, selling, and evaluating merchandise throughout the distribution channel. It is designed for students interested in merchandising at the wholesale or retail level. Students acquire knowledge of merchandise, sales techniques, trends in the market place, and customer service. This concentration assumes a global perspective, is complemented by business courses, and allows for career flexibility. It has received the first Award for Excellence given by the American Textile Manufactures Institute.

Courses instruct students in all aspects of apparel merchandising including the use of computer software to simulate management strategies, as well as design and display of promotional campaigns. Students can also become involved in special projects with the Denver Merchandise Mart. Educational travel opportunities also exist. Traditionally, the paid merchandising internship involves participation in an executive development training program, which may include: seminars; training manual assignments; experience in a buying office; department management; and, rotation in the control, promotion, operations, and personnel divisions.

Characteristics And Skills
- Interested in fibers and textile products
- Creative
- Good eye-hand coordination
- Ability to perform repetitive tasks
- Ability to operate machinery
- Interest in design
- Knowledge of fashion and textile industry trends
- Strong communication skills
- Customer oriented
- Entrepreneurial interest

Potential Occupations

Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels.

Apparel Design and Production graduates design clothing, accessories, and other soft goods. Some high fashion designers are self-employed and design for individual clients often making fashion news by establishing their own clothing line including colors and fabrics that will be worn each season. Other high fashion designers cater to specialty stores or department stores. Most fashion designers however, work for apparel manufacturers creating and adapting fashions for the mass market. Careers in this area include, but are not limited to:
- Manufacturer's representative
- Sales representative
- Production manager
- Manufacturer's agent
- Inventory controller
- Apparel designer
- Fabric designer
- Pattern maker
- Buyer
- Customer service representative
- Advertiser
- Fashion illustrator
- Cost engineer
- Technical services
- Testing and development
- Government researcher
- Private researcher
- Importer
- Showroom coordinator

Merchandising professionals operate at the wholesale or retail level in the textile industry. Career placement is very high and is complemented by the strong, paid industry internship program. Knowledge of sales techniques and merchandise, as well as knowledge of trends in the market place and customer service are essential. Careers in this area include, but are not limited to:
- Retail sales worker
- Personal shopper
### APPAREL DESIGN AND PRODUCTION CONCENTRATION

Major in Apparel and Merchandising  
Apparel Design and Production Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AM 101</td>
<td>Fashion Industries</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AM 140</td>
<td>Apparel Design</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AM 141</td>
<td>Apparel Production I</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>C CC 103</td>
<td>Chemistry in Context</td>
<td>3</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 104</td>
<td>Chemistry in Context Laboratory (C/C CC 103 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>DM 120</td>
<td>Textiles</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>DM 130</td>
<td>Design Appreciation</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HSCC 192</td>
<td>Applied Human Sciences First-Year Seminar</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>M CC 130</td>
<td>Math in the Social Sciences (Math Placement Exam)</td>
<td>3</td>
<td>2C</td>
</tr>
<tr>
<td>PYCC 100</td>
<td>General Psychology</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>31</td>
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</tr>
<tr>
<td><strong>SOPHOMORE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AM 240</td>
<td>Computer-Aided Apparel Design</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AM 241</td>
<td>Apparel Production II (AM 141)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AMCC 250</td>
<td>Clothing, Adornment and Human Behavior</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>DMCC 263</td>
<td>Historical Perspectives of Material Culture</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>PLCC 110</td>
<td>Logic and Critical Thinking</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>STCC 201</td>
<td>General Statistics (M/M CC 120A-B)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>SPCC 200</td>
<td>Public Speaking</td>
<td>3</td>
<td>2B1</td>
</tr>
<tr>
<td></td>
<td>Arts/humanities&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>Biological/physical sciences&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3</td>
<td>3A</td>
</tr>
<tr>
<td></td>
<td>Health and wellness&lt;sup&gt;3&lt;/sup&gt;</td>
<td>2</td>
<td>3G</td>
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<td></td>
<td>U.S. public values and institutions&lt;sup&gt;4&lt;/sup&gt;</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
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<td>29</td>
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<tr>
<td><strong>JUNIOR</strong></td>
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<td></td>
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<tr>
<td>AM 341</td>
<td>Computer-Aided Apparel Production (AM 240, AM 241)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AM 342</td>
<td>Computer-Aided Textile Design (AM 240)</td>
<td>3</td>
<td>4B</td>
</tr>
<tr>
<td>AM 343</td>
<td>Fashion Illustration (AM 140, AR 135)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AM 345</td>
<td>Draping Design (AM 241)</td>
<td>3</td>
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</tbody>
</table>
### Course Title (Prerequisite) Credits AUCC Category

#### FRESHMAN

<table>
<thead>
<tr>
<th>Course</th>
<th>AM 101</th>
<th>Fashion Industries</th>
<th>3</th>
<th>4A</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD 150</td>
<td>Business Computing Concepts and Applications</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C CC 103</td>
<td>Chemistry in Context</td>
<td>3</td>
<td>3A</td>
<td></td>
</tr>
<tr>
<td>C CC 104</td>
<td>Chemistry in Context Laboratory (C CC 103 or concurrent reg.)</td>
<td>1</td>
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</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
<td></td>
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<tr>
<td>DM 130</td>
<td>Design Appreciation</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HSCC 192</td>
<td>Applied Human Sciences First-Year Seminar</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following pairs of courses:

- M CC 117 | College Algebra in Context I (Math Placement Exam) | 1 | 2C |
- M CC 118 | College Algebra in Context II (M/M CC 117) | 1 | 2C |
- M CC 120A-B | College Algebra I (Math Placement Exam) | 1 | 2C |
- M CC 121 | College Algebra II (M/M CC 120A-B or placement) | 1 | 2C |

OR

- PYCC 100 | General Psychology | 3 | 3C |

OR

- S CC 100 | General Sociology | 3 | 3C |
- SPCC 200 | Public Speaking | 3 | 2B1 |

### PROGRAM TOTAL = 120 credits

1. Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).
2. Select one three-credit course other than Chemistry from the list of courses in category 3A in the AUCC.
3. Select from the list of courses in category 3G in the AUCC.
4. Select from the list of courses in category 3F in the AUCC.
5. Acceptance for DM 487B or C depends on the student’s GPA and acceptance by a cooperating company. Students not enrolled in an internship will select 12 credits from departmental list.

### MERCHANDISING CONCENTRATION

**Major in Apparel and Merchandising**  
**Merchandising Concentration**

#### FRESHMAN

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
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<td></td>
</tr>
<tr>
<td>HSCC 192</td>
<td>Applied Human Sciences First-Year Seminar</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one of the following pairs of courses:

- M CC 117 | College Algebra in Context I (Math Placement Exam) | 1 | 2C |
- M CC 118 | College Algebra in Context II (M/M CC 117) | 1 | 2C |
- M CC 120A-B | College Algebra I (Math Placement Exam) | 1 | 2C |
- M CC 121 | College Algebra II (M/M CC 120A-B or placement) | 1 | 2C |

OR

- PYCC 100 | General Psychology | 3 | 3C |

OR

- S CC 100 | General Sociology | 3 | 3C |
- SPCC 200 | Public Speaking | 3 | 2B1 |
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arts/humanities(^1)</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>Mathematics(^2)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOPHOMORE**

| AMCC 250 | Clothing, Adornment and Human Behavior | 3 | 3E |
| AM 265   | Product Evaluation                    | 3 |
| BA 205   | Fundamentals of Accounting            | 3 |
| DM 120   | Textiles                              | 3 |
| DMCC 263 | Historical Perspectives of Material Culture | 3 | 3D |
| ECC 202  | Principles of Microeconomics (M/M CC 118 or M/M CC 120) | 3 | 3C |
| STCC 201 | General Statistics (M/M CC 120A-B)   | 3 | 2D |
| STCC 204 | Statistics for Business Students (M/M CC 120A-B) | 3 | 2D |
|          | Biological/physical sciences\(^3\)   | 3 | 3A |
|          | Health and wellness\(^4\)            | 2 | 3G |
|          | U.S. public values and institutions\(^5\) | 3 | 3F |
|          | TOTAL                                | 29 |

**JUNIOR**

| AM 330   | Textile and Apparel Economics (DM 120; EC/ECCC 202) | 3 | 4B |
| AM 366   | Merchandising Promotion (AM 270 or BK 305)          | 3 | 4A |
| AM 371   | Merchandising Systems (AM 270 or DM 360/BK 360, BA 205) | 4 |
| BK 305   | Fundamentals of Marketing (EC/ECCC 101 or EC/ECCC 202 or EA/EACC 202) | 3 |
| BN 305   | Fundamentals of Management                        | 3 |
| DM 300   | Retail Sales and Customer Strategies               | 3 |
| DM 360   | Retailing (BK 300 or BK 305)                       | 3 |
| BK 360   | Retailing (BK 300 or BK 305)                       | 3 |
|          | AM electives\(^6\)                                | 6 |
|          | Electives                                          | 3 |
|          | TOTAL                                              | 31 |

**SENIOR**

| AM 472   | Consumer Behavior (BK 305 or DM 305)               | 3 |
| AM 479   | Merchandising Policies and Strategies (AM 270, AM 330, AM 366, AM 371 or written consent of instructor) | 3 | 4C |
| DM 492   | Preinternship Seminar (written consent of instructor) | 1 |
|          | AM, DM, ID electives\(^7\)                        | 3 |
|          | Industry-related electives\(^8\)                  | 12 |
|          | Electives                                          | 8 |
|          | TOTAL                                              | 30 |

**PROGRAM TOTAL = 120 credits**

\(^1\) Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).

\(^2\) M/M CC 124 or higher
Major in Interior Design

Are you a person who believes that people's surroundings significantly affect their quality of life? Would you enjoy designing indoor environments that are both aesthetic and functional? Are you a hands-on person who likes to see a project through from the drawing table to the finished work? Would you like to use the elements and principles to create comfortable space? Do you like to work with people to improve their interior environments? Is designing barrier-free interior spaces important to you? If your answers to any of these questions are "yes" then a major in Interior Design may be for you.

The Colorado State Interior Design program is based on the philosophy that interior design is important to the quality of human life. The program emphasizes the understanding and exploration of the conceptual aspects of the design process. Students learn competency in fundamental design, design analysis, space planning and programming, and the design of interior space. Additionally, students will understand conceptual aspects of the design process and develop necessary technical, theoretical, and psychological skills required of an interior designer. Assessment of student progress includes a second semester portfolio evaluation, and a senior year portfolio review, Senior Show, and comprehensive examination.

By limiting enrollment through selective advancement at the junior level, individual attention in advanced course work is increased. Students are also provided opportunities to work with actual clients in a classroom setting while developing graphic, written and oral communication, and problem solving skills. The Colorado State interior design program is the only Foundation for Interior Design Education and Research (FIDER)-accredited, four-year program in Colorado.

The Interior Design core curriculum includes:
- Design analysis
- Design of interior space
- Assessment of client needs
- Space planning and design
- Construction/building systems and codes
- Business principles of interior design
- Computer-aided design, animation, and multimedia
- Graphic visualization
- History of interiors
- Barrier-free design
- Interior environmental issues.

Through this curriculum students will gain a conceptual understanding of the design process and gain the skills required as an Interior Designer. The Department of Design and Merchandising has excellent teaching facilities, including, interior design studios, resource rooms, computer labs, merchandising simulations, software evaluation, data analysis, and word processing.

Characteristics And Skills
- Creative, ability to visualize
- Strong sense of space, light, and color
- Like to work with construction materials
- Belief in the importance of interior environments
- Interest in design
- Like to work with people
- Client oriented
- Strong communications skills

Potential Occupations

The professional interior designer is one who is qualified by education, experience and testing to identify, research, and creatively solve problems relative to the function and quality of human built environments. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:
- Interior designer
- Consultant
- Color specialist
- Lighting specialist
- Restoration specialist
- Special needs consultant
- Writer
- Draftsperson
- Sales representative
## Major in Interior Design

<table>
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<tr>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td>DM 130</td>
<td>Design Appreciation</td>
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<td>Applied Human Sciences First-Year Seminar</td>
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<td>Small-Scale Interiors (DM 130 or concurrent reg.)</td>
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<td>MC 131</td>
<td>Graphic Communications/CAD</td>
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<td>MC 151</td>
<td>Introduction to Manufacturing and Construction</td>
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<tr>
<td>Global and cultural awareness¹</td>
<td>3</td>
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<td>Health and wellness²</td>
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<td>DM 120</td>
<td>Textiles</td>
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<td>Professional Communications and Ethics</td>
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<td>DMCC 263</td>
<td>Historical Perspectives of Material Culture</td>
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<td>Design Communications I (MC 131)</td>
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<td>MC 231</td>
<td>Architectural Plan Reading (MC 131, MC 151)</td>
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<td>Construction Graphics (MC 131, MC 231 or concurrent reg.)</td>
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<td>General Psychology</td>
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<td>Additional communication³</td>
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<td>Logical/critical thinking⁴</td>
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<td>Mathematics⁵</td>
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<td>Computer-Aided Design (formal admission to junior-level courses)</td>
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<td>Color and Light (ID 275)</td>
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<td>Interior Materials and Market Study (formal admission to junior-level courses)</td>
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<td>History of International Interiors (AR/ARCC 100)</td>
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<td>ID 366</td>
<td>Design Communications II (ID 375)</td>
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<td>Interior Design II (formal admission to junior-level courses)</td>
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<td>Interior Design III (ID 320, ID 330, ID 375)</td>
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<td>ID 460</td>
<td>Housing and Design for Special Populations (ID 275)</td>
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<td>Biological/physical sciences⁶</td>
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**SENIOR**
### DEPARTMENT OF FOOD SCIENCE AND HUMAN NUTRITION

**Office in Gifford Building, Room 205**

**Major in Nutrition and Food Science**

Are you curious about the linkage between nutrition and health? Does helping people increase their wellbeing through improved nutrition appeal to you? Would you like to do nutritional research, education or counseling? Would you enjoy working in institutional or commercial food service, or in the food industry? If any of your answers to these questions is “yes” then a major in nutrition and food science may be the one for you.

Public interest in the relationship among nutrition, health and fitness is at a high level and increasing. The nutrition and food science major involves integration of the biological, physical, and social sciences and their application to the improvement of human nutrition and fitness. The major is both science and human service oriented.

Nutrition and food science graduates gain a scientific understanding of the principles of human nutrition, the role of nutrition in disease, delivery of nutritional care, and the principles of nutrition assessment and food preparation. Additionally, graduates know the techniques of interviewing, counseling, information management, and effective communications.

Four concentrations are available in this major: The **Dietetics** concentration provides a broad background in clinical nutrition and food service management. The science-based curriculum includes nutritional assessment, application of food theory and coursework focusing on nutritional counseling. The concentration is designed to prepare students for a dietetic internship and a professional career in medical nutrition therapy or nutrition counseling. The program meets American Dietetic Association (ADA) requirements.

The **Food Science** concentration provides students with a scientific understanding of the chemical and physical properties of food, food microbiology, food engineering and manufacturing principles, and the sensory analysis and quality control of food systems. The coursework is strongly science based with a focus on the technical areas of the food industry. This concentration is approved by the Institute of Food Technologists (IFT), making students eligible for IFT scholarships. This concentration is well suited for students wanting to enter the technical areas of the food industry or attend graduate school in food science.

The **Nutritional Sciences** concentration provides a
strong background in natural and biomedical sciences and nutrition, making it an appropriate preparation for graduate study and a career in nutritional research or college teaching. The curriculum provides a background in biomedical sciences and nutrition. The concentration can form the basis for a pre-medical professional program. By addition of several elective courses, students can meet ADA course requirements.

The **Nutrition and Fitness** concentration prepares students for employment as nutrition and fitness counselors in commercial establishments, public health settings or private practice. The curriculum blends a strong science base with coursework in activity, nutrition, teaching, and counseling. The concentration also provides an excellent background for a graduate program. By addition of several elective courses, students can meet ADA course requirements.

**Characteristics And Skills**

- Interest in promotion of healthy nutrition
- Ability and desire to work with people
- Strong planning, instructing and record keeping skills
- Interest in education and research
- Ability to communicate clearly with people
- Possess organizational and management skills

**Potential Occupations**

Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:

- Dietitian or nutritionist in hospitals, nursing homes, schools, state or county health agencies, health clubs, corporate wellness programs, or private practice
- Community nutritionist
- Biomedical scientist
- Restaurant manager
- Caterer
- Quality assurance specialist
- Food scientist
- Food inspector
- Food technologist
- Food plant manager
- Food service manager

**Dietetics Concentration**

**Major in Nutrition and Food Science**

**Dietetics Concentration**

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<td>CS 110</td>
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<tr>
<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
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<td>Select from the following courses:</td>
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<td>BZCC 111</td>
<td>Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)</td>
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<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
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<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
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<td>C CC 111</td>
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<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
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<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<td>ECC 101</td>
<td>Economics of Social Issues</td>
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<td>Survey of Human Nutrition</td>
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<td>M CC 124</td>
<td>Logarithmic and Exponential Functions (M/M CC 118 or M/M CC 121 or placement)</td>
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**SOPHOMORE**

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<tr>
<td>AY 300</td>
<td>Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
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<td>OR PS 300</td>
<td>Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
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<td>BZ 310</td>
<td>Fundamentals of Physiology (BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110; C 245 or concurrent reg.)</td>
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<td>OR PS 310</td>
<td>Fundamentals of Physiology (BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110; C 245 or concurrent reg.)</td>
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<td>C 245</td>
<td>Fundamentals of Organic Chemistry (C/C CC 107 or C 113)</td>
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<td>C 246</td>
<td>Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent reg.)</td>
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<td>FN 300</td>
<td>Food Principles and Applications (C/C CC 107, FN/FNCC 150)</td>
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<td>FN 301</td>
<td>Food Principles and Applications Laboratory (FN 300 or concurrent reg.)</td>
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<td>Food Service Systems-Operations</td>
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<td>MB 300</td>
<td>General Microbiology (C 245 or C 341 or concurrent reg.; BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)</td>
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<td>Medical Terminology</td>
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<td>PS 302</td>
<td>Laboratory in Principles of Physiology (AY 300/PS 300 or BZ 310/PS 310 or concurrent reg.)</td>
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<td>Foundations and perspectives¹</td>
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**JUNIOR**

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<td>BC 351</td>
<td>Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343)</td>
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<td>BN 305</td>
<td>Fundamentals of Management</td>
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<td>COCC 300</td>
<td>Writing Arguments (CO/COCC 150)</td>
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<td>Professional and Technical Communication (CO/COCC 150)</td>
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<td>Public Speaking</td>
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<td>FN 311</td>
<td>Food Service Systems-Production and Purchasing (FN 310)</td>
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<td>FN 350</td>
<td>Human Nutrition (AY 300/PS 300 or BZ 310/PS 310, C 245)</td>
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<td>FN 360</td>
<td>Nutrition Assessment (C 246 or C 344, FN 350)</td>
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<td>Practicum-Food Service Management</td>
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<td>Group Study(^2) (FN 350)</td>
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**SENIOR**

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<td>Food Service Systems-Operations Analysis (FN 310)</td>
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<td>FN 428</td>
<td>Nutrition Teaching and Counseling Techniques (FN 350; nine credits in food science and nutrition)</td>
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<td>FN 450</td>
<td>Diet and Disease (FN 350; BC 301 or BC 351)</td>
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<td>FN 451</td>
<td>Community Nutrition (FN 350)</td>
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<td>FN 459</td>
<td>Nutrition in the Life Cycle (FN 350)</td>
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<td>FN 470</td>
<td>Integrative Nutrition and Metabolism (FN 350; BC 301 or BC 351)</td>
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<td>FN 492</td>
<td>Seminar in Dietetics and Nutrition (FN 350, nine or more credits in the major)</td>
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<td>FN 496B</td>
<td>Group Study-Food and Culture (FN 350)</td>
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<td>FT 447</td>
<td>Food Chemistry (C 245; BC 301 or BC 351 or concurrent reg.)</td>
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**PROGRAM TOTAL = 123-128 credits**

\(^1\) Select one course each from the list in category 3B, 3D, and 3E of the All-University Core Curriculum (AUCC).

\(^2\) Select any subtopic, except FN 496B.

### FOOD SCIENCE CONCENTRATION

**Major in Nutrition and Food Science**

**Food Science Concentration**

<table>
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<td>BZCC 111</td>
<td>Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)</td>
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<tr>
<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
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<td>C   113</td>
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<td>FT    110</td>
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**SOPHOMORE**

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<td>AY     300</td>
<td>Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110) OR Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
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<td>Economics of Social Issues</td>
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<td>Foundations and perspectives&lt;sup&gt;2&lt;/sup&gt;</td>
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**JUNIOR**

- FT 369 Food Processing (C 245, MB 300, PH/PHCC 121) 3
- FT 447 Food Chemistry (C 245; BC 301 or BC 351 or concurrent reg.) 2 4B
- FT 448 Food Chemistry Laboratory (FT 447 or concurrent reg.) 1 4A
- MB 300 General Microbiology (C 245 or C 341 or concurrent reg.; LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120) 3
- MB 302 General Microbiology Laboratory (MB 300 or concurrent reg.) 2

**Senior**

- FN 492 Seminar in Dietetics and Nutrition (FN 350 and nine or more upper-division credits in major) 3 4C

Select a minimum of two courses from the following:

- FT 230 Alcoholic Beverage Technology and Control (C/C CC 103 or C/C CC 107) 2
- FT 360 Principles of Meat Science (C/C CC 107 or C/C CC 111) 3

OR

- AN 360 Principles of Meat Science (C/C CC 107 or C/C CC 111) 3
- FT 400 Food Safety (six credits in biology or chemistry) 3
- FT 460 Meat Processing (FT 360/AN 360) 3

OR

- AN 460 Meat Processing (FT 360/AN 360) 3
- FT 420 Quality Assessment of Food Products (FT 110; MB 300) 3
- FT 449 Food Analysis (FT 447) 3

OR

- MB 334 Food Microbiology (MB 301 or MB 302) 4

OR

- FT 334 Food Microbiology (MB 301 or MB 302) 4
- STCC 201 General Statistics (M/M CC 120A-B) 3 2D

OR

- STCC 204 Statistics for Business Students (M/M CC 120A-B) 3 2D

Professional requirements<sup>3</sup> 6

Upper division FN<sup>3</sup> 6

TOTAL 31

**PROGRAM TOTAL = 122-127 credits**

<sup>1</sup> Select a minimum of 15 credits from the following (*Institute of Food Technologists accredited program courses): BA 205, Fundamentals of Accounting–3; BC 351, Principles of Biochemistry–4; *BH 306, Bioprocess Engineering–4; BN 305, Fundamentals of Management;*M/M CC 125, Numerical Trigonometry–1; *M/M CC 126, Analytical Trigonometry–1; *M/M CC 141, Calculus in Management Sciences–3 OR M/M CC 155, Calculus for Biological Sciences–4; *PH/PHCC 121, General Physics–5.

<sup>2</sup> Select one course from each category (3B, 3D, 3E) in the All-University Core Curriculum (AUCC).

<sup>3</sup> Select two 300-level or above FN courses.
<table>
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<th>Title (Prerequisite)</th>
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<td>Principles of Plant Biology</td>
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<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
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<td>Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)</td>
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<td>Attributes of Living Systems (high school chemistry)</td>
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**NUTRITIONAL SCIENCES CONCENTRATION**

**Major in Nutrition and Food Science**

Nutritional Sciences Concentration

164

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<td>MB</td>
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<td>OT</td>
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**JUNIOR**

| BC     | Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343)            | 4       |               |
| BC     | Principles of Biochemistry Laboratory (BC 301 or BC 351 or BC 401 or concurrent reg; two credits of college chemistry laboratory) | 1       |               |
| BD     | Business Computing Concepts and Applications                                       | 3       |               |
| CS     | Personal Computing                                                                  | 4       |               |
| BY     | Cell Biology (one semester of organic chemistry or concurrent reg.; two semesters of introductory biology) | 4       |               |
| FN     | Human Nutrition (AY 300/PS 300 or PS 310/BZ 310; C 245)                            | 3       |               |
|        | Select one of the following courses:                                               |         |               |
| COCC   | Writing Arguments (CO/COCC 150)                                                    | 3       | 2B2 or 2D     |
| JTCC   | Professional and Technical Communication (CO/COCC 150)                             | 3       | 2B2           |
| SPC    | Public Speaking                                                                     | 3       | 2B1           |
| PHCC   | General Physics I (Corequisite: M/M CC 125)                                        | 5       | 3A            |
| PHCC   | General Physics II (PH/PHCC 121)                                                   | 5       | 3A            |
|        | Foundations and perspectives¹                                                       | 3       | 3D            |
|        | TOTAL                                                                               | 31-32   |               |

**SENIOR**

| FN     | Nutrition Assessment (C 246 or C 344; FN 350)                                      | 3       |               |
| FN     | Nutrition Teaching and Counseling Techniques (FN 350, nine credits in food science and nutrition) | 3       |               |
| FN     | Diet and Disease (FN 350; BC 301 or BC 351)                                        | 4       | 4B            |
| FN     | Community Nutrition (FN 350)                                                        | 3       | 4A            |
| FN     | Nutrition in the Life Cycle (FN 350)                                                | 3       |               |
| FN     | Integrative Nutrition and Metabolism (FN 350; BC 301 or BC 351)                    | 3       |               |
| FN     | Seminar in Dietetics and Nutrition (FN 350 and 9 or more upper-division credits in the major) | 3       | 4C            |
| FN     | Group Study in Dietetics and Nutrition² (FN 350)                                    | 2       |               |
| STCC   | General Statistics (M/M CC 120A-B)                                                  | 3       | 2D            |
|        | TOTAL                                                                               | 27      |               |

PROGRAM TOTAL = 124 credits

¹ Select one course from each category (3B, 3D, 3E) in the All-University Core Curriculum (AUCC).
² Student may choose any two subtopics from FN 496A-I.
# NUTRITION AND FITNESS CONCENTRATION

**Major in Nutrition and Food Science**  
**Nutrition and Fitness Concentration**

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**SOPHOMORE**

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<td>Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 102 or BZ/BZCC 110) <strong>OR</strong></td>
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<td>Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 102 or BZ/BZCC 110) <strong>OR</strong></td>
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<td>JTCC</td>
<td>Professional and Technical Communication (CO/C OCC 150)</td>
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<td>SPCC</td>
<td>Public Speaking</td>
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<td>2B1</td>
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<td>Food Service Systems-Operations</td>
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<td>OT</td>
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**JUNIOR**

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<td>First Aid and Emergency Care</td>
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<td>EX</td>
<td>Techniques of Teaching Aerobics (corresponding laboratory or competency in area)</td>
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<td>EX</td>
<td>Physiology of Exercise (AY 301; PS 302)</td>
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<td>FN</td>
<td>Human Nutrition (AY 300/PS 300 or BZ 310/PS 310; C 245)</td>
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<td>FN</td>
<td>Nutrition Assessment (C 246 or C 344; FN 350)</td>
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<td>General Microbiology (C 245 or C 341 or concurrent reg.; BY 102/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)</td>
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<tr>
<td>MB</td>
<td>General Microbiology Laboratory (MB 300 or concurrent reg.)</td>
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<td>PS</td>
<td>Cardiopulmonary Physiology (AY 300/PS 300)</td>
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<td>Statistics for Business Students (M/M CC 120A-B)</td>
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**SENIOR**

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<td>FN</td>
<td>Nutrition Teaching and Counseling Techniques (FN 350; nine credits in food science and nutrition)</td>
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<td>Diet and Disease (FN 350; BC 301 or BC 351)</td>
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<td>FN</td>
<td>Community Nutrition (FN 350)</td>
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<td>FN</td>
<td>Nutrition in the Life Cycle (FN 350)</td>
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<tr>
<td>FN</td>
<td>Integrative Nutrition and Metabolism (FN 350; BC 301 or BC 351)</td>
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<td>FN</td>
<td>Seminar in Dietetics and Nutrition (FN 350; nine or more credits in the major)</td>
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<td>FN</td>
<td>Group Study¹ (FN 350)</td>
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<tr>
<td>FT</td>
<td>Food Chemistry (C 245; BC 301 or BC 351 or concurrent reg.)</td>
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</table>
Major in Restaurant and Resort Management

Have you always wanted to run a hotel, or recreational resort? Does running a restaurant in a mountain lodge sound appealing to you? Is working in a leisure-time industry your idea of a great occupation? If the answer to any of these questions is “yes” then a degree in Restaurant and Resort Management may be the right one for you.

Restaurant and resort management combines special food service, lodging, business, and elective course work, plus a work experience requirement to provide students with an excellent restaurant and resort management background. There is a strong business emphasis in the curriculum that is combined with coursework in nutrition and tourism. Elective credits allow students to tailor their programs to specific career interests.

The Department of Food Science and Human Nutrition maintains strong ties with the food service and lodging industries locally, state-wide, and nationally, to connect graduates with a wide variety of employment opportunities in the expanding commercial and non-commercial hospitality industry. The department also provides job placement assistance.

Potential Occupations

Participation in internships and cooperative education opportunities is highly recommended to enhance your practical training and development. Career occupations might include:

- Food service industry: includes commercial restaurants, resorts and hotels, clubs, fast food service, food catering, health care and nursing facilities, schools, correctional and military facilities. Jobs are most plentiful in large cities and resort areas.
  - Food service director
  - Restaurant manager
  - Banquet manager
  - Dietitian
  - Caterer
  - Flight attendant
  - Food technologist
  - Merchandising supervisor

- The resort industry includes careers in large and small hotel properties, bed and breakfast facilities, country inns, and all types of seasonal resorts.
  - Hospitality manager
  - Resort manager
  - Chef
  - Club manager
  - Hotel manager
  - Caterer
  - Purchasing agent

Characteristics & Skills

- Proficiency for organization
- Aptitude for leadership
- Self discipline
- Problem solver
- Decision maker
- Good communication skills
- Works well under stressful conditions
- Ability to interact with people of differing backgrounds and personalities
- Desire to serve and please others
- Hospitable
- Business minded
- Good health and stamina
## Major in Restaurant and Resort Management

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
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<td>FNCC 150</td>
<td>Survey of Human Nutrition</td>
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<td><strong>SOPHOMORE</strong></td>
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<td>Fundamentals of Accounting</td>
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<td>BGCC 205</td>
<td>Fundamentals of Business Law</td>
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<td>Personal Computing</td>
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<td>Food Service Systems-Operations</td>
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<td>JT 301</td>
<td>Business Communication (CO/COC 150)</td>
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<td>MB 149</td>
<td>The Microbial World</td>
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<td>RM 200</td>
<td>Resort Operations (RM 101 or written consent of instructor)</td>
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<td>Public Speaking</td>
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<td>BF 305</td>
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<td>Managerial Economics (EA/EACC 202 or EC/ECCC 202)</td>
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<td>FN 414</td>
<td>Food Service Systems-Operations Analysis (FN 310)</td>
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<td>SCC 100</td>
<td>General Sociology</td>
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**SENIOR**

- BN 305 Fundamentals of Management | 3
- BP 310 Human Resource Management | 3
- FT 400 Food Safety (six credits in biology and/or chemistry) | 3
- RM 350 Restaurant and Resort Marketing (RM 101) | 3
- RM 415 Catering Techniques and Culinary Arts (FN 311) | 3
- RM 492 Seminar on Restaurant and Resort Management (RM 350) | 3 4C
  - Foundations and perspectives | 9 3B, 3D, 3E
  - Electives, upper division | 3
| TOTAL | | 30 | | |

PROGRAM TOTAL = 120 credits

1 Select one course each from the list in category 3B, 3D, and 3E in the All-University Core Curriculum (AUCC).

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**DEPARTMENT OF HEALTH AND EXERCISE SCIENCE**

*Office in Health and Exercise Science Complex*
*Professor Richard G. Israel, Head*

**Major in Health and Exercise Science**

Are you interested in helping individuals improve their health and fitness? Do you enjoy working with people across the lifespan? Is medicine or physical therapy in your horizon? If you answer “yes” to any of these questions, then a major in Health and Exercise Science may be the one for you.

Students may choose from two concentrations offered in the health and exercise science major. A concentration in Health Promotion allows you to specialize in the scientific study of how the body responds and adapts to various types of exercise. Students are prepared for numerous careers in a variety of allied health fields. Specifically, graduates have found employment in corporations as wellness/fitness specialists, in insurance-based health promotion programs, medical settings, hotel wellness facilities, university health promotion centers, and health and fitness clubs. The curriculum focuses on health promotion program development, implementation, and evaluation. Other coursework includes chemistry, anatomy, anatomical kinesiology, physiology of exercise, exercise testing instrumentation, marketing, and more. You will also have opportunities for several practical field experiences before graduating. In fact, the Colorado State Health Promotion program was ranked #1 in the country by the Association for Worksite Health Promotion, (formerly Association for Fitness in Business) for the quality and quantity of clinical field experience a student receives.

The Sports Medicine concentration is a pre-professional program that offers a strong science- based education dealing specifically with the application of the natural sciences to the study of health and exercise. This concentration provides a strong foundation for various professional health-related graduate programs such as physical therapy and exercise physiology, as well as an internship required for athletic training certification. Athletic trainers deal with the prevention, treatment, and rehabilitation of athletic injuries. This concentration was structured for three types of students: 1) those seeking pre-professional preparation in medical fields or physical therapy, 2) students planning to pursue a master's degree in exercise science, and 3) those who are going into athletic training.

Some of the courses required for this concentration include chemistry, biology, physics, anatomy, kinesiology, biomechanical principles of human movement, exercise testing, biochemistry, organic chemistry, human nutrition, and rehabilitation exercise.
Characteristics and Skills

- Good decision making skills
- Strong leadership skills
- Ability to motivate others
- Sensitive to others needs
- Ability to effectively convey information to others
- Diplomacy
- Reliability
- Mechanical aptitude
- Detail oriented
- Interest in human health and fitness
- Creativity and resourcefulness
- Ability to work well with many types of people
- Ability to exercise good judgement
- Willingness to accept responsibility
- Analytical skills

Potential Occupations

The marketplace for health and exercise science graduates has expanded dramatically in the last ten years due to society's increasing interest in health and fitness issues. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. The following are some of the career opportunities available to a health and exercise science major:

**Health Promotion**
- Health promotion specialist
- Wellness program manager
- Corporate fitness/wellness programming
- Exercise counselor/consultant
- Lifestyle specialist
- Exercise tester
- Recreation director
- Cardiac rehabilitation programs

**Sports Medicine**
- Fitness evaluator
- Training program consultant
- Exercise technician
- Athletic trainer
- and with additional education,
- Physical therapist
- Physical therapy assistant
- Physician assistant
- Medical technician
- Respiratory therapist
- Sport psychologist
- Medical doctor

Major in Health and Exercise Science (Core)

<table>
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<td>Select from the following:</td>
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<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
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<td>Select one pair of courses from the following:</td>
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<td>Chemistry in Context</td>
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<td>Chemistry in Context Laboratory (C/C CC 103 or concurrent reg.)</td>
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<td>Historical perspectives and U.S. public values and institutions²</td>
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<td></td>
<td>Mathematics²</td>
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### SOPHOMORE

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<td>Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
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<td>OR PS 300</td>
<td>Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
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**JUNIOR**

| EX 240 | First Aid and Emergency Care                                                      | 2       |
| SPCC 200 | Public Speaking                                                                   | 3       |
| Arts/humanities¹ |                                                                                | 3       |

**TOTAL**

12

**SENIOR**

| STCC 201 | General Statistics (M/M CC 120A-B)                                              | 3       |
| STCC 301 | Introduction to Statistical Methods (M/M CC 121)                                 | 3       |
| STCC 307 | Introduction to Biostatistics (M/M CC 121)                                     | 3       |
| OR EHCC 307 | Introduction to Biostatistics (M/M CC 121)                                   | 3       |

| EX 492 | Seminar                                                                            | 2       |

**TOTAL**

5

**CORE TOTAL = 51-53 credits⁵**

---

¹ Select from the list of courses meeting both category 3D and category 3F in the All-University Core Curriculum (AUCC).
² Select from departmental list of courses in category 2C of the AUCC.
³ Select from the list of courses in category 3B in the AUCC.
⁴ Select from the list of courses in category 3E in the AUCC.
⁵ Each student must also complete one of the following concentrations—health promotion or sports medicine.

### HEALTH PROMOTION CONCENTRATION

The minimum GPA for students in the health promotion concentration must be 2.5 with no grade below C in the following courses: AY 300/PS 300, AY 301, EXCC 123, EXCC 145, EX 240, and EX 340 before departmental approval will be given to register for EX 386B, Practicum-Wellness Program Management; EX 486B, Practicum-Wellness Program Management; and EX 487, Internship.

**Major in Health and Exercise Science**

**Health Promotion Concentration**

In addition to the health and exercise science core courses, the following must be completed:

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<th>Credits</th>
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<td>FRESHMAN</td>
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<td>Survey of Human Nutrition</td>
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<td>3G</td>
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<td>EX 332F</td>
<td>Techniques of Teaching Weight Training (corresponding lab or competency in area)</td>
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<td>Credits</td>
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<tr>
<td>PS 122</td>
<td>Drugs and the Human Body</td>
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**SOPHOMORE**

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<td>Business Computing Concepts and Applications</td>
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<tr>
<td>CS 110</td>
<td>Personal Computing</td>
<td>4</td>
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<td>ECC 202</td>
<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
<td>3</td>
<td>3C</td>
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<td>EX 332H</td>
<td>Techniques of Teaching Aerobics (corresponding lab or competency in area)</td>
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<td>EX 345</td>
<td>Population of Health and Disease Prevention (EX 145)</td>
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<td>JT 200</td>
<td>Professional Writing (CO/COCC 150)</td>
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<td>Business Communication (CO/COCC 150)</td>
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**JUNIOR**

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<td>Fundamentals of Accounting</td>
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<td>BK 305</td>
<td>Fundamentals of Marketing (EC/ECCC 101 or EC/ECCC 202 or EA/EACC 202)</td>
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<td>Integrated Marketing Communications (BK 300 or BK 305)</td>
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<td>EX 340</td>
<td>Exercise Prescription (Corequisite: EX 386A)</td>
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<td>EX 356</td>
<td>Wellness Programming (EX/EXCC 145, EX 386A)</td>
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<td>EX 386A</td>
<td>Practicum in Adult Fitness (EX/EXCC 145, EX 240, EX 332F, EX 332H, FN/FNCC 150, concurrent reg. in EX 340)</td>
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<td>EX 386B</td>
<td>Practicum in Wellness Program Management (EX 386A)</td>
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**SENIOR**

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<td>EX 486B</td>
<td>Practicum in Wellness Program Management (EX 386B)</td>
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<td>EX 487</td>
<td>Internship (EX 486B)</td>
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**PROGRAM TOTAL = 120 credits**

**SPORTS MEDICINE CONCENTRATION**

**Major in Health and Exercise Science**

**Sports Medicine Concentration**

In addition to the health and exercise science core courses, the following must be completed:

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<td>EX 203</td>
<td>Motor Learning (PY/PYCC 100)</td>
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<td>AY 301</td>
<td>Human Gross Anatomy (AY 300/PS 300)</td>
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<td>Techniques of Teaching Weight Training (corresponding lab or competency in area)</td>
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<td>PS 302</td>
<td>Laboratory in Principles of Physiology (AY 300/PS 300 or PS 310/BZ 310 or concurrent reg.)</td>
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<td>BC 301</td>
<td>Survey of Biochemistry (C 245)</td>
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<td>BC 351</td>
<td>Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343)</td>
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<td>BY 103</td>
<td>Biology of Organisms-Animals and Plants (BY 102/LSCC 102)</td>
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<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
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<td>Animal Biology Laboratory (BZCC 110 or concurrent reg.)</td>
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<td>Attributes of Living Systems (high school chemistry)</td>
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<td>Fundamentals of Organic Chemistry (C/C CC 107 or C 113)</td>
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<td>C 246</td>
<td>Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 245 or concurrent reg.)</td>
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<td>Biomechanical Principles of Human Movement (PH/PHCC 121 or PH/PHCC 141)</td>
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<td>EX 405</td>
<td>Exercise Testing Instrumentation (EX 403)</td>
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<td>EX 476</td>
<td>Rehabilitation Exercise (EX 240, EX 303)</td>
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<td>EX 479</td>
<td>Psychology and Sport (PY/PYCC 100)</td>
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<td>FN 350</td>
<td>Human Nutrition (AY 300/PS 300 or PS 310/BZ 310, C 245)</td>
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<td>HDCC 101</td>
<td>Individual and Family Development</td>
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<td>PY 320</td>
<td>Abnormal Psychology (PY/PYCC 100)</td>
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</table>

**PROGRAM TOTAL = 120 credits**

¹ Select any EX 100 or 101 courses.
² Select 3-4 credits different from course(s) selected in the first year of the major in health and exercise science.
³ Select any upper division EX course.
DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES

Office in Gifford Building, Room 102
Professor Clifton E. Barber, Head

Major in Human Development and Family Studies

Are you curious about the way human beings grow and develop? Have you ever wondered how environmental and social factors affect physical, cognitive, and emotional development? Are you interested in learning more about specific stages of human development such as infancy, childhood, adolescence, adulthood, and aging? Does the study of family dynamics or the aging process intrigue you? Have you ever thought about a career in early childhood education, in family counseling, or working with youth in various settings? Would you like to work with hospitalized children to help reduce the stress of medical treatment on them and their families? If your answer to any of these questions is “yes” then a major in Human Development and Family Studies may be for you.

Human development and family studies is an interdisciplinary department focusing on the development of individuals and families across the lifespan. Students learn to identify factors that influence cognitive, emotional, social, and physical development through infancy, childhood, adolescence, adulthood, and later adulthood in the contexts of culture and family. Students complete 28 to 31 credits of the human development and family studies core which includes coursework in experiential learning, lifespan development and family studies. Students also select one of four 15-credit career interest areas in childhood education, programming for youth and families, child life/allied health, or programming for adults and later life in families. The curriculum prepares students to work with individuals and families in a broad range of contexts.

Human development and family studies graduates work in a variety of human service settings including youth services organizations; early childhood, elementary, and parent education programs; allied health care; juvenile and adult corrections; family and community services; and long-term care facilities. Graduates are also well prepared to pursue an advanced degree in the behavioral and social sciences, or other professional programs.

Characteristics And Skills

- Capacity to understand emotional and physical needs of others
- Organized and creative
- Possess strong communication skills
- Ability to inspire respect, trust and confidence
- Dependable and patient
- Ability to identify factors that influence personal development.
- Ability to help persons through stressful situations
- Enjoy learning

Potential Occupations

The Human Development and Family Studies Department requires at least 50 hours of community service prior to entering the major. Such participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:

Family/Social Services
- Caseworker
- Parent educator
- Children-family educator
- Child protection worker
- Services coordinator for low-income families
- Family assistance programs

Human Services
- Program developer and evaluator
- Fundraiser
- Public relations specialist
- Program coordinator
- Law Enforcement
- Probation officer
- Youth services worker
- Community corrections officer
- Case manager
- Law enforcement officer

Other
- Non-profit agency administrator
- Shelter program worker
- Residential center manager
- Retirement transition programmer
- Early childhood teacher
- Adult recreation programmer
- Career development specialist
- Child life specialist
- Family services specialist
- Human development specialist
- Adult education teacher
- Gerontological programmer
- Human resources coordinator
- Youth agency administrator
- Community outreach worker
- Women’s program administrator
- Youth intervention and prevention program administrator
- Youth employment, training, and development specialist

**Preparation for Teacher Licensure in Early Childhood and Elementary Education**

Human development and family studies is a strong foundation for students preparing to teach young children. A knowledge of developmental processes and family systems prepares future teachers to work in partnership with parents in educating children.

Students aspiring to careers in educating young children can complete course work necessary to enter a teacher licensure program while completing their Human Development and Family Studies degree requirements. The state of Colorado licenses teachers of young children at two levels: 0-8 years (early childhood) and preschool to sixth grade (elementary). Department advisers will assist students in meeting the requirements for early childhood or elementary education licensure.

Requirements for teacher licensure vary from state to state. Students wishing to be licensed in states other than Colorado are advised to contact the specific state’s Department of Education.

Completion of the major in human development and family studies requires a minimum grade of C- in each HD prefix course. The minimum scholastic average acceptable for graduation is 2.00 computed only for courses attempted at Colorado State.

**Major in Human Development and Family Studies**

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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td><strong>FRESHMAN</strong></td>
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<tr>
<td>BZCC 101</td>
<td>Humans and Other Animals</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>HDCC 101</td>
<td>Individual and Family Development</td>
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<td>3C</td>
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<td>HSCC 192</td>
<td>Applied Human Sciences First-Year Seminar</td>
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<td>PYCC 100</td>
<td>General Psychology</td>
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<td>S CCC 100</td>
<td>General Sociology</td>
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<td>Historical perspectives(^2)</td>
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<td>Mathematics(^3)</td>
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<td>Survey of Human Nutrition</td>
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<td>Global and cultural awareness(^7)</td>
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<td>Logical/critical thinking(^8)</td>
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<td>HD</td>
<td>302 Marriage and Family Relationships (PY/PYCC 100, S/S CC 100)</td>
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<td>310 Infant and Child Development in Context (HD/HDCC 101, PY/PYCC 100)</td>
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<td>311 Adolescent/Early Adult Development in Context (HD/HDCC 101)</td>
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<td>312 Adult Development-Middle Age and Aging (HD/HDCC 101 or PY/PYCC 100 or S/S CC 100)</td>
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<td>334 Parenting Across the Lifespan (HD/HDCC 101 or HD 310)</td>
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<td>HD</td>
<td>403 Families and the Legal Environment</td>
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<td>492 Seminar-Program Proposal Development</td>
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1 Select from list of courses in category 3B in the All-University Core Curriculum (AUCC).
2 Select from list of courses in category 3D in the AUCC. Students in the childhood education career option are encouraged to select either HYCC 150 or HYCC 151.
3 Select from list of courses in category 2C in the AUCC.
4 Students must register for lecture and laboratory.
5 Select from list of courses in category 2B2 or 2B3 in the AUCC.
6 Select from list of courses in category 3A in the AUCC.
7 Select from list of courses in category 3E in the AUCC.
8 Select an STCC course from category 2D in the AUCC.
9 Select from list of courses in category 3F in the AUCC.
10 Select one of the following career options: childhood education, child life/allied health, programming-adult/later life families, or programming-youth and families.
11 HD 477, Professional Skills Development II (1 credit), and HD 488V, Field Placement (7-14 credits), or a three course upper-division cognate defined with and approved by the adviser.
### Childhood Education Career Option

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<td>AY 254</td>
<td>Biological Aspects of Human Development (BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
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<td>HD 254</td>
<td>Biological Aspects of Human Development (BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
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<td>Programming for Children and Families (HD 211, HD 286)</td>
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<td>HD 400</td>
<td>Speech, Language and Communication Development (HD 310 or PY 260)</td>
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<td>HD 401</td>
<td>Childhood Socialization (HD 310 or HD 334)</td>
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<td>PY 460</td>
<td>Child Exceptionality and Psychopathology (PY/PYCC 100)</td>
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### Child Life/Allied Health Career Option

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<tr>
<td>HD 375</td>
<td>Programming for Children and Families (HD 211, HD 286)</td>
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Global and cultural awareness¹ | 3 | 3E |

| SENIOR |                      |         |               |
| AY 300 | Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110) | 4       |               |
| PS 300 | Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110) | 4       |               |
| HD 401 | Childhood Socialization (HD 310, HD 334) | 3       |               |

Select one of the following:

- OT 355 | Handicapped Individual in Society (PY/PYCC 100 or S/S CC 100) | 2       |               |
- PY 320 | Abnormal Psychology (PY/PYCC 100) | 3       |               |
- PY 460 | Child Exceptionality and Psychopathology (PY/PYCC 100) | 3       |               |

OPTION = 15-16 credits

¹Select from list of courses in category 3E in the All-University Core Curriculum (AUCC).

### Programming: Adult/Later Life Families Career Option

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUNIOR</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>HD 301</td>
<td>Perspectives in Gerontology (HD/HDCC 101 or PY/PYCC 100 or S/S CC 100 or written consent of instructor)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HD 332</td>
<td>Death, Dying, and Grief (HD/HDCC 101)</td>
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</tbody>
</table>
### Programming: Youth and Families Career Option

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
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<tr>
<td>JUNIOR</td>
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<tr>
<td>AY 254</td>
<td>Biological Aspects of Human Development (BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
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<tr>
<td>HD 254</td>
<td>Biological Aspects of Human Development (BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
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<tr>
<td>HD 375</td>
<td>Programming for Children and Families (HD 211, HD 286)</td>
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<tr>
<td>SENIOR</td>
<td></td>
<td></td>
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<tr>
<td>HD 401</td>
<td>Childhood Socialization (HD 319, HD 334)</td>
<td>3</td>
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<tr>
<td>PY 320</td>
<td>Abnormal Psychology (PY/PYCC 100)</td>
<td>3</td>
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<tr>
<td>PY 460</td>
<td>Child Exceptionality and Psychopathology (PY/PYCC 100)</td>
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<tr>
<td>OT 355</td>
<td>Handicapped Individual in Society (PY/PYCC 100 or S/S CC 100)</td>
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</tbody>
</table>

**OPTION = 14 credits**

1Select from list of courses in category 3E in the All-University Core Curriculum (AUCC).
M CC 120A-B and M CC 121 are considered review courses; these courses may be taken as electives.

Major in Pre-MTCM Program

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
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<tr>
<td>M CC 125</td>
<td>Numerical Trigonometry (M/M CC 118 or M/M CC 121 or placement)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>MC 110</td>
<td>Team Problem Solving and Leadership</td>
<td>2</td>
<td></td>
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<tr>
<td>MC 141</td>
<td>Applications of Energy/Transportation</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MC 151</td>
<td>Introduction to Manufacturing and Construction</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PHCC 110</td>
<td>Descriptive Physics</td>
<td>3</td>
<td>3A</td>
</tr>
<tr>
<td>PHCC 111</td>
<td>Descriptive Physics Laboratory (PH/PHCC 110 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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<tr>
<td>Arts/humanities(^1)</td>
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<td>3</td>
<td>3B</td>
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<tr>
<td>First-year seminar(^2)</td>
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<td>1</td>
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<tr>
<td>Global and cultural awareness(^3)</td>
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<td>3</td>
<td>3E</td>
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<tr>
<td>Health and wellness(^4)</td>
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<td>3G</td>
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<tr>
<td>Historical perspectives(^5)</td>
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<td>3</td>
<td>3D</td>
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<tr>
<td><strong>TOTAL</strong></td>
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<td>28</td>
</tr>
</tbody>
</table>

| **SOPHOMORE** | | | |
| C CC 103 | Chemistry in Context | 3 | 3A |
| C CC 104 | Chemistry in Context Laboratory (C/C CC 103 or concurrent reg.) | 1 | 3A |
| MC 131 | Graphic Communications/CAD | 3 | |
| MC 241 | Energy Controls for Industry | 3 | |
| MC 251 | Materials Testing and Processing (MC 151, PH/PHCC 111) | 3 | |
| SPCC 200 | Public Speaking | 3 | 2B1 |
| **TOTAL** | | | 16 |

**CORE TOTAL = 44 credits\(^6\)**

---

\(^1\) Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).
\(^2\) Select from the list of courses in category 1 in the AUCC.
\(^3\) Select from the list of courses in category 3E in the AUCC.
\(^4\) Select from the list of courses in category 3G in the AUCC.
\(^5\) Select from the list of courses in category 3D in the AUCC.
\(^6\) To complete a major in the department, students must select one of the following majors: construction management, industrial technology management, or technology education and training.

---

**Major in Construction Management**

Do you marvel at the big construction projects: buildings, bridges, airports, and roads? Have you always wondered how those big projects come together, how the materials, machines, and people are coordinated in space and time to produce those immense structures? Are you a technologist at heart, someone who would like to apply science, engineering, machines, and people to the builder’s art? Would you enjoy knowing your work may endure the ages? Does effectively managing people and equipment on a large-scale intrigue you? If your answers to any of these questions are “yes” then a major in Construction Management may be the one for you.
The construction management program at Colorado State University is one of the highest ranked in the nation. Since its inception in 1946, more than 2,200 students have graduated, many of them going on to become leaders in their field as presidents and CEOs of major construction companies. The program is accredited by the American Council for Construction Education.

A major in construction management provides a strong foundation for professional careers in the construction industry. The curriculum combines the technology and management of construction with the basics of civil engineering, business and management, and the communication skills required to be successful in today's industry. The focus is on the integration of computers, innovative management systems and other technologies into the construction process. Course work includes construction methods, estimating, scheduling, computer applications, architectural principles, fundamentals of management and law, steel and concrete structures, and soils. The academic program is interdisciplinary, with course requirements in business, engineering and the humanities as well as the applied courses in construction management. These requirements provide a wider scope of educational experience and create a much broader range of career options for graduates.

The major addresses issues related to the management of multiple project sites and the applications of resource management, schedule control, cost control, design and other requirements of the construction process. Design elements concentrate on the relationship between the built environment and the comfort of its inhabitants while safety education emphasizes the health of the individual worker.

Recently added is the Certified Professional Constructor exam provided through the American Institute of Constructors. Students who pass the exam are awarded the designation of Associate Constructor. After six (6) years of professional experience, graduates can sit for the level two exam to earn the designation of certified professional constructor (CPC). Additionally, many departmental scholarships are available. Many opportunities exist for internships and work experience in the construction industry to satisfy the six-month internship requirement.

**Characteristics and Skills**

- Independent, self motivated
- Athletic, prefer being physically active
- Goal oriented
- Practical, self motivated
- Enjoy working with hands and using tools and machinery
- Ability to conceptualize complex processes and relationships
- Aptitude for understanding physical relationships and processes
- Ability to work with large diverse groups of people
- Mechanical and scientific aptitude
- Strong organizational skills
- Strong communications skills
- Leadership ability

**Potential Occupations**

The construction industry has become a $500 billion dollar industry marked by continuous and dramatic change. The demand for capable and highly trained construction management professionals who can adapt and become effective leaders in the field is growing. There are currently over 5.4 million people employed in the US construction industry. Almost a million more will be hired by 2000. Placement of CM graduates in the industry is at 100 percent. Currently, average starting salaries range from $33,000 to $40,000.

Participation in internships, volunteer activities, and cooperative education opportunities are highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Entry-level occupations include but are not limited to:

- Field engineer
- Estimator
- Project scheduler
- Cost control engineer
- Safety engineer
- Project supervisor
- Quality assurance specialist
- Assistant project engineer
- Project engineer
- Assistant superintendent
Construction management is a controlled major which requires attaining a specified GPA and completion of the Pre-MTCM program.

**Major in Construction Management**

In addition to the Pre-MTCM core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOPHOMORE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M CC 141</td>
<td>Calculus in Management Sciences (M/M CC 118 or M/M CC 121)</td>
<td>3</td>
<td>2C</td>
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<tr>
<td>MC 231</td>
<td>Architectural Plan Reading (MC 131, MC 151)</td>
<td>2</td>
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<tr>
<td>MC 261</td>
<td>Construction Surveying (M/M CC 125)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MC 363</td>
<td>Quality Surveying (MC 231 or MC 232 or concurrent reg.)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MC 364</td>
<td>Advanced Construction Systems (MC 231 or MC 232 or MC 233 or concurrent reg.)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Logical/critical thinking</td>
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<tr>
<td><strong>JUNIOR</strong></td>
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<tr>
<td>BA 205</td>
<td>Fundamentals of Accounting</td>
<td>3</td>
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<tr>
<td>BN 305</td>
<td>Fundamentals of Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BP 471</td>
<td>Labor Relations and Collective Bargaining</td>
<td>3</td>
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<tr>
<td>CE 359</td>
<td>Basics of Statics and Strength of Materials (M/M CC 125, M/M CC 141; PH/PHCC 110 or PH/PHCC 121 or PH/PHCC 141)</td>
<td>3</td>
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<tr>
<td>ECCC 202</td>
<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
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<td>MC 362</td>
<td>Construction Contracts (MC 231 or MC 232)</td>
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<tr>
<td>MC 365</td>
<td>Construction Estimating (MC 363, MC 364, MC 366 or concurrent reg.)</td>
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<td>4A</td>
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<tr>
<td>MC 366</td>
<td>Construction Equipment and Methods (MC 261, MC 365 or concurrent reg.)</td>
<td>3</td>
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<tr>
<td>MC 461</td>
<td>Construction Project Scheduling and Cost Control (MC 365)</td>
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<td>Technical elective</td>
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<td><strong>TOTAL</strong></td>
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<tr>
<td><strong>SENIOR</strong></td>
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<tr>
<td>BGCC 205</td>
<td>Fundamentals of Business Law</td>
<td>3</td>
<td>3F</td>
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<tr>
<td>CE 350</td>
<td>Soil Engineering for Nonengineers (CE 359)</td>
<td>3</td>
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<tr>
<td>CE 370</td>
<td>Introductory Structural Engineering (CE 359, F 432)</td>
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<tr>
<td>F 432</td>
<td>Design of Wood Structures (CE 359 or CE 360)</td>
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<tr>
<td>MC 317</td>
<td>Safety Management</td>
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<tr>
<td>MC 361</td>
<td>Mechanical and Electrical Systems (MC 241)</td>
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<td>MC 462</td>
<td>Financial Management for Construction (BA 205, BN 305)</td>
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<tr>
<td>MC 464</td>
<td>Construction Project Administration (MC 362, MC 461 or concurrent reg.)</td>
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<tr>
<td>MC 465</td>
<td>Construction Management Professional Practice (MC 461, MC 464, MC 487A, MC 462 or concurrent reg.)</td>
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<td>MC 487A</td>
<td>Internship—Construction Management</td>
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<td><strong>TOTAL</strong></td>
<td>32</td>
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</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

1 Select from list of courses in category 2D in the All-University Core Curriculum (AUCC).
Major in Industrial Technology Management

Are you fascinated with technology and do you want to get into its fast changing world? Have you ever wanted to manage a large, modern, and complex operation like a high-tech manufacturing plant? Do you like working with people and making things happen? Would you like to help run an industrial operation with big customers and many employees? Do you have an invention that you would like to mass-produce? If your answer to any of these questions is “yes” then Industrial Technology Management may be the thing for you.

The industrial technology management major is an interdisciplinary curriculum designed for students pursuing mid-management careers in industrial technology-related positions. Students will complete coursework in product development, manufacturing processes, quality improvement, safety, and management strategies. Industrial technology management addresses the integration and management of personnel and processes related to the manufacturing, distribution, and service industries. Emphasis is placed on the development of skills that enhance organizational competitiveness through the optimal design of products, services, and systems that integrate material, technological, and environmental issues with human factors such as interpersonal communications, group dynamics, leadership skills, and ergonomics.

The program is accredited by the National Association of Technology, and affiliated with the Society of Manufacturing Engineers, the Society Plastics Engineers, the American Society of Quality.

Characteristics And Skills
- Technical skills
- Leadership ability
- Good decision making ability
- Management and organizational skills,
- Effective use of time
- Ability to motivate others

Potential Occupations
Graduates find initial employment in industrial, manufacturing, process, and quality engineering; supervision; materials management; scheduling; CAD/CAM; or technical sales. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations are found in the manufacturing, electronics, aerospace, and transportation industries. These occupations include but are not limited to:
- Manufacturing supervisor
- Manufacturing engineer
- Production supervisor
- Manufacturing technician
- Production control specialist
- Safety engineer
- Risk manager

Major in Industrial Technology Management

In addition to the Pre-MTCM core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
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</tr>
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<tbody>
<tr>
<td>SOPHOMORE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M CC 141</td>
<td>Calculus in Management Science (M/M CC 118 or M/M CC 121)</td>
<td>3</td>
<td>2C</td>
</tr>
<tr>
<td>MC 210</td>
<td>Quality Improvement Techniques</td>
<td>3</td>
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<tr>
<td>MC 233</td>
<td>Manufacturing Graphics (MC 131, MC 151)</td>
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<td>PYCC 100</td>
<td>General Psychology</td>
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<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
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<td>2D</td>
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<tr>
<td><strong>TOTAL</strong></td>
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</tbody>
</table>
Course | Title (Prerequisite) | Credits | AUCC Category
--- | --- | --- | ---
BL 471 | Production Scheduling and Inventory Management (BL 300) | 3 | 
CE 359 | Basics of Statics and Strength of Materials (M/M CC 125, M/M CC 141; PH/PHCC 110 or PH/PHCC 121 or PH/PHCC 141) | 3 | 
JTCC 300 | Professional and Technical Communication (CO/COCC 150) | 3 | 2B2
OR
JT 301 | Business Communication (CO/COCC 150) | 3 | 
MC 242 | Analog and Digital Electronics (MC 241) | 3 | 
MC 310 | Process Planning and Costing (MC 210) | 3 | 
MC 342 | Industrial Controls (MC 242) | 3 | 
MC 352 | Advanced Manufacturing Processes-Metals (MC 251) | 3 | 
MC 452 | CAD and Computer-Aided Manufacturing (CE 359, MC 233, MC 352) | 3 | 
MC 317 | Safety Management | 2 | 
MC 318 | Manufacturing Facilities Planning (JT/JTCC 300 or JT 301; BL 300; SP/SPCC 200) | 3 | 4A
MC 353 | Industrial Plastics (C/C CC 103 and C/C CC 104, MC 251) | 3 | 
MC 354 | Advanced Manufacturing Processes-Woods (MC 251) | 3 | 
MC 364 | Advanced Construction Systems (MC 231 or MC 233) | 3 | 
MC 410 | Modern Manufacturing Management Strategies (BL 471, MC 310, MC 318) | 3 | 4B
MC 442 | Electronics in Manufacturing (MC 342) | 3 | 
MC 474 | Production Development and Manufacturing (MC 452) | 3 | 4C
Selective Electives | | 8 | 
TOTAL | | 30 | 
TOTAL | | 31 | 

PROGRAM TOTAL = 120 credits

Major in Technology Education and Training

Are you fascinated with technology and want to help others get into this fast changing world? Have you ever wanted to teach applied technology in an educational setting such as a high school or vocational school? Do you like working with people to help them learn better ways to make things happen? Would you like to train workers and managers how to apply the latest manufacturing technologies? Do you want to teach kids about the latest technologies and possibilities for the future? If your answer to any of these questions is “yes” then Industrial Technology Education and Training may be the thing for you.

The industrial technology education and training major provides graduates with the education necessary for employment in educational settings related to applied technology in secondary and post-secondary schools, and in industry. Through courses in educational techniques, manufacturing processes and methods, and materials in technology education, the major focuses on issues related to the development of efficient teaching strategies in educational and industrial settings. Students also study the impact of individual learning styles upon teaching methods.

The TET major is accredited by the National Council on Accreditation of Technology Education.

Characteristics and Skills

- Good communications skills
- Leadership ability
- Technical skills
- Ability to motivate others
- Good decision making ability
- Organizational skills
- Effective use of time

Potential Occupations
Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Approximately two thirds of the graduates are employed by secondary schools where they teach theoretical and abstract knowledge along with opportunities for practical experience using technology.

One third are employed in a variety of industrial positions. These occupations include, but are not limited to:
- Middle school technology teacher
- Junior high school technology teacher
- High school technology teacher
- Community college instructor
- Technical institute instructor
- Government agency technology trainer/specialist
- Manufacturing technology trainer

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TECHNOLOGY EDUCATION (LICENSURE) CONCENTRATION

Major in Technology Education and Training
Technology Education (Licensure) Concentration
Technology Education Option *

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
<td></td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>2C</td>
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<td>1</td>
<td>3A</td>
</tr>
<tr>
<td></td>
<td>Arts/humanities¹</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>First-year seminar²</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Global and cultural awareness³</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td>Health and wellness⁴</td>
<td>2</td>
<td>3G</td>
</tr>
<tr>
<td></td>
<td>Historical perspectives⁵</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
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<td>TOTAL</td>
<td>28</td>
<td></td>
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</table>

SOPHOMORE

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>C CC 103</td>
<td>Chemistry in Context</td>
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<td>3A</td>
</tr>
<tr>
<td>C CC 104</td>
<td>Chemistry in Context Laboratory (C/C CC 103 or concurrent reg.)</td>
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<td>3A</td>
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<tr>
<td>COCC 300</td>
<td>Writing Arguments (CO/COCC 150)</td>
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<td>SPCC 207</td>
<td>Rhetoric and Argumentation</td>
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<td>EDCC 275</td>
<td>Schooling in the United States (consent of Teacher Licensure Office)</td>
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<tr>
<td>MC 131</td>
<td>Graphic Communications/CAD</td>
<td>3</td>
<td></td>
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<tr>
<td>MC 210</td>
<td>Quality Improvement Techniques</td>
<td>3</td>
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<tr>
<td>MC 241</td>
<td>Energy Controls for Industry</td>
<td>3</td>
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<tr>
<td>MC 251</td>
<td>Materials Testing and Processing (MC 151, PH/PHCC 111)</td>
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<tr>
<td>MC 352</td>
<td>Advanced Manufacturing Processes-Metals (MC 251)</td>
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<tr>
<td>PYCC 100</td>
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<td>3</td>
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<td>Public Speaking</td>
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<td>Mathematics(^6)</td>
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### JUNIOR

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<tr>
<td>ED 331</td>
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<tr>
<td>ED 340</td>
<td>Literacy and the Learner (completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
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<tr>
<td>ED 386</td>
<td>Practicum (ED 320 or concurrent reg.; admission to Teacher Licensure Program)</td>
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<tr>
<td>MC 233</td>
<td>Manufacturing Graphics (MC 131, MC 151)</td>
<td>3</td>
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<td>MC 242</td>
<td>Analog and Digital Electronics (MC 241)</td>
<td>3</td>
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<td>MC 317</td>
<td>Safety Management</td>
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<td>MC 353</td>
<td>Industrial Plastics (C/C CC 104; MC 251)</td>
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<td>MC 354</td>
<td>Advanced Manufacturing Processes-Woods (MC 251)</td>
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<td>MC 474</td>
<td>Product Development and Manufacturing (MC 352 or MC 354)</td>
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<td>Technical electives</td>
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### SENIOR

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<tbody>
<tr>
<td>ED 450</td>
<td>Instruction II- Standards and Assessment (EDCC 310/EDCC 275, ED 340, ED 350, ED 386; concurrent reg. in ED 486J)</td>
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<tr>
<td>ED 485B</td>
<td>Student Teaching-Secondary (ED 450 and VE 465)</td>
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<tr>
<td>VE 485</td>
<td>Student Teaching</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>ED 486J</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
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<tr>
<td>ED 493A</td>
<td>Seminar-Professional Relations (concurrent reg. in ED 485A or B or VE 485)</td>
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<tr>
<td>VE 492</td>
<td>Seminar</td>
<td>1</td>
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</tr>
<tr>
<td>ED 493B</td>
<td>Seminar-Assessment of Learning (concurrent reg. in ED 485A or B or VE 485)</td>
<td>1</td>
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</tr>
<tr>
<td>MC 473</td>
<td>Technology Applications (MC 241, MC 251)</td>
<td>3</td>
<td>4C</td>
</tr>
<tr>
<td>VE 465</td>
<td>Methods and Materials in Technology Education</td>
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<td>4B</td>
</tr>
<tr>
<td>Technical elective</td>
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</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

---

\(^1\) Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).

\(^2\) Select from the list of courses in category 1 in the AUCC.

\(^3\) Select from the list of courses in category 3E in the AUCC.

\(^4\) Select from the list of courses in category 3G in the AUCC.

\(^5\) Select from the list of courses in category 3D in the AUCC.

\(^6\) Select from the list of courses in category 2C in the AUCC.
*The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.

**Major in Technology Education and Training**

**Technology Education (Licensure) Concentration**

**Trade and Industry Education Option**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td><strong>FRESHMAN</strong></td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>2A</td>
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<tr>
<td>M CC 125</td>
<td>Numerical Trigonometry (M/M CC 118 or M/M CC 121 or placement)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>MC 110</td>
<td>Team Problem Solving and Leadership</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MC 141</td>
<td>Applications of Energy/Transportation</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MC 151</td>
<td>Introduction to Manufacturing and Construction</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PHCC 110</td>
<td>Descriptive Physics</td>
<td>3</td>
<td>3A</td>
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<tr>
<td>PHCC 111</td>
<td>Descriptive Physics Laboratory (PH/PHCC 110 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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<td></td>
<td>Arts/humanities(^1)</td>
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<td>3B</td>
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<tr>
<td></td>
<td>First-year seminar(^2)</td>
<td>2</td>
<td>1</td>
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<tr>
<td></td>
<td>Global and cultural awareness(^3)</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td>Health and wellness(^4)</td>
<td>2</td>
<td>3G</td>
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<tr>
<td></td>
<td>Historical perspectives(^5)</td>
<td>3</td>
<td>3D</td>
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<tr>
<td><strong>TOTAL</strong></td>
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<p>| <strong>SOPHOMORE</strong> | | | |
| C CC 103 | Chemistry in Context | 3 | 3A |
| C CC 104 | Chemistry in Context Laboratory (C/C CC 103 or concurrent reg.) | 1 | 3A |
| COCC 300 | Writing Arguments (CO/COC 150) | 3 | 2C |
| SPCC 207 | Rhetoric and Argumentation | 3 | 2D |
| EDCC 275 | Schooling in the United States (consent of Teacher Licensure Office) | 3 | 3F |
| MC 131 | Graphic Communications/CAD | 3 | |
| MC 210 | Quality Improvement Techniques | 3 | |
| MC 241 | Energy Controls for Industry | 3 | |
| MC 242 | Analog and Digital Electronics (MC 241) | 3 | |
| MC 251 | Materials Testing and Processing (MC 151, PH/PHCC 111) | 3 | |
| PYCC 100 | General Psychology | 3 | 3C |
| SPCC 200 | Public Speaking | 3 | 2B1 |
| | Mathematics(^6) | 2 | 2C |
| <strong>TOTAL</strong> | | 33 | |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>ED 331</td>
<td>Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<tr>
<td>ED 340</td>
<td>Literacy and the Learner (completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<td>MC 233</td>
<td>Manufacturing Graphics (MC 131, MC 151)</td>
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<td>MC 261</td>
<td>Construction Surveying (M/M CC 125)</td>
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<td>MC 317</td>
<td>Safety Management</td>
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<td>MC 474</td>
<td>Product Development and Manufacturing (MC 352 or MC 354)</td>
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<td>Work experience credit, upper-division</td>
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<td>SENIOR</td>
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<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
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<td>ED 386</td>
<td>Practicum (ED 320 or concurrent reg.; admission to Teacher Licensure Program)</td>
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<tr>
<td>ED 450</td>
<td>Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
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<td>ED 486J</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
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<td>ED 493B</td>
<td>Seminar-Assessment of Learner (concurrence reg. in ED 485A or B or VE 485)</td>
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<td>MC 473</td>
<td>Technology Applications (MC 241, MC 251)</td>
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<td>Methods and Materials in Technology Education</td>
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**PROGRAM TOTAL = 120-134 credits**

1. Select from list of courses in category 3B in the All-University Core Curriculum (AUCC).
2. Select from list of courses in category 1 in the AUCC.
3. Select from list of courses in category 3E in the AUCC.
4. Select from list of courses in category 3G in the AUCC.
5. Select from list of courses in category 3D in the AUCC.
6. Select from list of courses in category 2C in the AUCC.

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TECHNOLOGY EDUCATION (NON-LICENSURE) CONCENTRATION

Major in Technology Education and Training
Technology Education (Non-Licensure) Concentration
Industrial and Corporate Training Option (Effective Fall 2001)

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<th>AUCC Category</th>
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<td>Team Problem Solving and Leadership</td>
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<td>MC   141</td>
<td>Applications of Energy/Transportation</td>
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<td>MC   151</td>
<td>Introduction to Manufacturing and Construction</td>
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<td>Descriptive Physics</td>
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<td>PHCC  111</td>
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<td>Arts/humanities[^1]</td>
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<td></td>
<td>First-year seminar[^2]</td>
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<td>Global and cultural awareness[^3]</td>
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<td>Health and wellness[^4]</td>
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<tr>
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<td>Historical perspectives[^5]</td>
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<td>Writing Arguments (CO/COCC 150)</td>
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<td>Rhetoric and Argumentation</td>
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<td>ECC C  202</td>
<td>Principles of Microeconomics (M/MM CC 118 or M/MM CC 120A-B)</td>
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<td>Graphic Communications/CAD</td>
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<td>MC   210</td>
<td>Quality Improvement Techniques</td>
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<td>MC   241</td>
<td>Energy Controls for Industry</td>
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<td>MC   251</td>
<td>Materials Testing and Processing (MC 151, PH/PHCC 111)</td>
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<td>PYCC  100</td>
<td>General Psychology</td>
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<td>STCC  110</td>
<td>Statistical Thinking: Concepts and Applications (Math Placement Exam)</td>
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<td>Mathematics[^6]</td>
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<td>2C</td>
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<td><strong>33</strong></td>
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<tr>
<td><strong>JUNIOR</strong></td>
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<tr>
<td>BA   205</td>
<td>Fundamentals of Accounting</td>
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<td>ECC C  204</td>
<td>Principles of Macroeconomics (EC/ECCC 202 or EA/EACC 202)</td>
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<td>3F</td>
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<tr>
<td>ED   331</td>
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</tr>
<tr>
<td>JTCC  300</td>
<td>Professional and Technical Communication (CO/COCC 150)</td>
<td>3</td>
<td>2B2 or 2D</td>
</tr>
<tr>
<td>MC   233</td>
<td>Manufacturing Graphics (MC 131, MC 151)</td>
<td>3</td>
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</tr>
</tbody>
</table>

[^1]: Arts/humanities
[^2]: First-year seminar
[^3]: Global and cultural awareness
[^4]: Health and wellness
[^5]: Historical perspectives
[^6]: Mathematics
## DEPARTMENT OF OCCUPATIONAL THERAPY

*Office in Occupational Therapy Building, Room 219  
Professor Jodie R. Hanzlik, Head*

Would you like to help people with physical, mental, or emotional disabilities to have healthy and productive lives? Does researching new techniques to help people cope with difficult life changes appeal to you? Are you interested in the natural and medical sciences? Do you like to work with people? If your answer to any of these questions is “yes,” then a degree in Occupational Therapy may be the one for you.

The occupational therapy (OT) curriculum will soon change to a Professional Master’s Degree Program. The first class of 60 students will be admitted for Fall 2001. Application prerequisites to the OT program include an undergraduate degree with a 3.0 cumulative grade point average, an aggregate score of 1500 on the Graduate Record Exam (GRE), a GRE Writing Assessment score of 3.5, three professional references, volunteer or work experiences with people with disabilities, and a personal statement. Course prerequisites include Neuroanatomy, Physiology, Human Pathology, Anatomy, Abnormal Psychology, Introduction to Human Development, Introduction to Occupational Therapy, Medical Terminology, Statistics, and basic computer skills. Potential applicants should consult with an OT adviser about these requirements.

Following successful completion of academic and clinical work, graduates are qualified to take the National Certification Examination (NCE) for occupational therapy, which qualifies those who pass to be licensed for practice throughout the United States.

Colorado State’s Occupational Therapy program is considered among the best in the nation and is recognized as the highest ranked of the nationally ranked programs.
offered at Colorado State University. Students in OT enjoy a supportive professional learning environment with interactive faculty-student relationships, a curriculum balanced between theory and hands-on experience, national and international fieldwork placements, small classes, and numerous departmental scholarship opportunities. The American Occupational Therapy Association in collaboration with the American Medical Association accredits the Colorado State program.

**Characteristics And Skills**

- A strong desire to help people with disabilities or who live under difficult circumstances
- Creative thinking ability
- A capacity to work with a variety of people
- An aptitude for physical and biological medical sciences
- Effective verbal and written communications skills
- An aptitude for working with physical concepts and materials

**Potential Occupations**

Occupational therapists help people of all ages address challenges that impair their ability to engage in activities related to life roles. Occupational therapists work with individuals with special needs to achieve maximum function in their independent living skills. Undergraduate participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and to increase your chances for acceptance into the OT graduate program. Career occupations include but are not limited to:

- Occupational therapists in hospitals, health care facilities, rehabilitation clinics, nursing homes, home health agencies, public schools, mental health centers, hospices, health maintenance organizations, outpatient clinics, well-baby clinics, industry, and private practice
- Consultants for insurance companies, hospitals, adaptive equipment companies, public schools, community agencies, industry, and government agencies
- Educator/researchers at colleges, universities, community colleges, and government sponsored programs. These positions often require an additional degree.

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The following program of study is for students admitted to the undergraduate occupational therapy program in Fall 2000. They are the last undergraduate class admitted to the major.

**Major in Occupational Therapy**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
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<tr>
<td>PS 300</td>
<td>Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
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<td>Human and Gross Anatomy (AY 300/PS 300)</td>
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<td>Medical Terminology</td>
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<td>Historical perspectives$§</td>
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<td>U.S. public values and institutions§</td>
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<p>|        | <strong>JUNIOR</strong>                                                                           |         |               |
| AY 345 | Functional Neuroanatomy (AY 300/PS 300)                                             | 4       |               |
| OT 301 | Foundations for OT Intervention (admission to professional curriculum)               | 4       |               |
| OT 302 | Contexts and Systems in OT Practice Models (admission to professional curriculum)    | 2       |               |
| OT 303 | Professional Seminar I (OT 301, OT 302)                                             | 1       |               |
| OT 310 | Psychosocial Bases and Application in OT I (OT 301, OT 302)                          | 3       |               |
| OT 320 | Biomechanical Bases for OT Practice (AY 301, OT 301, OT 302)                         | 4       |               |
| PA 315A | Human and Animal Disease (AY 230/PS 230 or AY 300/PS 300)                         | 3       |               |
| OR     |                                                                                     |         |               |
| PA 315B | Human and Animal Disease (AY 230/PS 230 or AY 300/PS 300)                         | 4       |               |</p>
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<td>PY 250A-B</td>
<td>Experimental Psychology (PY/PYCC 100)</td>
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<td>PY 260</td>
<td>Child Psychology (PY/PYCC 100)</td>
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<td>Environmental Psychology (PY/PYCC 100)</td>
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<td>PY 352</td>
<td>Psychology of Learning (PY/PYCC 100 or written consent of instructor)</td>
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<td>Industrial Psychology (PY/PYCC 100, ST/STCC 201, concurrent registration in PY 441)</td>
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<td>PY 452</td>
<td>Cognitive Psychology (PY/PYCC 100 or written consent of instructor)</td>
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<td>PY 460</td>
<td>Child Exceptionality and Psychopathology (PY/PYCC 100)</td>
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<td>PY 465</td>
<td>Adolescent Psychology (PY/PYCC 100)</td>
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<td>PY 320</td>
<td>Abnormal Psychology (PY/PYCC 100)</td>
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**TOTAL** 27-29

**SENIOR**

| OT 311 | Psychosocial Bases and Application in OT II (OT 301, OT 302, PY 320) | 3       |               |
| OT 321 | Biomechanical Applications in OT (OT 320) | 4       |               |
| OT 403 | Professional Seminar II (OT 303) | 2       |               |
| OT 404 | Professional Seminar III (OT 403) | 2       | 4A, 4B         |
| OT 420 | Neurobehavioral Applications in OT I (AY 345, OT 301) | 4       |               |
| OT 421 | Neurobehavioral Applications in OT II (OT 420) | 4       | 4A, 4B         |
| OT 450 | Research Evaluation in OT Practice (OT 301, statistics course) | 3       |               |
| OT 475 | Management, Systems Delivery, and Leadership (OT 311, OT 321) | 3       | 4C             |

Select 3 credits from the following:

| OT 486F | Practicum-OT Treatment-Level IA | 1       |               |
| OT 486G | Practicum-OT Treatment-Level IB | 1       |               |
| OT 486H | Practicum-OT Treatment-Level IC | 1       |               |
| OT 486I | Practicum-OT Treatment-Level ID | 1       |               |

**TOTAL** 28

**FIFTH YEAR**

| OT 488I-Z | Field Placement** | 20      |               |

**PROGRAM TOTAL = 135-140 credits**

1. HD 310, HD 311 and HD 312 (9 credits) may be substituted for HDCC 101 and PY elective in the Professional Curriculum.
2. Select from the list of courses in category 3E in the All-University Core Curriculum (AUCC).
3. Select from the list of courses in category 3G in the AUCC.
4. Select (M/M CC 117 and M/M CC 118) or (M/M CC 120A-B and M/M CC 121) and either M/M CC 124 or M/M CC 125 for a total of 3 credits.
5. Select from the list of courses in category 2B in the AUCC.
6. Select from the list of courses in category 3B in the AUCC.
7. Select from the list of courses in category 3D in the AUCC.
8. Select from the list of courses in category 3F in the AUCC.
DEPARTMENT OF SOCIAL WORK

Office in Education Building, Room 127
Professor Ben P. Granger, Head

Major in Social Work

Do you like working with people, problem solving, and helping others? Would you like to help protect children or the elderly from neglect and abuse, or help improve their welfare? Would you enjoy organizing communities to improve the quality of life or fight for human rights? Would you like to help individuals and families cope with conflict in their lives, or problems like unemployment, illness, respite care, inadequate job skills, or unwanted pregnancy? If you answered “yes” to any of these questions, Social Work may be the major for you.

Social work is distinguished by a tradition of concern for people and their interactions with society. Social work professionals are community problem solvers who intervene in organizational settings—communities, school systems, or families—to assist with individual needs. Most social workers specialize in a single field such as child welfare and family services, mental health, medical social work, school social work, criminal justice, community organization, or clinical social work.

The social work curriculum focuses on the practical application of social work principles, policies, and practice within a systems perspective. Students acquire a professional social work foundation transferable to different settings, population groups and problem areas. Attention is devoted to understanding the social welfare system in the U.S., and working with individuals, families, and communities to effect the desired change. Several practical experiences are required. Students work with an agency participant throughout their sophomore year, and then as seniors, participate in a social work agency internship. The curriculum also includes a strong liberal arts base in social science research and statistics, arts, humanities, social sciences, and natural sciences.

Characteristics and Skills

- Strong desire to help people
- Creative problem solver
- Empathy and compassion
- Emotional maturity
- Strong listening and communication skills
- Ability to deal with diverse populations
- Ability to accept people's values and differences
- A positive attitude
- Understanding of human behavior
- Ability to cope with stressful situations
- Crisis intervention skills
- Knowledge of social welfare system
- Knowledge of problem solving techniques
- Understanding social issues relevant to special populations
- Ability to work in a variety of social organizations
- Ability to work with large and small groups
- Effective interviewing skills

Potential Occupations

Social work graduates are employed in a variety of settings including welfare agencies, schools, hospitals, clinics, institutions, community centers, public health, corrections, and group homes. Entry level job opportunities are plentiful. Graduates should be willing to work with people of all ages and in a multitude of circumstances. Opportunities to work with older adults are especially prevalent. Internships are required. Graduates who achieve a Masters of Social Work (MSW) attain the ability to intervene in a variety of situations, manage cases, and supervise other workers. Advancement generally requires an MSW. Potential occupations include:

- Child welfare worker
- Adolescent group home counselor
- Crisis counselor
- Family welfare
- Child protection
- Adult protection
- Women's health advocate
- Clinical social worker
- Psychiatric social worker
- Geriatric social worker
- Crisis counselor
- Mental health therapist
- Nursing home administrator
- Medical social service counselor
- Community outreach coordinator
- Youth program counselor
- Home health aide
- Occupational social services worker
- Foster parent consultant
- Probation officer
- Agency director
- Client advocate
- Victim-witness program counselor
- Program manager
- School social services
- Substance abuse counselor

Students directly apply classroom knowledge, skills, and social work values through a six-credit supervised practicum, SW 286A and B, in the sophomore year. During this practicum, students must formally apply for Progression to the Major. To comply with accreditation standards that require systematic evaluation of programs
and students, faculty will review student progress towards completion of this professional degree at the end of the first semester for juniors or the end of the second semester for sophomores in the practicum, SW 286. Students must have an overall 2.0 GPA, and a 2.5 GPA with no grade less than C in any required social work course before being allowed to continue in the program. In addition, students will prepare a professional statement concerning their informed choice of social work as a profession. The professional statement will be evaluated by the student's adviser on the basis of content (i.e., fit with the social work profession) and the quality of written communication skills. Students will also be asked to review the Social Work Code of Ethics and indicate their intention to subscribe to its provisions.

If progression requirements are not met, or if the Bachelor's Program Director has any question, student materials will be reviewed by the department's Administrative Team. A full faculty review may be recommended as a next step. The adviser will inform the student in writing of the recommended actions. These actions may include: 1) additional course work; 2) a probationary period; 3) consideration of a change of major; 4) dismissal from the social work program. Students may appeal these decisions using the established Department and University Grievance Procedures.

After progression into the major, students must continue to maintain a 2.0 overall GPA, and a 2.5 GPA with no grade less than C in any social work course. Students will be required to retake any social work course (SW prefix) in which a grade of C or better is not achieved.

In the senior year, students fulfill a 10-credit field placement in a social work agency or program in a variety of community settings. Examples of available field placements include child and public welfare programs, hospitals, homeless and women's shelters, rehabilitation and mental health agencies, schools, adolescent residential care and geriatric centers, and correction programs. Under supervision, students have the opportunity to evaluate their practice interventions and those of other relevant systems.

The social work program is accredited by the Council on Social Work Education. Application for student membership in the professional organization, the National Association of Social Workers, is available through the department office.

**Major in Social Work**

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<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
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<td>College Composition (Composition Placement Exam)</td>
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<td>Social Problems</td>
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<td>Practicum-Applied Helping Skills (SW 286A)</td>
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<td>Logical/critical thinking</td>
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**JUNIOR**

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<td>Human Diversity in Practice Issues (SW 233 or concurrent reg.)</td>
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<td>Generalist Practice-Individuals and Families (progression into the major, SW 286B or concurrent reg.)</td>
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<td>SW 341</td>
<td>Generalist Practice-Small Groups (SW 340)</td>
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<td>Social Welfare Policy (SW 342 or concurrent reg.)</td>
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**PROGRAM TOTAL = 120 credits**

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1 Select from the list of courses in category 1 in the All-University Core Curriculum (AUCC).
2 Select from the list of courses in category 2C in the AUCC. M/M CC 130 or M/M CC 133 are recommended.
3 Select from economics (ECCC) or political science (POCC) courses in category 3C in the AUCC.
4 Select from the list of courses in category 3B in the AUCC.
5 Select from the list of courses in category 3A in the AUCC.
6 Select from the list of courses in category 3E in the AUCC.
7 Select from the list of courses in category 3G in the AUCC.
8 Select from the list of courses in category 3D in the AUCC.
9 Select from the list of courses in category 2D in the AUCC.
10 Select from the departmental list of approved courses.
11 Select from the list of courses in category 3B in the AUCC, or with approval of advisor, from the following departments: Anthropology, Art, Dance, English, Ethnic Studies, Honors, Language, Music, Philosophy, Speech Communication, and Theatre.
12 Select from department list of approved courses. If course selected also meets requirement for category 3E in the AUCC, it can be used to satisfy both.
13 Select from department list of approved courses.
14 Select from the list of courses in category 3C in the AUCC.
College of Business

Office in Rockwell Hall, Room 125
Professor Daniel E. Costello, Dean
Professor Jon D. Clark, Associate Dean
Associate Professor Ajay Menon, Associate Dean

UNDERGRADUATE CONCENTRATIONS IN BUSINESS ADMINISTRATION

Accounting
Entrepreneurship
Finance-Real Estate
Information Systems
Marketing
Organizational Management

The College of Business is a member of AACSB—the International Association for Management Education. Undergraduate and graduate programs are accredited by the AACSB and lead to bachelor of science, master of science, and master of business administration degrees.

Major in Business Administration

Preparing students for positions of business leadership is the primary purpose of the undergraduate curriculum. Additional objectives are to prepare students to teach business subjects in secondary schools, and to provide opportunities for nonbusiness majors to gain an understanding of the business environment as well as specific business and management activities.

The four-year curriculum leads to a bachelor of science degree with a major in business administration. Lower-division work provides a cultural and analytical foundation. Upper-division work provides sufficient specialized work in business and management to prepare students to enter their chosen field in the business world. At the same time, the program attempts to develop the attitudes and analytical ability required for future professional advancement.

Students graduating from the College of Business are expected to have obtained knowledge of the concepts, processes, and institutions involved in the production and marketing of goods and services. Students will understand the financing of organizations and the economic, legal, ethical, social, and organizational influences as they affect such organizations. The graduate is expected to have developed skills in the application of quantitative methods along with information systems and interpersonal communications. The attainment of these goals will be assessed through a senior capstone course. In the capstone course, students will integrate concepts and apply analytic skills to case studies of administrative processes under conditions of uncertainty. The College of Business requires a minimum grade point average of 2.0 in business and economics courses as a graduation requirement.

All undergraduate business majors must complete 60 credits of nonbusiness courses as part of their graduation requirement. Coordinated with this general education, all business students take business core subjects plus a concentration with its specified course sequence. Fifty percent of the total credits required for the business core and concentration must be completed at Colorado State University.

Each student selects an area of concentration in one of the following fields: accounting, entrepreneurship, finance-real estate, information systems, marketing or organizational management. Additionally, students may qualify to teach business subjects at the secondary and postsecondary levels by completing the requirements for the business education and marketing education teacher licensure and credentialing program. Admission to teacher licensure is through the School of Education, College of Applied Human Sciences.

Admission

Direct entry as a new freshman or transfer to the College of Business is selective and only those students meeting academic requirements will be accepted. For details contact the Office of Admissions. Other students may be admitted to the College of Business provided adequate space and resources are available within the college and conditions for admission have been met. Conditions for admission include:

Students with an index of 101 or above will be admitted directly to the College of Business. Students not meeting the 101 index will be admitted to University Open Option-Seeking Business.
To be eligible for admission to the college, students must complete a minimum of 15 credits (30 credits maximum), including *M CC 141* with a grade of B- or above, and a 3.0 cumulative GPA at Colorado State. No extensions are allowed in Open Option-Seeking Business beyond the semester in which 30 credits are accumulated. Students not admitted to the college must select a major.

*External transfer students* who have completed either an A.A. or an A.S. degree with *M CC 141* at a B- or higher level and a 3.0 cumulative GPA will be admitted directly to the college. External transfer students from baccalaureate institutions who have completed 60 credits or more with a 3.0 cumulative GPA to include *M CC 141* at a B- or higher level will be admitted directly to the college.

External transfer students who do not meet one of the above criteria must complete a minimum of 15 credits at Colorado State in order to establish a 3.0 cumulative GPA for admission to the college. *M CC 141*, or its equivalent on transfer, must also be completed with a B- or above.

**Course Requirements**

The first two years of study include completion of the All-University Core Curriculum and the lower-division business core courses as outlined in the core curriculum below. Students must have junior or senior status and be admitted into the College of Business in order to take specialized course work in the business concentrations.

**Core Curriculum**

The following core curriculum sets the minimum course requirements for all business majors. With recommendations of the student's adviser, supplementary courses are selected to meet the total minimum of 120 credits required for the bachelor of science degree.

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**Major in Business Administration (Core)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BD 111</td>
<td>Software Productivity Tool Proficiency</td>
<td>1</td>
<td></td>
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<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>BD 150</td>
<td>Business Computing Concepts and Applications</td>
<td>3</td>
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<tr>
<td>BGCC 192</td>
<td>First-Year Seminar in Business</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>ECCC 202</td>
<td>Principles of Microeconomics (<em>M/M CC 118 or M/M CC 120A-B</em>)</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td>ECCC 204</td>
<td>Principles of Macroeconomics (<em>EC/ECCC 202 or EA/EACC 202</em>)</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td>M CC 120A-B</td>
<td>College Algebra I* (Math Placement Exam)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 121</td>
<td>College Algebra II* (M/M CC 120A-B or placement)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 141</td>
<td>Calculus in Management Sciences (<em>M/M CC 118 or M/M CC 121</em>)</td>
<td>3</td>
<td>2C</td>
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<tr>
<td>Biological/physical sciences&lt;sup&gt;2&lt;/sup&gt;</td>
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<td>4</td>
<td>3A</td>
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<td>Global and cultural awareness&lt;sup&gt;3&lt;/sup&gt;</td>
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<td>3</td>
<td>3E</td>
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<td>Health and wellness&lt;sup&gt;4&lt;/sup&gt;</td>
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**SOPHOMORE**

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<td>BA 210</td>
<td>Accounting Information Systems I</td>
<td>3</td>
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<td>BA 220</td>
<td>Accounting Information Systems II (BA 210)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BG 200</td>
<td>Business Communications and Report Writing (<em>CO/COC 150</em>)</td>
<td>4</td>
<td></td>
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<tr>
<td>BGCC 260</td>
<td>Legal Environment of Business</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td>SPC 200</td>
<td>Public Speaking</td>
<td>3</td>
<td>2B1</td>
</tr>
<tr>
<td>STCC 204</td>
<td>Statistics for Business Students (<em>M/M CC 120A-B</em>)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>Arts/humanities&lt;sup&gt;5&lt;/sup&gt;</td>
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<td>3</td>
<td>3B</td>
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<td>Title (Prerequisite)</td>
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<td></td>
<td>Biological/physical sciences</td>
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<td>3A</td>
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<tr>
<td></td>
<td>Historical perspectives</td>
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**JUNIOR**

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<th>Credits</th>
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<tr>
<td>BF 300</td>
<td>Principles of Finance (BA 210, EC/ECCC 204)</td>
<td>3</td>
<td>4A, 4B</td>
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<tr>
<td>BK 300</td>
<td>Marketing (EA/EACC 202 or EC/ECCC 202)</td>
<td>3</td>
<td>4B</td>
</tr>
<tr>
<td>BL 300</td>
<td>Production Fundamentals (ST/STCC 204 or ST/STCC 301)</td>
<td>3</td>
<td></td>
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<tr>
<td>BN 320</td>
<td>Organizational Management (BG 200)</td>
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**SENIOR**

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<thead>
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<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>BG 479</td>
<td>Business Policy and Administration (BF 300, BK 300, BL 300, BN 320)</td>
<td>3</td>
<td>4A, 4C</td>
</tr>
</tbody>
</table>

**CORE TOTAL = 70-72 credits**

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1. Students who test out of M CC 120A-B and/or M CC 121 are not required to show credit for these courses.
2. Select from the list of courses in category 3A in the All-University Core Curriculum (AUCC). One course must have a laboratory component.
3. Select from list of courses in category 3E in the AUCC.
4. Select from list of courses in category 3G in the AUCC.
5. Select from list of courses in category 3B in the AUCC.
6. Select from list of courses in category 3D in the AUCC.
7. All freshman and sophomore required courses must be completed prior to or concurrent with first enrollment in required junior and senior courses. By the beginning of the junior year, students must select one of the concentrations described on the following pages.
8. Additional requirements which all business majors must complete are: 1) one of the concentrations described on the following pages. 2) a minimum of 60 credits outside the field of business. 3) business majors must not utilize the pass-fail grading option in business courses or non-business core courses.

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**DEPARTMENT OF ACCOUNTING**

*Office in Rockwell Hall, Room 205*

*Professor Jon D. Clark, Acting Chair*

**ACCOUNTING CONCENTRATION**

Do you like to know where the information is and how to use it to aid business decision-making? Does data analysis and interpretation interest you? Would you like to play an important decision-making role in a business enterprise? Are you a good communicator and team worker? Are technical expertise, accuracy, and accountability important to you? If so, then a concentration in Accounting may be for you.

Accountants provide financial information and documentation about businesses to managers, investors, creditors and other interested parties. Accounting can be categorized into management accounting, which provides information for internal decision-makers (e.g. managers); and financial accounting, which provides information for external decision-makers (e.g. investors and creditors).

Accounting is an ever-evolving field with constantly changing objectives. Today, accountants are business leaders and participate in corporate decisions and strategies. While accountants still have traditional duties of gathering necessary information, they must also be able to explain and analyze the information and assist in the interpretation of data. Accountants also consult with corporate decision-makers and excel in areas of communication, teamwork, leadership, and technical expertise. The “new” accountant is an information specialist and a business adviser, and is well prepared for today’s complex business environment.

The accounting curriculum at Colorado State satisfies current educational requirements to become a Certified Management Accountant (CMA), a Certified Internal Auditor (CIA), or a Certified Public Accountant (CPA) in Colorado and many other states. Students who wish to become a Certified Public Accountant are prepared to take the state CPA exam which is required to practice accounting in any given state.

The curriculum is designed to meet the needs of those who seek professional training to practice as public, private or governmental accountants, or expect to work in business managerial positions requiring an understanding...
It also offers considerable flexibility in designing a program of study that will meet the various career interests of students.

**Characteristics and Skills**

- Enjoy dealing with data
- Solve problems by appealing to and following rules
- Prefer concrete rather than abstract problems
- Ability to communicate clearly with people
- Work well in structured situations

**Potential Occupations**

Accounting provides a strong technical background for a career in business or government. Accounting graduates may apply their education to the following non-inclusive list of occupations. Internships and volunteer experiences enhance skills and marketability.

- Auditor
- Financial analyst
- Wage & hour administrator
- Bank officer
- Systems accountant
- Cost accountant
- Budget accountant
- Payroll accountant
- Tax accountant
- Credit accountant
- Property accountant

**ACCOUNTING CONCENTRATION**

**Major in Business Administration**

**Accounting Concentration**

In addition to the business administration core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
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<tr>
<td></td>
<td>Electives 0-2</td>
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<td><strong>SOPHOMORE</strong></td>
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<td></td>
<td>Electives 3</td>
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<td><strong>JUNIOR</strong></td>
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</tr>
<tr>
<td>BA 311</td>
<td>Intermediate Accounting I (BA 220)</td>
<td>3</td>
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</tr>
<tr>
<td>BA 312</td>
<td>Intermediate Accounting II (BA 311)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BA 321</td>
<td>Cost Management (BA 220)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BA 350</td>
<td>Online Accounting Tools (BA 220)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BA 421</td>
<td>Management Control Systems (BA 220)</td>
<td>3</td>
<td></td>
</tr>
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<td></td>
<td>Electives 3</td>
<td></td>
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<td>TOTAL</td>
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<tr>
<td><strong>SENIOR</strong></td>
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<td></td>
<td>Electives(^1)</td>
<td>27</td>
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</table>

**PROGRAM TOTAL = 120 credits**

\(^1\) Students must take 33-35 credits of electives to make up 120 credits. Twelve of these credits must be at the 300- or 400- level.
Major in Business Administration
Accounting Concentration
Business Education Option*

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
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</tr>
<tr>
<td>BD 111</td>
<td>Software Productivity Tool Proficiency</td>
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<td>BGCC 192</td>
<td>First Year Seminar in Business</td>
<td>3</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>ECC 202</td>
<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td>M CC 120A-B</td>
<td>College Algebra I (Math Placement Exam)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 121</td>
<td>College Algebra II (M/M CC 120A-B or placement)</td>
<td>1</td>
<td>2C</td>
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<tr>
<td>SPCC 200</td>
<td>Public Speaking</td>
<td>3</td>
<td>2B1</td>
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<td>Arts/humanities¹</td>
<td>3</td>
<td>3B</td>
</tr>
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<td>Biological/physical sciences²</td>
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<td>Historical perspectives⁴</td>
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<td><strong>SOPHOMORE</strong></td>
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<tr>
<td>BA 210</td>
<td>Accounting Information Systems I</td>
<td>3</td>
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<tr>
<td>BA 220</td>
<td>Accounting Information Systems II (BA 210)</td>
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<tr>
<td>BG 200</td>
<td>Business Communications and Report Writing (CO/COC 150)</td>
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<td>BGCC 260</td>
<td>Legal Environment of Business</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td>ECC 204</td>
<td>Principles of Macroeconomics (EC/ECC 202 or EACC 202)</td>
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<td>3F</td>
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<tr>
<td>EDCC 275</td>
<td>Schooling in the United States (consent of Teacher Licensure Office)</td>
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<td>3F</td>
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<tr>
<td>ED 331</td>
<td>Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<td>ED 340</td>
<td>Literacy and the Learner (completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<td>M CC 141</td>
<td>Calculus in Management Sciences (M/M CC 118 or M/M CC 121)</td>
<td>3</td>
<td>2C</td>
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<td>STCC 204</td>
<td>Statistics for Business Students (M/M CC 120A-B)</td>
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<td>Global and cultural awareness⁵</td>
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<td>BF 300</td>
<td>Principles of Finance (BA 210, EC/ECC 204)</td>
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<td>4A, 4B</td>
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<tr>
<td>BK 300</td>
<td>Marketing (EACC 202 or EC/ECC 202)</td>
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<td>4B</td>
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<td>BL 300</td>
<td>Production Fundamentals (ST/STCC 204 or ST/STCC 301)</td>
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<td>BN 320</td>
<td>Organization Management (BG 200)</td>
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<tr>
<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
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<td>ED 450</td>
<td>Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
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</table>

**SENIOR**

|        |                                                                                     |         |               |
| BA 321 | Cost Management (BA 220)                                                            | 3       |               |
| BA 350 | Online Accounting Tools (BA 220)                                                    | 3       |               |
| BA 421 | Management Control Systems (BA220)                                                  | 3       |               |
| BG 479 | Business Policy and Administration (BF 300, BK 300, BL 300, BN 300)                  | 3       | 4A, 4C        |
| ED 493B| Seminar-Assessment of Learner (concurrent reg. in ED 485A or B or VE 485)            | 1       |               |
| VE 431 | Methods/Materials in Business Education (successful completion of Phase II of Teacher Licensure Program or written consent of instructor) | 4       |               |
| VE 485 | Student Teaching                                                                     | 11      |               |
| VE 492 | Seminar                                                                              |         |               |
|        | TOTAL                                                                                | 29      |               |

**PROGRAM TOTAL = 120 credits**

1 Select from list of courses in category 3B of the All-University Core Curriculum (AUCC).
2 Select from list of courses in category 3A of the AUCC. One course must have a laboratory component.
3 Select from list of courses in category 3G of the AUCC.
4 Select from list of courses in category 3D of the AUCC.
5 Select from list of courses in category 3E of the AUCC.

NOTE: A one credit independent study may be needed depending on documentation of meeting business content requirements as detailed in Colorado’s Business and Marketing Education Guidelines.

*The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.

**DEPARTMENT OF COMPUTER INFORMATION SYSTEMS**

Office in Rockwell Hall, Room 154  
Associate Professor John Plotnicki, Chairman

**INFORMATION SYSTEMS CONCENTRATION**

Do computers fascinate you? Would you like to be on the cutting edge of new information systems and networking technologies? Do you want to combine technical expertise with business savvy? Then Computer Information Systems may the business career for you.

The information systems curriculum provides students with a broad understanding of business; a basic competence in computer programming and personal computing; and a sound foundation in systems analysis, design, networking, and systems integration. Graduates acquire an ability to apply computer technologies to business solutions, providing a variety of lucrative career opportunities, including the design and implementation of computer systems for business applications. Information systems course work includes extensive use of state-of-the-art computer hardware and software.

**Characteristics and Skills**

- Enjoy utilizing computers to make systems and processes more efficient
- Logical, accurate, detail-oriented, and persistent
- Enjoy thinking, analyzing, and problem solving
- Enjoy exploring and fixing things
- Tendency to get thoroughly absorbed in work or hobbies
- Ability to interact and communicate with people
- Ability to educate others about computers

**Potential Occupations**

All computing related careers are characterized by a very high rate of change driven by technological developments. Participating in paid or voluntary work, internships, and cooperative education opportunities is highly recommended, as you will keep abreast of new developments and benefit from networking to enhance your employment opportunities. Graduates can select from a number of career options including but not limited to:

- Applications programmer
- Microcomputer specialist
- Network manager
- System consultant
- Programmer analyst
- Marketing specialist
- Systems analyst
- Data base administrator
- Chief information officer
- Marketing information systems manager
- Marketing manager

**INFORMATION SYSTEMS CONCENTRATION**

**Major in Business Administration**
**Information Systems Concentration**

In addition to the business administration core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
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<tr>
<td>CSCC 153</td>
<td>Java Programming (M/M CC 118 or M/M CC 121)</td>
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<tr>
<td>BD 240</td>
<td>Program Design and Construction</td>
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<td><strong>JUNIOR</strong></td>
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<tr>
<td>BD 320</td>
<td>Project Management for Information Systems (BD 240 with a grade of C or better)</td>
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<tr>
<td>BD 345</td>
<td>Operating Environments and Systems (BD 240 with a grade of C or better; CS/CSCC 153 with a grade of C or better)</td>
<td>3</td>
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<tr>
<td>BD 350</td>
<td>Telecommunications and Networking (BD 345)</td>
<td>3</td>
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<tr>
<td>BD 355</td>
<td>Business Database Systems (BD 360)</td>
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<td>BD 360</td>
<td>Systems Analysis and Design (BD 240 with a grade of C or better; CS/CSCC 153 with grade of C or better)</td>
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<td></td>
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<tr>
<td>BD 460</td>
<td>Object-Oriented Systems (BD 355, BD 360)</td>
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<td>BD 462</td>
<td>Systems Development Project (BD 320, BD 360)</td>
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<td>BD 487</td>
<td>Internship (BD 355, BD 360)</td>
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**PROGRAM TOTAL = 120 credits**

¹ Students must take 23-25 credits of electives to make up 120 credits. Nine of these credits must be at the 300- or 400- level.
DEPARTMENT OF FINANCE AND REAL ESTATE

Office in Rockwell Hall, Room 305
Professor Timothy J. Gallagher, Chair

FINANCE-REAL ESTATE CONCENTRATION

Does the world of high finance intrigue you? Would you enjoy changing the look of the land? Do the complexities of ever changing market trends in finance or real estate fascinate you? Is market analysis and forecasting a challenge you would like to tackle? Do you thrill at taking risks? If so, then the realms of Finance and Real Estate may be your calling.

Finance and real estate students learn to apply market concepts, trend analysis, and forecasting to the management of financial and real estate assets. Both fields are complex, constantly evolving, and action oriented.

Finance refers to the financial management of businesses and management of investments. The finance program prepares students to make and defend decisions in financial planning, control, and policy. Students develop an understanding of the strategy and policies of financial institutions as well as the responses of firms to changing conditions in money and capital markets. The program also focuses on the theoretical and practical aspects of corporate securities investment, mutual funds, and other investment instruments relevant to individual and institutional investors. Computer applications and disciplines such as economics, accounting, and statistics are extensively used to evaluate investment alternatives and to construct asset portfolios to meet private and public investment objectives.

Real Estate includes the development, finance, management, and marketing of land resources. The utilization and disposition of these resources by developers, owners, managers, brokers, traders, and real estate financiers are analyzed. Students are trained in real estate principles, finance, investment, real estate law, and real estate appraisal.

Characteristics and Skills
- Capable of analyzing complex problems
- Persuasive and enjoy being in charge
- Action-oriented
- Analytical skills
- Ability to cope with challenges involving risk
- Ability to interact and communicate with others
- Work well in structured situations
- Ability to adapt to changing conditions

Potential Occupations

Finance majors are prepared for a number of different careers in business. Internships and volunteer experiences enhance skills and marketability. The following is a partial list of fields in which graduates can find finance-related occupations:
- Commercial and investment banking
- Corporate finance
- Investments
- Portfolio management
- Financial analysis
- Securities analysis
- Loan analysis
- Insurance
- Real estate
- Stock brokerage
- Government banking and securities regulation
- Government finance
- Teaching and research

Some of the fields in which real estate graduates find professional employment opportunities include:
- Property development
- Real estate brokerage and sales
- Real estate appraisal
- Property management
- Mortgage lending
- Land-use planning
- Government housing and home finance,
- Government construction programs
- Teaching and research
FINANCE-REAL ESTATE CONCENTRATION

Major in Business Administration
Finance-Real Estate Concentration

In addition to the business administration core courses, the following must be completed. Students must also complete either the finance option or the real estate option.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
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<th>Category</th>
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<td>BF 311</td>
<td>Investments-Fixed Income Securities (BF 300 or BF 305)</td>
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<td>BF 355</td>
<td>Investments-Equity Securities (BF 300 or BF 305)</td>
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<td>Money and Banking (EC/ECCC 204)</td>
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<td>Accounting, upper division</td>
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<td>Option¹</td>
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PROGRAM TOTAL = 120 credits

¹ Choose either the finance option or the real estate option.
² Students must take 24-26 credits of electives to make up 120 credits. Three of these credits must be at the 300- or 400-level.

Finance Option

<table>
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<tr>
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<tr>
<td>BF 342</td>
<td>Risk Management and Insurance (BF 300 or BF 305)</td>
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<tr>
<td>BF 360</td>
<td>Real Estate Principles (EC/ECCC 204)</td>
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<tr>
<td>BF 470</td>
<td>Financial Institutions and Derivatives (BF 311)</td>
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<tr>
<td>BF 370</td>
<td>Financial Management-Theory and Application (BF 300 or BF 305)</td>
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<tr>
<td>BF 475</td>
<td>International Business Finance (BF 300 or BF 305)</td>
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<tr>
<td>BF 478</td>
<td>Contemporary Issues in Finance (BF 370; BF 311 or BF 355)</td>
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Real Estate Option

<table>
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<tr>
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<th>Title (Prerequisite)</th>
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<tr>
<td>JUNIOR</td>
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<tr>
<td>BF 360</td>
<td>Real Estate Principles (EC/ECCC 204)</td>
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<td></td>
<td>Electives</td>
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<tr>
<td>SENIOR</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BF 460</td>
<td>Real Estate Finance and Investment (BF 300 or BF 305, BF 360)</td>
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<tr>
<td>BF 465</td>
<td>Real Estate Appraisal (BF 360 or written consent of instructor)</td>
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<td>BG 367</td>
<td>Real Estate Law (BG/BGCC 205 or BG/BGCC 260 or HD 403)</td>
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<td>Electives</td>
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</table>

DEPARTMENT OF MANAGEMENT

Office in Rockwell Hall, Room 213
Professor Willie E. Hopkins, Chair

ENTREPRENEURSHIP CONCENTRATION

Have you always wanted to own and operate your own business? Are you a generalist who wants a broad-based knowledge of business fundamentals? Would you rather work for a small business than for a large corporation? Are you planning graduate study in business, corporate law, or economics? If the answer to any of these questions is “yes” then this concentration may be the right one for you.

Students in entrepreneurship acquire a broad non-specialized business background intended for less specialized business applications. The curriculum covers a wide range of business fundamentals including accounting, business law, information systems, finance marketing, production, and management. With the aid of an adviser entrepreneurship students can develop a meaningful course sequence and choice of electives to suit particular interests and needs.

Characteristics and Skills

- Self motivated and able to work independently
- Enjoy being in charge and making things happen
- Enjoy interpersonal interaction
- Persuasive and action-oriented
- Interested in being a generalist
- Possess strong verbal and leadership skills

Potential Occupations

Internships and volunteer experiences enhance skills and marketability. The non-specialized nature of this major applies to a few general career categories. However, depending on your interests, electives you take or the minor you select, available career choices range across a wide variety of business fields.

- Small business manager
- Entrepreneur
- Small business owner
ENTREPRENEURSHIP CONCENTRATION

Major in Business Administration
Entrepreneurship Concentration

In addition to the business administration core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
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<td></td>
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<tr>
<td></td>
<td>Electives</td>
<td>0-2</td>
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<tr>
<td><strong>SOPHOMORE</strong></td>
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<td></td>
<td>Electives</td>
<td>3</td>
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<tr>
<td><strong>JUNIOR</strong></td>
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<td>Select one of the following:</td>
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<tr>
<td>BD</td>
<td>240</td>
<td>Program Design and Construction</td>
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<tr>
<td>BF</td>
<td>360</td>
<td>Real Estate Principles (EC/ECCC 204)</td>
<td>3</td>
</tr>
<tr>
<td>BK</td>
<td>320</td>
<td>Integrated Marketing Communications (BK 300 or BK 305)</td>
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<tr>
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<td>Select one of the following:</td>
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<tr>
<td>BD</td>
<td>355</td>
<td>Business Database Systems (BD 360)</td>
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<tr>
<td>BG</td>
<td>367</td>
<td>Real Estate Law (BG/BGCC 205 or BG/BGCC 260 or HD 403)</td>
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<td>BK</td>
<td>330</td>
<td>Business Customer Relationships (BK 300 or BK 305)</td>
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<td>BK</td>
<td>360</td>
<td>Retailing (BK 300 or BK 305)</td>
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<tr>
<td>DM</td>
<td>360</td>
<td>Retailing (BK 300 or BK 305)</td>
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<tr>
<td>BN</td>
<td>340</td>
<td>Entrepreneurship in the Contemporary World (BG 200)</td>
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<td>Select one of the following:</td>
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<tr>
<td>BD</td>
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<tr>
<td>BF</td>
<td>460</td>
<td>Real Estate Finance and Investment (BF 300 or BF 305, BF 360)</td>
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<tr>
<td>BK</td>
<td>364</td>
<td>Product Development and Management (BK 300 or BK 305)</td>
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<td>BK</td>
<td>440</td>
<td>Pricing and Financial Analysis in Marketing (BK 300 or BK 305)</td>
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<td>BN</td>
<td>420</td>
<td>New Venture Creation (BN 340)</td>
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<td>BN</td>
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<td>New Venture Management (BN 420)</td>
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<tr>
<td><strong>PROGRAM TOTAL = 120 credits</strong></td>
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1 Students must take 27-29 credits of electives to make up 120 credits. Nine to twelve of these credits must be at the 300- or 400- level.

Major in Business Administration
Entrepreneurship Concentration
Business Education Option*

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
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<td>BD</td>
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<td>Software Productivity Tool Proficiency</td>
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<td>Course</td>
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<td>BGCC 192</td>
<td>First Year Seminar in Business</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>ECC 202</td>
<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
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<td>M CC 120A-B</td>
<td>College Algebra I (Math Placement Exam)</td>
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<td>College Algebra II (M/M CC 120A-B or placement)</td>
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<td>Health and wellness</td>
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**SOPHOMORE**

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<td>Accounting Information Systems I</td>
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<td>BA 220</td>
<td>Accounting Information Systems II (BA 210)</td>
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<td>BG 200</td>
<td>Business Communications and Report Writing (CO/COCC 150)</td>
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<td>Legal Environment of Business</td>
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<td>3F</td>
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<tr>
<td>BK 300</td>
<td>Marketing (EA/EACC 202 or EC/ECCC 202)</td>
<td>3</td>
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<td>BN 340</td>
<td>Entrepreneurship in the Contemporary World (BG 200)</td>
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<tr>
<td>ECC 204</td>
<td>Principles of Macroeconomics (EC/ECCC 202 or EA/EACC 202)</td>
<td>3</td>
<td>3F</td>
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<td>EDCC 275</td>
<td>Schooling in the United States (consent of Teacher Licensure Office)</td>
<td>3</td>
<td>3F</td>
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<td>ED 331</td>
<td>Educational Technology (BD 111 or BS 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<tr>
<td>M CC 141</td>
<td>Calculus in Management Sciences (M/M CC 118 or M/M CC 121B)</td>
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<td>STCC 204</td>
<td>Statistics for Business Students (M/M CC 120A-B)</td>
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**JUNIOR**

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<td>BA 431</td>
<td>Tax and Accounting Issues for Entrepreneurs (BA 220)</td>
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<td>BF 300</td>
<td>Principles of Finance (BA 210, EC/ECCC 204)</td>
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<td>BN 420</td>
<td>New Venture Creation (BN 340)</td>
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<td>ED 340</td>
<td>Literacy and the Learner (completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
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<td>ED 386</td>
<td>Practicum (ED 320 or concurrent reg, admission to Teacher Licensure Program)</td>
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<td>ED 450</td>
<td>Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
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<td>ED 486J</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
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<td>VE 431</td>
<td>Methods/Materials in Business Education (successful completion of Phase II of Teacher Licensure Program or written consent of instructor)</td>
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<td>Global and cultural awareness</td>
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<td>Group I, II, or III courses</td>
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<td>Business Policy and Administration (BF 300, BK 300, BL 300, BN 320)</td>
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<tr>
<td>BL 300</td>
<td>Production Fundamentals (ST/STCC 204 or ST/STCC 301)</td>
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<td>BN 320</td>
<td>Organization Management (BG 200)</td>
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<td>BN 440</td>
<td>New Venture Management (BN 420)</td>
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<td>ED 493A-B</td>
<td>Seminar-Assessment of Learning (concurrent reg. in ED 485A or B or VE 485)</td>
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<td>VE 485</td>
<td>Student Teaching</td>
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<td>VE 492</td>
<td>Seminar</td>
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**PROGRAM TOTAL = 124 credits**

1 Select from list of courses in category 3B of the All-University Core Curriculum (AUCC).
2 Select from list of courses in category 3A of the AUCC. One course must have a laboratory component.
3 Select from list of courses in category 3G of the AUCC.
4 Select from list of courses in category 3D of the AUCC.
5 Select from list of courses in category 3E of the AUCC.
6 Select from the following groups of courses:

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<td><strong>GROUP I:</strong> Select one of the following:</td>
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<td>BD 479</td>
<td>Business Policy and Administration (BF 300, BK 300, BL 300, BN 320)</td>
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<tr>
<td>BL 300</td>
<td>Production Fundamentals (ST/STCC 204 or ST/STCC 301)</td>
<td>3</td>
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<tr>
<td>BN 320</td>
<td>Organization Management (BG 200)</td>
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<tr>
<td>BN 440</td>
<td>New Venture Management (BN 420)</td>
<td>3</td>
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<tr>
<td>ED 493A-B</td>
<td>Seminar-Assessment of Learning (concurrent reg. in ED 485A or B or VE 485)</td>
<td>1</td>
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<tr>
<td>VE 485</td>
<td>Student Teaching</td>
<td>11</td>
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<tr>
<td>VE 492</td>
<td>Seminar</td>
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<td><strong>GROUP II:</strong> Select one of the following</td>
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<tr>
<td>BD 360</td>
<td>Program Design and Construction [use this course for an information system focus]</td>
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<tr>
<td>BF 360</td>
<td>Real Estate Principles (EC/ECCC 204)</td>
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<tr>
<td>BK 320</td>
<td>Integrated Marketing Communications (BK 300) [use this course if there is a possibility that you may wish to add Marketing as an endorsement]</td>
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<td><strong>GROUP III:</strong> Select one of the following</td>
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<td>BD 355</td>
<td>Business Database Systems (BD 360) [use this course for an information system focus]</td>
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<tr>
<td>BG 367</td>
<td>Real Estate Law (BG/BGCC 260 or HD 403)</td>
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<tr>
<td>BK 360/ DM 360</td>
<td>Retailing (BK 300) [use this course if there is a possibility that you may wish to add Marketing as an endorsement]</td>
<td>3</td>
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</table>

*The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the
catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.

ORGANIZATIONAL MANAGEMENT CONCENTRATION

Does knowing the big picture and running the show appeal to you? Are you good at motivating people? Do you like to get things done efficiently and well? If so, then Organization Management may be the place for you.

Organizational management is about obtaining results primarily through people. Managers use interpersonal, administrative, and technical skills to accomplish assigned tasks, large and small, in business and government. The five managerial functions are planning, leading, organizing, controlling (e.g. product quality and production costs) and staffing.

Characteristics and Skills
- Possess strong verbal and leadership skills
- Like to explore ideas through objective analysis
- Persuasive and action-oriented
- Enjoy being in charge and making things happen
- Possess high level of interpersonal skills

Potential Occupations
Students are prepared to apply their management skills within the private and public sectors, while internships and volunteer experiences enhance skills and marketability. Available career choices include, but are not limited to:
- Management trainee
- Human resource manager
- Scheduling/routing
- Coordinator/recruiter
- Facilities manager
- Buyer/purchasing agent
- Personnel selection/employment manager
- Distribution manager
- Hotel/motel manager
- Compensation/benefits specialist
- Marketing manager
- Public administrator
- Production and quality control specialist
- Bank officer
- Inventory control specialist
- Warehouse manager

ORGANIZATIONAL MANAGEMENT CONCENTRATION

Major in Business Administration
Organizational Management Concentration

In addition to the business administration core courses, the following must be completed:

<table>
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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
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<td>FRESHMAN</td>
<td>Electives</td>
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<td>SOPHOMORE</td>
<td>Electives</td>
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<td>JUNIOR</td>
<td>BD 301 End User Computing</td>
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<td>BP 310 Human Resource Management</td>
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<td>TOTAL</td>
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</table>
### DEPARTMENT OF MARKETING

**Office in Rockwell Hall, Room 111**  
**Professor O. C. Ferrell, Chairman**

### MARKETING CONCENTRATION

Does the fast moving world of new product development, promotion, and advertising seem interesting and exciting to you? Are you a persuasive and action oriented person? Do you want an outlet for your creative energies? If your answers are “yes” then Marketing may be the career for you.

Marketing involves the conception, pricing, promotion, and distribution of goods, services, and ideas to consumers, industrial customers, governments, and social agencies. Both profit and nonprofit organizations engage in marketing activities such as product and service planning and development, pricing, advertising, selling, promotion, research, and distribution. Marketing is people-oriented and ever changing. A person's analytical abilities, imagination, and creative potential are brought to bear on continuously evolving tasks and goals. The curriculum includes general business courses along with courses that specifically examine marketing, management issues, policies and practices as well as economic, cultural, environmental and political forces affecting market performance.

### Characteristics and Skills

- Persuasive and action-oriented  
- Like working with diverse groups  
- Ability to communicate effectively in writing and verbally  
- Prefer working with abstract rather than concrete problems  
- Like to use imagination and creativity to solve problems and accomplish tasks  
- Prefer unstructured settings that allow for flexibility and creativity  
- Competencies in quantitative and analytical work (important for certain marketing positions, e.g. Market Research Analyst)  
- Value social issues and interpersonal interactions

### Potential Occupations

Between one-fourth and one-third of the civilian labor force is employed in marketing-related positions. These positions are thought to be excellent training for higher organization levels because of the knowledge of products and consumers gained in these jobs. The following is a partial list of occupations to which graduates may apply their education. Remember, internships and volunteer experiences enhance skills and marketability.:  
- Advertising  
- Brand and product management  
- Customer affairs  
- Industrial marketing  
- International marketing  
- Marketing management science and systems analysis  
- Market research  
- Physical distribution  
- Purchasing  
- Retailing management  
- Sales and sales management  
- Wholesaling management  
- Service marketing  
- Promotion management  
- Brand management and distribution

---

**PROGRAM TOTAL = 120 credits**

1 Students must take 27-29 credits of electives to make up 120 credits. Six of these credits must be at the 300-400 level.

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<td><strong>SENIOR</strong></td>
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<tr>
<td>BN 330</td>
<td>Organizational Theory (BN 305 or BN 320)</td>
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<td>BN 340</td>
<td>Entrepreneurship in the Contemporary World (BG 200)</td>
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<td>BN 410</td>
<td>Organizational Behavior (BN 320)</td>
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<td>BN 425</td>
<td>Strategic Communication in Organizations (BD 200, BF 300, BK 300, BN 320)</td>
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<td>BN 470</td>
<td>Managerial Decisions-Issues and Analysis (BL 300, BN 305 or BN 320)</td>
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MARKETING CONCENTRATION

Major in Business Administration
Marketing Concentration

In addition to the business administration core courses, the following must be completed:

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<tr>
<td>JUNIOR</td>
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<tr>
<td>BK 320</td>
<td>Integrated Marketing Communication (BK 300 or BK 305)</td>
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<td>BK 330</td>
<td>Business Customer Relationships (BK 300 or BK 305)</td>
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<td>BK 410</td>
<td>Marketing Research (BK 300 or BK 305; ST/STCC 204)</td>
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<td>BK 360</td>
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<td>DM 360</td>
<td>Retailing (BK 300 or BK 305)</td>
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<td>BK 361</td>
<td>Buyer Behavior 1 (BK 300 or BK 305)</td>
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<td>BK 362</td>
<td>Professional Selling (BK 300 or BK 305)</td>
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<td>Sales Management (BK 300 or BK 305)</td>
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<td>Product Development and Management (BK 300 or BK 305)</td>
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<td>BK 365</td>
<td>International Marketing (BK 300 or BK 305)</td>
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<td>BK 487V</td>
<td>Internship (Marketing majors with written consent of instructor)</td>
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<td>Seminar (BK 300 or BK 305; written consent of instructor)</td>
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<td>Marketing Strategy and Management (BK 410, BK 440)</td>
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PROGRAM TOTAL = 120 credits

1 Credit not allowed for both BK 361 and AM 472.
2 Students must take 30-32 credits of electives to make up 120 credits. Nine of these credits must be at the 300- or 400-level.

Major in Business Administration
Marketing Concentration
Education Option*

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<td>BGCC 192</td>
<td>First Year Seminar in Business</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<tr>
<td>ECC 202</td>
<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
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<td>Course</td>
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<td>M CC 121</td>
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<td>Public Speaking</td>
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**SOPHOMORE**

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<td>BA 220</td>
<td>Accounting Information Systems II (BA 210)</td>
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<td>BG 200</td>
<td>Business Communications and Report Writing (CO/COCC 150)</td>
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<td>BGCC 260</td>
<td>Legal Environment of Business</td>
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<td>BK 300</td>
<td>Marketing (EA/EACC 202 or EC/ECCC 202)</td>
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<td>ECC 204</td>
<td>Principles of Macroeconomics (EC/ECCC 202 or EA/EACC 202)</td>
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<td>EDCC 275</td>
<td>Schooling in the United States (consent of Teacher Licensure Office)</td>
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<td>M CC 141</td>
<td>Calculus in Management Sciences (M/M CC 118 or M/M CC 121)</td>
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<td>STCC 204</td>
<td>Statistics for Business Students (M/M CC 120A-B)</td>
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**JUNIOR**

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<td>Principles of Finance (BA 210, EC/ECCC 204)</td>
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<tr>
<td>DM 360</td>
<td>Retailing (BK 300 or BK 305)</td>
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<td>BK 410</td>
<td>Marketing Research (BK 300 or BK 305, ST/STCC 204)</td>
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<td>Pricing and Financial Analysis in Marketing (BK 300)</td>
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<td>Production Fundamentals (ST/STCC 204 or ST/STCC 301)</td>
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<td>Organization Management (BG 200)</td>
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<tr>
<td>ED 331</td>
<td>Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<td>ED 340</td>
<td>Literacy and the Learner (completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
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<td>ED 386</td>
<td>Practicum (ED 320 or concurrent reg, admission to Teacher Licensure Program)</td>
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**SENIOR**

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<th>AUCC Category</th>
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<tbody>
<tr>
<td>BG 479</td>
<td>Business Policy and Administration (BF 300, BK 300, BL 300, BN 320)</td>
<td>3</td>
<td>4A, 4C</td>
</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>BK 479</td>
<td>Marketing Strategy and Management (BK 410, BK 440)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ED 450</td>
<td>Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ED 486J</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ED 493B</td>
<td>Seminar-Assessment of Learning (concurrent reg. in ED 485A or B or VE 485)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>VE 431</td>
<td>Methods/Materials in Business Education (successful completion of Phase II of Teacher Licensure Program or written consent of instructor)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>VE 441</td>
<td>Methods/Materials-Vocational Marketing Education (ED 320 or ED 355; VE 431 or concurrent reg.; admission to Teacher Licensure Program or written consent of instructor)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>VE 485</td>
<td>Student Teaching</td>
<td>12</td>
<td></td>
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<tr>
<td>VE 492</td>
<td>Seminar</td>
<td>1</td>
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</tr>
<tr>
<td>VE 494</td>
<td>Independent Study</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL** 31 credits

**PROGRAM TOTAL = 124 credits**

1 Select from list of courses in category 3B of the All-University Core Curriculum (AUCC).
2 Select from list of courses in category 3A of the AUCC. One course must have a laboratory component.
3 Select from list of courses in category 3G of the AUCC.
4 Select from list of courses in category 3D of the AUCC.
5 Select from list of courses in category 3E of the AUCC.

*The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.*
College of Engineering

Office in Engineering Building, Room AR202
Professor Neal Gallagher, Dean
Professor Steven Abt, Associate Dean
Professor Johannes Gessler, Associate Dean

UNDERGRADUATE MAJORS

Bioresource and Agricultural Engineering
Chemical Engineering
Civil Engineering
Electrical Engineering
Engineering Science
Environmental Engineering
Mechanical Engineering

COLLEGE PROGRAMS

Engineers are critically involved in every facet of modern technological society, processing information, designing systems and equipment, maintaining society's infrastructure, solving environmental and energy problems, and helping attain desired levels of efficiency and comfort. The College of Engineering continues its tradition—a tradition as old as Colorado State–of providing broad training in the basic fields of engineering through both undergraduate instruction and graduate programs strongly supported by modern research facilities.

Undergraduate Majors

Undergraduate programs are administered by the Departments of Chemical and Bioresource Engineering, Civil Engineering, Electrical and Computer Engineering, and Mechanical Engineering. These departments offer four-year programs leading to a bachelor of science degree. Although emphasis is on broad training in basic engineering, students may specialize to some extent by proper choice of technical electives.

A new program leading to a bachelor of science degree in environmental engineering is supported by faculty from the Departments of Atmospheric Science, Chemical and Bioresource Engineering, Civil Engineering, and Mechanical Engineering. It has a strong interdisciplinary flavor and prepares students for careers with large industries, consulting companies, and regulatory agencies.

A program leading to a bachelor of science degree in environmental engineering is coordinated by the Associate Dean for Undergraduate Studies in the College of Engineering. This program offers three well-defined concentrations: engineering physics, space engineering, and a dual degree (five-year) program leading to a B.A. degree in the College of Liberal Arts and a B.S. degree in the College of Engineering.

Students may consider simultaneously completing the requirements for a second major. See Second Major Requirements in the Graduation Requirements section for a complete description of the program. A student may pursue a minor program of study inside or outside the College of Engineering in conjunction with the desired engineering major.

Students interested in a combined program in engineering and business may consider obtaining a B.S. degree in engineering and the M.B.A. degree. This program is jointly administered by the Colleges of Business and Engineering; direct inquiries to the associate dean of one of these colleges.

The programs in bioresource and agricultural engineering, chemical engineering, civil engineering, electrical engineering, engineering science, and mechanical engineering are accredited at the basic level by the Accreditation Board for Engineering and Technology.

Registration as a Professional Engineer

Registration and licensing are required under certain legally defined circumstances in order to practice as a professional engineer. The College of Engineering actively encourages all of its students to fulfill the necessary requirements as soon as they are eligible. The Fundamentals of Engineering Examination administered by the State Board of Registration for Professional Engineers and Professional Land Surveyors may be taken by seniors during the two semesters prior to graduation.
After the required practical experience, the Principles and Practice of Engineering Examination for licensing may be taken.

**Engineering Field Trips**

The first Fridays of November and March are set aside for departmental field trips primarily to industrial and research organizations in Colorado. Specific requirements of the field trips are established by individual departments. Transportation expense of trips is borne by the student.

**ADMISSION INFORMATION**

Students may be admitted to one of the undergraduate majors in this college or as undecided freshmen (Engineering Open Option). Undecided engineering students must specify their choice of major prior to registration for the sophomore year. Should the demand for any engineering major exceed the capacity to maintain high-quality education, the college may find it necessary to limit enrollment in some majors. The undecided engineering student who wishes to transfer to one of these majors may be at a disadvantage when demand exceeds capacity. In general, students are better served by selecting one of the college's majors at admission and then changing majors, if necessary, than by entering as undecided freshmen.

**High School Graduates**

See Undergraduate Admissions Policy and Procedures section in this catalog for specific College of Engineering requirements. The required units listed are minimums. Students desiring to enter the engineering majors are urged to take available advanced math and English classes as well as courses in computer programming, physics, and mechanical drawing or three-dimensional representation (art).

**Course Placement and Advising for Freshmen**

All entering freshmen are required to take composition and mathematics placement examinations prior to registration. The examination results, together with other information about students, are used by faculty advisers to counsel students. Those with weaknesses in mathematics will be advised to take up to five credits of review courses (M CC 120A-B, M CC 121, M CC 124, M CC 125, and M CC 126) before enrolling in calculus (M CC 160). Credits for review courses may not be used toward a degree in engineering.

Faculty advisers recommend programs suited to the student's background and interests. Superior preparation is recognized, and appropriate placement and/or credit is given.

**Transfer Students**

Students who wish to transfer into engineering must have completed at least one semester of calculus and one semester of calculus-based physics or chemistry equivalent to C CC 111, with at least one B and nothing less than a C. Transfer advisers in each department are available for assisting students who wish to transfer.

Transfer of credits earned at other colleges and universities within Colorado is facilitated by the existence of standing agreements on course equivalencies.

**Change of Major to Engineering**

Students who wish to change from another major at Colorado State to an engineering major must have completed at least one semester of calculus (M CC 160) and one semester of physics (PHCC 141) or chemistry (C CC 111) with at least one B and nothing less than a C to be eligible for consideration. Students are selected for admission once each term; the number of students admitted is based on space available as well as academic criteria. Engineering courses are normally open to engineering majors only. The change of major must be initiated at the HELP/Success Center.

**CURRICULAR REQUIREMENTS**

The curricula of the College of Engineering include courses in engineering, mathematics, science, humanities, and social sciences. During the first two years, all engineering students take a program emphasizing mathematics, physics, chemistry, and basic engineering since all branches of engineering rely on this foundation. The junior and senior years are devoted primarily to a balanced selection of specialized engineering courses. The minimum credits for graduation with a bachelor of science degree varies with the engineering major.

Good engineers are not only competent to render professional service in their fields of specialization but are able to assume responsibilities as citizens. To broaden the student's perspectives in nontechnical areas, the programs in engineering require a minimum of 16 credits in arts and humanities and behavioral and social sciences to be selected from anthropology, economics, foreign languages, history, literature, philosophy, political science, psychology, and sociology; courses in art, geography, music, speech, and theatre may also be selected with the prior approval of the adviser. These courses must be selected in such a way that they also
meet All-University Core Curriculum requirements.

The ability to express oneself clearly and concisely in both written and oral forms is an asset of great value to the engineer who is constantly called upon to prepare reports in which clarity, organization, and precision are essential. For this reason, engineering students must do more than meet the minimum English course requirements. In fact, the development of communication skills is emphasized throughout the engineering curricula. This emphasis is especially evident in laboratory and design-oriented courses, in which the presentation of both oral and written reports is a major component.

The College of Engineering requires a minimum grade point average of 2.0 in required engineering, mathematics, chemistry, and physics courses as a graduation requirement. A student who has less than this average at the end of any term is subject to referral by the department head or college dean to the Committee on Scholastic Standards and Awards for consideration of academic dismissal from the College of Engineering. Additional minimum grade requirements apply in some engineering majors.

An engineer applies physical understanding and analytical techniques to the design of devices and systems needed by modern society. The preparation of an engineer, therefore, must include engineering design experience. To meet this objective, all undergraduate engineering students must participate in a well-structured sequence of design-related courses culminating in a capstone design experience in order to graduate. Students may consult with their departmental advisers to ascertain the design content of their required and elective engineering courses.

**INTERDEPARTMENTAL MAJORS**

**Major in Engineering Science**

*Office in Engineering Building Arcade, Room AR 102*

Are you interested in an interdisciplinary engineering major that is adaptable to a large variety of post-graduate professions such as medicine or law? Would you like to obtain a broad-based liberal arts education while pursuing an engineering degree? Do you want to work in aerospace or space engineering? Does combining strong backgrounds in engineering and physics appeal to you? If you answer “yes” to any of these then perhaps a major in engineering science is for you.

Engineering science is an interdisciplinary major that allows students to acquire a strong base in mathematics, the physical sciences, and engineering fundamentals while pursuing a broad background in the liberal arts and other areas of interest in preparation for specialized careers or graduate studies. Three concentrations are possible. The Engineering Physics concentration prepares students to work in high technology areas in which solid engineering training, combined with a broader background in physics is valuable. Through the appropriate choice of technical electives, students can specialize in modern laser physics, solid-state electronics, or energy conversion. The technical electives are chosen predominantly from the Departments of Computer Science, Electrical and Computer Engineering, Mathematics, Mechanical Engineering, and Physics. The Space Engineering concentration provides students with a broad background in aerospace and space engineering. The curriculum is based on a firm foundation of engineering disciplines, applied mathematics, and computer science. The Liberal Arts concentration is a five-year joint program with dual degrees in liberal arts (B.A.) and engineering science (B.S.). The 156-credit program prepares students for a vast array of career options. Regardless of the concentration, open Colorado State University engineering graduates are well prepared for a professional career with a greater than 90% pass rate on the Fundamentals of Engineering professional exam.

**Characteristics And Skills**

- Interest in developing solutions for real problems and needs
- Curiosity about how things work
- Aptitude in math and physical sciences
- Ability to work within large organizations
- Perseverance
- Attention to detail
- Leadership ability and interpersonal skills
- Strong verbal and writing ability
- Inventive
- Able to draw information and ideas from a variety of sources
- Good team player
- Versatility
- Aptitude for and interest in computer applications and design

**Potential Occupations**

Engineering Science graduates are well rounded in mathematics, sciences, humanities, and social and behavioral sciences. They are well prepared to enter a career in engineering, or to proceed to graduate school in one of the traditional engineering disciplines. Graduates of the liberal arts-engineering science dual major often move on to professional programs in medicine, law, veterinary medicine, or business. Moreover these
graduates are suited for a wide range of occupations in addition to engineering. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who continue on with advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:
- Engineer (a variety of specialties are possible)
- Space engineer
- Solid state electronics engineer
- Aerospace engineer
- Consultant

To qualify for graduation, engineering science majors must achieve a minimum 2.0 grade point average at Colorado State in all courses in engineering, mathematics, computer science, statistics, physics, and chemistry as well as courses taken as technical electives.

All engineering science majors complete a common curriculum, mostly during their freshman and sophomore years. Students interested in the dual degree program are referred to the appropriate section under the College of Liberal Arts.

### Major in Engineering Science (Core)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists (M/M CC 126; concurrent reg. in M/M CC 124)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>PHCC 141</td>
<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
<td>5</td>
<td>3A</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

| **SOPHOMORE** | | | |
| C 113 | General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160) | 3 | |
| C 114 | General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.) | 1 | |
| CE 260 | Engineering Mechanics-Statics (M/M CC 160, PH/PHCC 141) | 3 | |
| COCC 150 | College Composition (Composition Placement Exam) | 3 | 2A |
| M CC 161 | Calculus for Physical Scientists II (M/M CC 124 and M/M CC 160) | 4 | 2C |
| M 261 | Calculus for Physical Scientists III (M/M CC 161) | 4 | |
| ME 237 | Introduction to Thermal Sciences (PH/PHCC 142) | 3 | |
| PHCC 142 | Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255) | 5 | 3A |
| | Additional communication\(^1\) | 3 | 2B |
| | Arts/humanities\(^2\) | 3 | 3B |
| | Health and wellness\(^3\) | 2 | 3G |
| | Social/behavioral sciences\(^4\) | 3 | 3C |
| **TOTAL** | | 37 | |

<p>| <strong>JUNIOR</strong> | | | |
| CE 261 | Engineering Mechanics-Dynamics (CE 260; CB 103/CBCC 192 or CE 108 or ME/MECC 101) | 3 | |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 300</td>
<td>Fluid Mechanics (CE 261, CE 262, ME 237) OR Mechanics and Thermodynamics of Flow Processes (M 340; ME 337 or concurrent reg.)</td>
<td>4</td>
<td>4B</td>
</tr>
<tr>
<td>M 340</td>
<td>Introduction to Ordinary Differential Equations (M/M CC 255 or M 261)</td>
<td>4</td>
<td>4A</td>
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</table>

**SENIOR**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>STCC 309</td>
<td>Statistics for Engineers and Scientists (M/M CC 161 or M/M CC 255)</td>
<td>3</td>
<td>2D</td>
</tr>
</tbody>
</table>

**CORE TOTAL = 64-65 credits**

1. Select from the list of courses in category 2B in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 3B in the AUCC.
3. Select from the list of courses in category 3G in the AUCC.
4. Select from the list of courses in category 3C in the AUCC.
5. To complete the major, students must select one of the following concentrations: engineering physics or space engineering.

### ENGINEERING PHYSICS CONCENTRATION

**Major in Engineering Science**

**Engineering Physics Concentration**

In addition to the engineering science core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
<td>Digital Circuit Logic</td>
<td>4</td>
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</tr>
<tr>
<td>EECC 192</td>
<td>Electrical Engineering Fundamentals (high school algebra and geometry)</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

| SOPHOMORE | Circuit Theory (concurrent reg. in M/M CC 161; PH/PHCC 142) | 3 | |
| EE 201 | | | |
| EE 202 | Circuit Theory Applications (EE 201) | 4 | |
| Global and cultural awareness¹ | | 3 | 3E |
| Historical perspectives² | | 3 | 3D |
| U.S. public values and institutions³ | | 3 | 3F |
| TOTAL | | 16 | |

| JUNIOR | Electromagnetic Fields and Devices I (M 340 or M 345) | 3 | |
| EE 341 | | | |
| EE 342 | Electromagnetic Fields and Devices II (EE 341) | 3 | |
| PH 314 | Introductions to Modern Physics (PH/PHCC 142, concurrent reg. in M 261) | 4 | |
| PH 315 | Modern Physics Laboratory (concurrent reg. in PH 314) | 2 | |
| TOTAL | | 12 | |

| SENIOR | Senior Design Project I (EE 312, EE 332, and EE 342 or EE 343) | 3 | 4C |
| EE 401 | | | |
| EE 402 | Senior Design Project II (EE 401) | 3 | 4C |
| PH 353 | Optics and Waves (M 261, PH/PHCC 142) | 4 | |

¹ Select from the list of courses in category 2B in the AUCC.
² Select from the list of courses in category 3B in the AUCC.
³ Select from the list of courses in category 3G in the AUCC.
⁴ Select from the list of courses in category 3C in the AUCC.
⁵ To complete the major, students must select one of the following concentrations: engineering physics or space engineering.
### Course Title (Prerequisite) Credits AUCC Category

1. Mathematics $^4$ 3
2. Technical electives $^5$ 18-19
3. Electives 5

**TOTAL** 36-37

**PROGRAM TOTAL = 136 credits**

$^1$ Select from the list of courses in category 3E in the All-University Core Curriculum (AUCC).
$^2$ Select from the list of courses in category 3D in the AUCC.
$^3$ Select from the list of courses in category 3F in the AUCC.
$^4$ Mathematics elective (300 level or higher). Select course with advisor’s approval.
$^5$ Select courses with advisor’s approval.

### SPACE ENGINEERING CONCENTRATION

**Major in Engineering Science**

**Space Engineering Concentration**

In addition to the engineering science core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 108</td>
<td>Civil Engineering Principles I</td>
<td>3</td>
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</tr>
<tr>
<td>CECC 192</td>
<td>Civil Engineering Principles II (CE 108)</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>6</td>
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<tr>
<td><strong>SOPHOMORE</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>EE 204</td>
<td>Introduction to Electrical Engineering (M/M CC 161, PH/PHCC 142)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ME 250</td>
<td>Computer Applications in Mechanical Engineering (M/M CC 161, concurrent reg. in ME 102)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Global and cultural awareness $^1$</td>
<td>3</td>
<td>3E</td>
<td></td>
</tr>
<tr>
<td>Historical perspectives $^2$</td>
<td>3</td>
<td>3D</td>
<td></td>
</tr>
<tr>
<td>U.S. public values and institutions $^3$</td>
<td>(3)</td>
<td>3F</td>
<td></td>
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<tr>
<td><strong>TOTAL</strong></td>
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<td>11</td>
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<tr>
<td><strong>JUNIOR</strong></td>
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<td></td>
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<tr>
<td>CE 360</td>
<td>Mechanics of Solids (CE 260 or CE 262)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CE 367</td>
<td>Structural Analysis (CE 360)</td>
<td>3</td>
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</tr>
<tr>
<td>ME 304</td>
<td>Engineering Design (ME 250)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ME 307</td>
<td>Mechatronics and Measurement Systems (CE 261, EE 204, M 340, ME 250)</td>
<td>4</td>
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</tr>
<tr>
<td>ME 337</td>
<td>Thermodynamics (M 261, ME 237)</td>
<td>3</td>
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<tr>
<td><strong>TOTAL</strong></td>
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<td>16</td>
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<tr>
<td><strong>SENIOR</strong></td>
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<tr>
<td>CE 408</td>
<td>Civil Engineering Design I (CE 309)</td>
<td>3</td>
<td>4C</td>
</tr>
<tr>
<td>CE 409</td>
<td>Civil Engineering Design II (CE 408)</td>
<td>3</td>
<td>4C</td>
</tr>
<tr>
<td>ME 344</td>
<td>Heat and Mass Transfer (ME 342)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ME 417</td>
<td>Control Systems (M 340, ME 304)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<tr>
<td>ME 460</td>
<td>Aeronautics (ME 342)</td>
<td>3</td>
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</tr>
<tr>
<td>PO 371</td>
<td>U.S. Space Policy</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mathematics, upper division</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Technical electives^2</td>
<td>11-12</td>
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<tr>
<td></td>
<td>Electives</td>
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<td>TOTAL</td>
<td>38-39</td>
<td></td>
</tr>
</tbody>
</table>

PROGRAM TOTAL = 136 credits

1 Select from the list of courses in category 3E in the All-University Core Curriculum (AUCC).
2 Select from the list of courses in category 3D in the AUCC.
3 In categories 3C or 3D select one of the following courses: AU/AUCC 201(3D), HY/HYCC 150 (3D), HY/HYCC 151 (3D), NR/NRCC 320 (3D), PO/POCC 101 (3C), PO/POCC 103 (3C), S/S CC 100 (3C), S/S CC 105 (3C).
4 Select courses with advisor’s approval.

Major in Environmental Engineering

Office in Engineering Building Arcade, Room AR 102

Are you an environmentalist at heart who would like to design systems or devices to help improve environmental quality? Would you like to devise a project to clean up polluted ground water? Are restoring the health of local ecosystems or preventing pollution something you would like to do? Would you like to monitor air, land, and water quality? Could you design a project to provide safe drinking water or waste water treatment where none exists? Would you like to develop new and improved means to protect the environment or promote conservation of natural resources? If your answers to any of these questions is “yes,” then a degree in environmental engineering may be the thing for you.

Environmental engineers design solutions to prevent future pollution as well as correct existing pollution problems. The curriculum is based on a strong foundation in natural sciences, mathematics, biological sciences, and engineering fundamentals. Upper-division courses address engineering applications in air, water, land pollution, and environmental toxicology in which pollution prevention and control measures are emphasized. Other topics include agricultural and environmental measurements, rate-controlled separations, basic hydrology, environmental law, and environmental ethics. Careful selection of technical electives allows students to specialize in a related field of interest. Minors can be obtained in a variety of related subjects such as Watershed Science, Range Ecology, Fishery Biology, Soil Resources and Conservation and the interdisciplinary studies program in Water Resources. Seniors complete a year long design project with a professional engineer mentor. Graduates are well prepared for entry-level positions with regulatory agencies, engineering consulting firms, and pollution prevention/control divisions of large industries. Demonstrating a greater than 90% pass rate on the Fundamentals of Engineering professional exam, Colorado State University environmental engineering graduates are well prepared for careers in the field.

Characteristics And Skills

- Interest in preserving environmental quality and preventing environmental damages
- Interest in developing solutions for environmental pollution problems
- Aptitude in math, and biological and physical sciences
- Interest in designing large and small systems and structures
- Perseverance
- Attention to detail
- Leadership ability and interpersonal skills
- Strong verbal and writing ability
- Able to draw information and ideas from a variety of sources
- Good team player
- Creative/Innovative
- Versatility
- Aptitude for and interest in computer applications and design

Potential Occupations

As our population and economy expands, the number of potential water and air pollution sources will rise. Also, public concern for the regulation of environmental quality is growing. As a result, demand for the services of environmental engineers is certain to increase. Today, environmental engineers are at work designing pollution prevention equipment and systems; monitoring and
cleaning up polluted air, water and land; designing drinking water and waste water systems for needy communities, and restoring ecosystem health. Graduates from Colorado State’s environmental engineering program are in an excellent position to make significant contributions enhancing environmental quality. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:
- Environmental engineer
- Pollution control engineer
- Wastewater engineer
- Ecologist
- Environmental consultant
- Ecosystem restoration specialist
- Air/water quality specialist
- Regulatory compliance specialist

Major in Environmental Engineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<tr>
<td>C 114</td>
<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
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<tr>
<td>CBCC 104</td>
<td>Strategies of Engineering Problem Solving (CB 103/CBCC 192)</td>
<td>3</td>
<td>2D</td>
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<tr>
<td>CBCC 192</td>
<td>Strategies of Engineering Design</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists (M/M CC 126; concurrent reg. in M/M CC 124)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124 and M/M CC 160)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>PHCC 141</td>
<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
<td>5</td>
<td>3A</td>
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<tr>
<td>PHCC 142</td>
<td>Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255)</td>
<td>5</td>
<td>3A</td>
</tr>
<tr>
<td>TOTAL</td>
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</tr>
</tbody>
</table>

SOPHOMORE

Select four credits from the following courses:
- Principles of Animal Biology
- Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)
- Principles of Plant Biology
- Attributes of Living Systems (high school chemistry)
- Material and Energy Balances (C/C CC 111, M/M CC 160, PH/PHCC 141, one course in computer programming)
- Thermodynamic Process Analysis (CB 201)
- Introduction to Thermal Sciences (PH/PHCC 142)
- Engineering Mechanics (M/M CC 161, PH/PHCC 141)
- College Composition (Composition Placement Exam)
- Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 261</td>
<td>Calculus for Physical Scientists III (M/M CC 161)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>M 340</td>
<td>Introduction to Ordinary Differential Equations (M/M CC 255 or M 261)</td>
<td>4</td>
<td>4A</td>
</tr>
<tr>
<td></td>
<td>Health and wellness¹</td>
<td>2</td>
<td>3G</td>
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<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>34</td>
</tr>
</tbody>
</table>

**JUNIOR**

| BY 220 | Fundamentals of Ecology (one course in biology; M/M CC 124 or M/M CC 141 or M/M CC 155) | 3       |
| C 471  | Fundamentals of Physical Chemistry (C 113; M/M CC 161 or M/M CC 255; PH/PHCC 122 or PH/PHCC 142) | 4       |
| CB 204 | Agricultural and Environmental Measurements (PH/PHCC 110 or PH/PHCC 141) OR Agricultural and Environmental Measurements (PH/PHCC 110 or PH/PHCC 141) | 3       |
| EV 204 |                      |         |
| CB 331 | Momentum Transfer and Mechanical Separations (CB 201, M 340; CB 202 or ME 237) OR Fluid Mechanics (CE 261 or CE 262, ME 237) | 3       | 4B            |
| CE 300 | Engineering Design I (CB 201 or CB 204/EV 204) | 1       |
| CB 470 | Engineering Design I (CB 201 or CB 204/EV 204) | 1       |
| CE 322 | Basic Hydrology (CE 300 or ER 416 or CB 331, ST/STCC 301 or ST/STCC 309 or CE 308 or written consent of instructor) OR Basic Hydrology (CE 300 or ER 416 or CB 331, ST/STCC 301 or ST/STCC 309 or CE 308 or written consent of instructor) | 3       |
| EV 322 | Engineering Design I (CB 201 or CB 204/EV 204) | 1       |
| MB 300 | General Microbiology (C 245 or C 341 or concurrent reg.; BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120) | 3       |
| MB 301 | Fundamentals of Microbiology Laboratory Techniques (MB 300 or concurrent reg.) | 1       |
|        | Additional communication² | 3       | 2B            |
|        | Arts/humanities¹ | 3       | 3B            |
|        | Engineering electives⁴ | 4       |
| TOTAL  |                      |         | 7             |

**SENIOR**

<p>| CB 442 | Rate-Controlled Separations (CB 331 or CE 300; M 340) OR Rate-Controlled Separations (CB 331 or CE 300; M 340) | 3       |
| EV 442 | Rate-Controlled Separations (CB 331 or CE 300; M 340) OR Rate-Controlled Separations (CB 331 or CE 300; M 340) | 3       |
| CB 443 | Mass Transfer and Separation Laboratory (CB 341 or CB 442/EV 442 or concurrent reg.) OR Mass Transfer and Separation Laboratory (CB 341 or CB 442/EV 442 or concurrent reg.) | 2       |
| EV 443 | Mass Transfer and Separation Laboratory (CB 341 or CB 442/EV 442 or concurrent reg.) OR Mass Transfer and Separation Laboratory (CB 341 or CB 442/EV 442 or concurrent reg.) | 2       |
| CB 471 | Engineering Design II (CB 470) | 3       | 4C            |
| CE 438 | Pollution Control Engineering (C 113, CE 300 or CB 331 or ME 342) | 4       |
| EH 446 | Environmental Toxicology (C 245 or C 343) | 3       |
| ME 448 | Pollution Prevention (CB 331 or CE 300 or ME 342) OR Pollution Prevention (CB 331 or CE 300 or ME 342) | 3       |
| EV 448 | Pollution Prevention (CB 331 or CE 300 or ME 342) OR Pollution Prevention (CB 331 or CE 300 or ME 342) | 3       |
|        | Engineering electives⁴ | 4       |
|        | Global and cultural awareness⁵ | 3       | 3E            |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC</th>
<th>Category</th>
</tr>
</thead>
</table>
|        | Historical perspectives  
       | 3        |      | D       |
|        | Humanities/social sciences | 3      |      |          |
|        | U.S. public values and institutions | (3)  |      | F       |
|        | TOTAL                | 31      |      |          |

PROGRAM TOTAL = 132-133 credits

1 Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).
2 Select from the list of courses in category 2B in the AUCC.
3 Select from the list of courses in category 3B in the AUCC.
4 Select courses with adviser’s approval.
5 Select from the list of courses in category 3E in the AUCC.
6 Select from the list of courses in category 3D in the AUCC. The course selected for 3D should also be listed in 3F so the two requirements may be fulfilled with one course.
7 Select from the list of courses in category 3F in the AUCC. The course selected for 3F should also be listed in 3D so the two requirements may be fulfilled with one course.

DEPARTMENT OF
ATMOSPHERIC SCIENCE

Office in Atmospheric Science Building,  
Foothills Campus, Room 305  
Professor Steven A. Rutledge, Head

No undergraduate major is offered. Undergraduates interested in atmospheric science at the graduate level are encouraged to major in engineering, physics, chemistry, or mathematics.

DEPARTMENT OF CHEMICAL AND BIORESOURCE ENGINEERING

Office in Glover Building, Room 100  
Professor Vincent G. Murphy, Interim Chair

Major in Bioresource and Agricultural Engineering

Would you like to design sophisticated technological solutions to problems concerning the protection or improvement of air and water quality? Does the design of efficient irrigation or drainage systems for agriculture interest you? Does the design of machinery intended for the production, harvest, and transportation of food and fiber intrigue you? Would you enjoy becoming an ecological engineer designing appropriate systems for the safe disposal of toxic wastes? If any of your answers to these questions is “yes,” then you may want to consider a major in Agricultural and Bioresource Engineering

The agricultural and bioresource engineering major prepares students for careers in the application of engineering principles to the management of natural resources and the production of food and agricultural commodities. Colorado State’s unique tradition in natural resources and its faculty expertise provide an ideal learning environment for students in this major. Required course work includes biological and physical sciences, natural resources, introduction to soil science, and fundamental engineering sciences in thermodynamics, mechanics, hydraulic and geotechnical engineering, heat and mass transfer, and flow processes. Senior projects are year-long and mentored by professional engineers. Examples include water quality monitoring systems, determination of instream flow requirements, wetland design for nonpoint pollution control, determination of agricultural consumptive use, salinity reduction in lake systems, irrigation and drainage design, variable-rate
chemical application systems, and design of equipment safety structures.

Two concentrations are offered. The **Bioresource Engineering** concentration emphasizes natural resource management, soil/water/plant/atmosphere interactions, advanced engineering principles, and computer technology, including geographic information systems. Through the choice of electives students may specialize in water quality, air quality, water resources irrigation and drainage design, or ecological engineering.

**Agricultural Engineering** emphasizes the design and testing of machinery and equipment used in the production of food and fiber or in off-highway transport. Required course work includes a sequence of core courses in mechanical engineering covering fluid mechanics and thermal sciences. Additional courses are taken in field measurements, fluid and machine dynamics, thermal sciences, and global positioning systems. Students may specialize in biomachine design, testing, controls, or human/machine interaction. Regardless of the concentration chosen, Colorado State University engineering graduates are well prepared for a professional career with a greater than 90% pass rate on the Fundamentals of Engineering professional exam.

**Characteristics And Skills**

- Interest in natural resources or agriculture
- Curiosity about how things work
- Aptitude and interest in math and physical sciences
- Interest in developing solutions for real problems and needs
- Perseverance
- Attention to detail
- Leadership ability and interpersonal skills
- Strong verbal and writing ability
- Creative/Innovative
- Able to draw information and ideas from a variety of sources
- Good team player
- Versatility
- Aptitude for computer applications

**Potential Occupations**

Bioresource engineers find employment with environmental and natural resource consulting firms; government agencies at the local, state, and federal levels; and industries facing increasing environmental regulation. Agricultural engineers are employed by a wide variety of farm, construction, and related equipment manufacturers, consulting firms, and by government agencies at all levels. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:

- Bioresource engineer
- Irrigation engineer
- Quality control manager
- Sales engineer
- Occupational health and safety specialist
- Agronomist
- Consultant
- Packaging engineer
- Cooperative extension agent
- Agricultural equipment design engineer
- Waste disposal engineer
- Ecological engineer
- Soil conservationist
- Agricultural research engineer
- Building construction inspector
- Environmental health specialist
- Hydro-geologist
- Hydrologist

**Major in Bioresource and Agricultural Engineering (Core)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
<td>3</td>
<td></td>
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<tr>
<td>C 114</td>
<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CBCC 104</td>
<td>Strategies of Engineering Problem Solving (CB 103/CBCC 192)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------</td>
<td>---------</td>
<td>---------------</td>
</tr>
<tr>
<td>CBCC 192</td>
<td>Strategies of Engineering Design</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124 and M/M CC 160)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>PHCC 141</td>
<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
<td>5</td>
<td>3A</td>
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<tr>
<td>PHCC 142</td>
<td>Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255)</td>
<td>5</td>
<td>3A</td>
</tr>
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<td><strong>TOTAL</strong></td>
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**SOPHOMORE**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
<td>4</td>
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<tr>
<td>CB 204</td>
<td>Agricultural and Environmental Measurements (PH/PHCC 110 or PH/PHCC 141)</td>
<td>3</td>
<td></td>
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<tr>
<td>CE 262</td>
<td>Engineering Mechanics (M/M CC 161, PH/PHCC 141)</td>
<td>4</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
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<tr>
<td>EE 204</td>
<td>Introduction to Electrical Engineering (M/M CC 161, PH/PHCC 142)</td>
<td>3</td>
<td></td>
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<tr>
<td>M 261</td>
<td>Calculus for Physical Scientists III (M/M CC 161)</td>
<td>4</td>
<td></td>
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<tr>
<td>M 340</td>
<td>Introduction to Ordinary Differential Equations (M/M CC 255 or M 261)</td>
<td>4</td>
<td>4A, 4B</td>
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<tr>
<td>ME 237</td>
<td>Introduction to Thermal Sciences (PH/PHCC 142)</td>
<td>3</td>
<td></td>
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<tr>
<td>SC 240</td>
<td>Introductory Soil Science (C/C CC 107 or C/C CC 111)</td>
<td>4</td>
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<tr>
<td><strong>Health and wellness</strong></td>
<td></td>
<td>2</td>
<td>3G</td>
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<tr>
<td><strong>TOTAL</strong></td>
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<td><strong>34</strong></td>
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</table>

**CORE TOTAL = 67 credits**

1. Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).
2. To complete the degree in bioresource and agricultural engineering, students must select one of the following concentrations: agricultural engineering or bioresource engineering.

**AGRICULTURAL ENGINEERING CONCENTRATION**

**Major in Bioresource and Agricultural Engineering**

**Agricultural Engineering Concentration**

In addition to the bioresource and agricultural engineering core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB 360</td>
<td>Geographic Information Systems in Agriculture (CS 110)</td>
<td>3</td>
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<td><strong>OR</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>SC 360</td>
<td>Geographic Information Systems in Agriculture (CS 110)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CB 405</td>
<td>Nonpoint Source Pollution (one course in soil science, hydrology, or fluid mechanics)</td>
<td>3</td>
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<tr>
<td>CB 464</td>
<td>Soil and Water Engineering (CB 331 or CE 300 or SC 240)</td>
<td>4</td>
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<tr>
<td>CB 466</td>
<td>Design of Off-Highway Vehicles (ME 237; CE 261 or CE 262)</td>
<td>4</td>
<td><strong>OR</strong></td>
</tr>
<tr>
<td>ME 440</td>
<td>Design of Off-Highway Vehicles (ME 237; CE 261 or CE 262)</td>
<td>4</td>
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<tr>
<td>CB 470</td>
<td>Engineering Design I (CB 201 or CB 204/EV 204)</td>
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<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<tr>
<td>CE 360</td>
<td>Mechanics of Solids (CE 260 or CE 262)</td>
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<td>ME 337</td>
<td>Thermodynamics (M 261, ME 237)</td>
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<td>ME 342</td>
<td>Mechanics and Thermodynamics of Flow Processes (M 340; ME 337 or concurrent reg.)</td>
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<td>Additional communication</td>
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<td></td>
<td>Social/behavioral sciences</td>
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<td>3C</td>
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<td></td>
<td>Natural resources elective</td>
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**SENIOR**

<table>
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<tr>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB 471</td>
<td>Engineering Design II (CB 470)</td>
<td>3</td>
<td>4C</td>
</tr>
<tr>
<td>EG 410</td>
<td>Systems Engineering and Optimization (M/M CC 255 or M 261)</td>
<td>3</td>
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<tr>
<td>ME 338</td>
<td>Thermosciences Laboratory (ME 344 or concurrent reg.)</td>
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<tr>
<td>ME 344</td>
<td>Heat and Mass Transfer (ME 342)</td>
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<tr>
<td>ME 410</td>
<td>Engineering Economy for Engineers (M 261)</td>
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<tr>
<td></td>
<td>Arts/humanities</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>Global and cultural awareness</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td>Historical perspectives</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td></td>
<td>U.S. public values and institutions</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td></td>
<td>Agricultural engineering electives</td>
<td>6</td>
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<td></td>
<td>TOTAL</td>
<td>30</td>
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</tbody>
</table>

**PROGRAM TOTAL = 130 credits**

1. Select from the list of courses in category 2B in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 3C in the AUCC.
3. Select from departmental list of approved courses.
4. Select from the list of courses in category 3B in the AUCC.
5. Select from the list of courses in category 3E in the AUCC.
6. Select from the list of courses in category 3D in the AUCC.
7. Select from the list of courses in category 3F in the AUCC. Certain courses taken to satisfy a requirement in other areas of foundations and perspectives may simultaneously satisfy this requirement.

**BIORESOURCE ENGINEERING CONCENTRATION**

Major in Bioresource and Agricultural Engineering
Bioresource Engineering Concentration

In addition to the bioresource and agricultural engineering core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUNIOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CB 360</td>
<td>Geographic Information Systems in Agriculture (CS 110)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SC 360</td>
<td>Geographic Information Systems in Agriculture (CS 110)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CB 405</td>
<td>Nonpoint Source Pollution (one course in soil science, hydrology, or fluid mechanics)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CB 464</td>
<td>Soil and Water Engineering (CB 331 or CE 300 or SC 240)</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
Major in Chemical Engineering

Do you have a strong interest in chemistry? Would you enjoy applying engineering principles to the development of new products? Would you like to work for a large chemical, petroleum, biotechnology, aerospace, pharmaceutical, or food products firm devising high-tech products and processes? Would you like to research and design new ways to make products in a safe and environmentally friendly manner? If your answer to any of these questions is “yes,” then you might enjoy a career as a chemical engineer.

Chemical engineers design equipment and develop processes to transform raw materials into usable products in a socially and environmentally acceptable manner. Examples include the production of methane from natural gas, fine chemicals and plastics from crude oil, natural sweeteners from cornstarch, diagnostic and therapeutic agents from controlled fermentations, and electronic devices from silicon substrates. The program is structured to prepare students for the practice of chemical engineering and the integration of appropriate technology into modern society. Demonstrating a greater than 90% pass rate on the Fundamentals of Engineering professional exam, Colorado State University engineering graduates are well prepared for careers in the field.

The chemical engineering curriculum is a blend of chemistry, biological science, physics, mathematics,
humanities, social sciences, engineering sciences, and engineering design methods. Through the use of technical electives, the opportunity exists to specialize in biochemical engineering, biomedical engineering, advanced materials processing, and hazardous waste management. The required two semester Unit Operations laboratory provides students with an in-depth understanding of the concepts learned in the classroom. Concepts of heat transfer, fluid dynamics, mass transfer, and explicit equipment use and optimization are covered in the lab. Students also have access to an extensive network of computers for their instruction and research. Finally, to gain exposure to the discipline and its applications, students take four field trips to local firms engaged in the types of work chemical engineering graduates may encounter.

**Characteristics And Skills**

- Interest and ability in math, chemistry, and physical sciences
- Logical
- Inventive
- Able to draw information and ideas from a variety of sources
- Perseverance
- Curiosity
- Versatility
- Leadership ability
- Strong verbal and writing skills

- Ability to work effectively with a team and independently
- Able to meet deadlines
- Strong aptitude for computer applications

**Potential Occupations**

Chemical engineering graduates find employment with the petroleum, chemical, food, biotechnology, microelectronics, environmental consulting, and other private sector industries and with government agencies. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:

- Research engineer
- Process development engineer
- Equipment design engineer
- Production engineer
- Pollution control engineer
- Sales engineer
- Consulting engineer
- Materials engineer
- Biochemical engineer
- Biomedical engineer
- Food engineer

**Major in Chemical Engineering**

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<td>U.S. public values and institutions⁸</td>
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PROGRAM TOTAL = 130 credits

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1 Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).
2 Select from the list of courses in category 2B in the AUCC.
3 Select from departmental list of approved courses.
4 Select from the list of courses in category 3C in the AUCC.
5 Select from the list of courses in category 3B in the AUCC.
6 Select from the list of courses in category 3E in the AUCC.
7 Select from the list of courses in category 3D in the AUCC.
8 Select from the list of courses in category 3F in the AUCC. Certain courses taken to satisfy a requirement in other areas of Foundations and Perspectives may simultaneously satisfy this requirement.

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### DEPARTMENT OF CIVIL ENGINEERING

*Office in Engineering Building, Room A 203*

*Professor Larry A. Roesner, Interim Head*

### Major in Civil Engineering

Are you fascinated by large-scale projects? Do cities, how they grow, how they are physically organized, and what changes might improve the local quality of life intrigue you? Are you an environmentalist who would like to design projects to preserve and enhance environmental quality, reduce ground water pollution, remediate existing damages, or contain toxic materials? Does the design of bridges, tunnels, airports, highways, and other large infrastructure projects capture your interest and imagination? Would you like to use computers to design and help manage a large construction project? If so, a career in civil engineering might be the one for you.

Civil engineers are involved in the planning, design, construction, operation, and maintenance of high cost, large-scale, one-of-a-kind public/private projects such as bridges, buildings, canals, highways, transit systems, airports, irrigation projects, water treatment and distribution systems, solid waste treatment and recycling facilities. Increasingly, the need to provide for both society’s infrastructure requirements and the preservation of environmental quality are being addressed by civil engineers. Due to their uniqueness and scale, civil engineering projects cannot be proof tested and revised; they are expected to work the first time. Consequently, civil engineers use computers extensively in the design, visualization, and management of these large systems and structures. Additionally, the need to satisfy environmental concerns and the demand for remediation of past practices has made the field of environmental engineering one of the fastest growing fields in engineering.

The undergraduate civil engineering program provides a solid base in the physical sciences, mathematics, engineering fundamentals, and design and management concepts. The engineering courses cover such topics as design practices, computer tools, technical communications, project management, and engineering ethics. This curriculum provides the basic scientific and professional education necessary to enter the engineering profession in any branch of civil engineering. Colorado State University engineering graduates have a greater than 90% pass rate on the Fundamentals of Engineering professional exam.

### Characteristics And Skills

- Interest in developing solution for real problems and needs
- Interest in designing large systems and structures
- Curiosity about how things work
- Aptitude in math and physical sciences
- Ability to work within large organizations
- Perseverance
- Attention to detail
- Leadership ability and interpersonal skills
- Strong verbal and writing ability
- Creative/Innovative
- Able to draw information and ideas from a variety of
- Good team player
- Versatility
- Aptitude for and interest in computer applications and design

**Potential Occupations**

Civil engineers are employed in many different organizations including small and large consulting firms, governmental agencies at all levels, and industrial companies such as construction, petroleum, and aerospace firms. Civil engineers may also find opportunities in specialized design, research, and teaching. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:

- Civil engineer
- Environmental engineer
- Transportation engineer
- Hydraulic engineer
- Structural engineer
- Fluid mechanics
- Geotechnical engineer
- Groundwater engineer
- Hydraulics engineer
- Hydrologist
- Wind engineer
- Urban/regional planner
- Architect
- Contract administrator
- Building construction inspector
- Illuminating engineer
- Industrial transportation specialist
- Industrial designer/engineer
- Irrigation engineer
- Mining engineer
- Cartographer
- Mining and petroleum research engineer
- Educator

The Civil Engineering Department includes the Center for Engineering Infrastructure and Sciences in Space (CEISS) and, through this Center, coordinates the University's participation in the NASA Colorado Space Grant Consortium. Information on emerging undergraduate educational opportunities in space civil engineering and other space-related study areas can be obtained through CEISS.

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**Major in Civil Engineering**

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| C CC 112 | General Chemistry Laboratory I (C/C CC 111 or concurrent reg.) | 1 | 3A |</p>
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PROGRAM TOTAL = 132 credits
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

Office in Engineering Building Arcade, Room AR 104
Professor Derek L. Lile, Head

Major in Electrical Engineering

Do you have a strong interest in math and the physical sciences? Does the design and operation of electrical equipment and systems, computer systems, and optoelectronic devices fascinate you? Would you like to design radar remote sensing arrays to monitor the weather and other environmental variables, or energy systems that conserve resources or utilize solar energy? Would the design of manufacturing control systems, lasers, microelectronic devices for residential and commercial use, and image and signal processors interest you? How about designing or fabricating the next generation of microprocessor chips? If your answer to any of these questions is “yes,” then a major in Electrical and Computer Engineering may be for you.

Engineering is the art of applying science to design in order to create things that benefit people. Approximately two million engineers work in the United States. Electrical and computer engineering are those branches of engineering that involve making things that use electricity. Specifically, electrical engineering covers everything related to electrical devices and systems. The field is extremely broad. For example, electrical engineers may be involved in the design and development of telecommunications networks, in the design and manufacture of consumer electronics, in the development of control systems for space vehicles and robots, and in many aspects of the power and automotive industries. Such things as satellite communications, cell phones, fiber optic networks, radar systems and neural networks all fall within the domain of the electrical engineer. Within all of these industries, electrical engineers work in design, testing and verification, and in manufacturing. They are the creators as well as the implementers of all things electrical.

Computer engineering primarily addresses the design, implementation, and application of computers and digital systems. The field covers hardware, software, and the interaction between them. Computer engineers may be involved in the development of microprocessors, computers, workstations, the servers and switches that support the internet, and in the implementation of the hardware and protocols that support the telecommunications network. They design and implement real-time operating systems and software tools for designing integrated circuits. Computer engineers are also responsible for the realization of microprocessor chips that control computers and other electronic hardware.

Electrical and computer engineering students develop a solid foundation in math and physics. The electrical engineering core comprises the bulk of courses. Students achieve advanced and in-depth understanding in a number of technical areas; develop proficiency in critical workplace skills; obtain hands-on experience in laboratory experimentation and data analysis; and use a broad range of software tools for analysis and design. State-of-the-art laboratory facilities provide students with an in-depth understanding of the concepts learned in class. The senior design project is conducted in a team setting under the direct guidance of a faculty member and includes written and oral presentations.

A choice of technical electives allows specialization in one of three concentrations. Electrical Engineering focuses on traditional subjects such as circuits, electronics, electromagnetic fields, and electromechanical devices. Computer Engineering emphasizes computer electronics, digital system design, digital computing and networking, and computer programming. Optoelectronic Engineering focuses on optics and waves, optical electronics, optical information processing, and communications.

Characteristics And Skills
- Strong interest and aptitude for math and the physical sciences
- Strong interest in designing electrical or computer systems and devices
- Logical thinker
- Inventive
- Able to draw information from a variety of sources
- Good team player
- Self motivated
- Strong problem solving ability
- Values accuracy and precision
- Cooperative team working skills
- Good written and verbal communication skills
- Enjoys experimentation and data analysis

Potential Occupations

Electrical engineers design, develop and supervise the manufacture of electrical, electronic and computer systems or components. Engineers also test new equipment/systems, write performance requirements, develop maintenance schedules and solve operating problems. Electrical and computer engineers work in the following fields: analog and digital electronics, digital systems and signal processing, microelectronics, computers, controls, lasers, power generation and distribution, optical electronics, semiconductors, antennas, and radar.

Colorado State University engineering graduates are well prepared for a professional career with a greater than 90% pass rate on the Fundamentals of Engineering professional exam. With electrical engineering being the largest engineering profession, and computer engineering being the fastest growing, graduates readily find employment in many fields of industry, education, government, and service. Students may enhance their employment opportunities by completing a minor in computer science, mathematics, or physics. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:

- Computer engineer
- Electrical test engineer
- Field engineer
- Integrated circuit layout designer
- Biomedical engineer
- Computer programmer
- Electronics research engineer
- Occupational safety specialist
- Production manager
- Specification writer
- Electric power superintendent
- Numerical control programmer
- Geophysicist
- Aerospace engineer
- Photographic engineer
- Lasers engineer
- Communications specialist
- Transportation engineer

In order to maintain professional standards required of practicing engineers, the Department of Electrical and Computer Engineering requires a cumulative grade point average of at least 2.0 in electrical and computer engineering courses as a graduation requirement. It is the responsibility of any student who fails to maintain a 2.0 average to work with his or her adviser to correct grade point deficiencies. In addition, it is required that students retake any electrical and computer engineering course at the 300 level or below in which they receive a grade below a C.

COMPUTER ENGINEERING CONCENTRATION

Major in Electrical Engineering
Computer Engineering Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>CSCC 153</td>
<td>Java Programming (M/M CC 118 or M/M CC 121)</td>
<td>4</td>
<td>2D</td>
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<tr>
<td>EE 102</td>
<td>Digital Circuit Logic</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EECC 192</td>
<td>Electrical Engineering Fundamentals (high school algebra and geometry)</td>
<td>3</td>
<td>1</td>
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<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
<td>4</td>
<td>2C</td>
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<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124, M/M CC 160)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>PHCC 141</td>
<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
<td>5</td>
<td>3A</td>
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**SOPHOMORE**

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<thead>
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<th>Title (Prerequisite)</th>
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<tbody>
<tr>
<td>CCC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
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<tr>
<td>CS 200</td>
<td>Algorithms and Data Structures (CS/CSCC 153 or CS 154, CS 166/M 166)</td>
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<td>EE 201</td>
<td>Circuit Theory (concurrent reg. in M/M CC 161 and PH/PHCC 142)</td>
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<td>EE 202</td>
<td>Circuit Theory Applications (EE 201)</td>
<td>4</td>
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<td>EE 251</td>
<td>Introduction to Microprocessors (EE 102)</td>
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<td>M 261</td>
<td>Calculus for Physical Scientists III (M/M CC 161)</td>
<td>4</td>
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<tr>
<td>M 340</td>
<td>Introduction to Ordinary Differential Equations (M/M CC 255 or M 261)</td>
<td>4</td>
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<td>M 345</td>
<td>Differential Equations (M 229; M/M CC 161 or M/M CC 255)</td>
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<tr>
<td>PHCC 142</td>
<td>Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255)</td>
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**JUNIOR**

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<td>CS 370</td>
<td>System Architecture and Software (CS 200, CS 270, ST/STCC 301 or ST/STCC 309)</td>
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<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
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<td>EE 311</td>
<td>Linear System Analysis I (EE 202 and M 340 or M 345)</td>
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<td>EE 312</td>
<td>Linear System Analysis II (EE 311)</td>
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<td></td>
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<tr>
<td>EE 331</td>
<td>Electronics Principles I (EE 202 and M 340 or M 345)</td>
<td>4</td>
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<td>EE 332</td>
<td>Electronics Principles II (EE 331)</td>
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<td>EE 343</td>
<td>Electrodynamics for Computer Engineers (EE 202 and M 340 or M 345)</td>
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<td>EE 450</td>
<td>Digital System Design Laboratory (concurrent reg. in EE 451)</td>
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<td>EE 451</td>
<td>Digital System Design (EE 251; concurrent reg. in EE 450)</td>
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<td>EE 452</td>
<td>Principles of Digital Computing and Networking (EE 251)</td>
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<td>Historical perspectives¹</td>
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**SENIOR**

<table>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>Category</th>
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</thead>
<tbody>
<tr>
<td>EE 303</td>
<td>Introduction to Communications Principles (M 261)</td>
<td>3</td>
<td>3D</td>
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<tr>
<td>ST 303</td>
<td>Introduction to Communications Principles (M 261)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EE 401</td>
<td>Senior Design Project I² (EE 312, EE 332 and EE 342 or EE 343)</td>
<td>3</td>
<td>4A, 4B</td>
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<td>EE 402</td>
<td>Senior Design Project II (EE 401)</td>
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<td>3B</td>
</tr>
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<td>Global and cultural awareness⁴</td>
<td>3</td>
<td>3E</td>
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<td>Health and wellness⁵</td>
<td>2</td>
<td>3G</td>
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<td></td>
<td>U.S. public values and institutions⁶</td>
<td>3</td>
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<td></td>
<td>Technical electives⁷</td>
<td>14</td>
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</table>

**PROGRAM TOTAL = 131 credits**

¹ Select from the list of courses in category 3D in the All-University Core Curriculum (AUCC).
2 Project must be on computer engineering topic.
3 Select from the list of courses in category 3B in the AUCC.
4 Select from the list of courses in category 3E in the AUCC.
5 Select from the list of courses in category 3G in the AUCC.
6 Select from the list of courses in category 3F in the AUCC.
7 Select from departmental list of approved courses in the computer engineering area. At least 9 of the 14 credits in computer engineering electives must be Electrical and Computer Engineering courses.

## ELECTRICAL ENGINEERING CONCENTRATION

### Major in Electrical Engineering

**Electrical Engineering Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
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<td></td>
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</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>CSCC 153</td>
<td>Java Programming (M/M CC 118 or M/M CC 121)</td>
<td>4</td>
<td>2D</td>
</tr>
<tr>
<td>EE 102</td>
<td>Digital Circuit Logic</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EECC 192</td>
<td>Electrical Engineering Fundamentals (high school algebra and geometry)</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124, M/M CC 160)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>PHCC 141</td>
<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
<td>5</td>
<td>3A</td>
</tr>
<tr>
<td>SPCC 200</td>
<td>Public Speaking</td>
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</tr>
<tr>
<td><strong>TOTAL</strong></td>
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</table>

| **SOPHOMORE** | | | |
| C CC 111 | General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher) | 4 | 3A |
| EE 201 | Circuit Theory (concurrent reg. in M/M CC 161 and PH/PHCC 142) | 3 | |
| EE 202 | Circuit Theory Applications (EE 201) | 4 | |
| EE 251 | Introduction to Microprocessors (EE 102) | 4 | |
| M 261 | Calculus for Physical Scientists III (M/M CC 161) | 4 | |
| M 340 | Introduction to Ordinary Differential Equations (M/M CC 255 or M 261) | 4 | |
| OR | Differential Equations (M 229; M/M CC 161 or M/M CC 255) | 4 | |
| PHCC 142 | Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255) | 5 | 3A |
| Science/engineering elective¹ | | 4 | |
| **TOTAL** | | | 32 |

<p>| <strong>JUNIOR</strong> | | | |
| EE 303 | Introduction to Communications Principles (M 261) | 3 | |
| OR | | | |
| ST 303 | Introduction to Communications Principles (M 261) | 3 | |
| EE 311 | Linear System Analysis I (EE 202 and M 340 or M 345) | 3 | |
| EE 312 | Linear System Analysis II (EE 311) | 3 | |
| EE 331 | Electronics Principles I (EE 202 and M 340 or M 345) | 4 | |
| EE 332 | Electronics Principles II (EE 331) | 4 | 4A |
| EE 341 | Electromagnetic Fields and Devices I (M 340 or M 345) | 3 | |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>EE 342</td>
<td>Electromagnetic Fields and Devices II (EE 341)</td>
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<tr>
<td>EE 362</td>
<td>Electromechanical Devices (EE 311, EE 331, EE 341)</td>
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<tr>
<td>OR</td>
<td>Physical Electronics (EE 341, PH/PHCC 142)</td>
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Global and cultural awareness\(^2\) 3 3E

Historical perspectives\(^3\) 3 3D

TOTAL 32

SENIOR

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>ECCC 202</td>
<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
<td>3 3C</td>
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<tr>
<td>EE 362 or EE 372</td>
<td>3</td>
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<tr>
<td>EE 401</td>
<td>Senior Design Project I (EE 312, EE 332 and EE 342 or EE 343)</td>
<td>3 4A, 4B</td>
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<tr>
<td>EE 402</td>
<td>Senior Design Project II (EE 401)</td>
<td>3 4C</td>
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<tr>
<td>Arts/humanities(^5)</td>
<td>3 3B</td>
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<td>Health and wellness(^6)</td>
<td>2 3G</td>
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<tr>
<td>U.S. public values and institutions(^7)</td>
<td>3 3F</td>
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<tr>
<td>Technical electives(^8)</td>
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TOTAL 35

PROGRAM TOTAL = 129 credits

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1 One or more courses to be chosen from C CC 112, CE 260, CE 262, CS 200, M 229, M 366, M 419, M 470, ME 237, PH 314, PH 341, or PH 353. If selected course(s) is less than four credits, the credit deficiency must be replaced by additional senior elective credits.

2 Select from the list of courses in category 3E in the All-University Core Curriculum (AUCC).

3 Select from the list of courses in category 3D in the AUCC.

4 Select either EE 362 or EE 372, whichever course remains to be taken.

5 Select from the list of courses in category 3B in the AUCC.

6 Select from the list of courses in category 3G in the AUCC.

7 Select from the list of courses in category 3F in the AUCC.

8 Select from departmental list of approved courses.

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**OPTOELECTRONIC ENGINEERING CONCENTRATION**

**Major in Electrical Engineering**

**Optoelectronic Engineering Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3 2A</td>
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</tr>
<tr>
<td>CSCC 153</td>
<td>Java Programming (M/M CC 118 or M/M CC 121)</td>
<td>4 2D</td>
<td></td>
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<tr>
<td>EE 102</td>
<td>Digital Circuit Logic</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EECC 192</td>
<td>Electrical Engineering Fundamentals (high school algebra and geometry)</td>
<td>3 1</td>
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</tr>
<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
<td>4 2C</td>
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<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124, M/M CC 160)</td>
<td>4 2C</td>
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<tr>
<td>PHCC 141</td>
<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
<td>5 3A</td>
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<tr>
<td>SPCC 200</td>
<td>Public Speaking</td>
<td>3 2B1</td>
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<td>Credits</td>
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<td><strong>30</strong></td>
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**SOPHOMORE**

| C CC 111 | General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher) | 4 | | 3A |
| EE 201 | Circuit Theory (concurrent reg. in M/M CC 161 and PH/PHCC 142) | 3 | | |
| EE 202 | Circuit Theory Applications (EE 201) | 4 | | |
| EE 251 | Introduction to Microprocessors (EE 102) | 4 | | |
| M 261 | Calculus for Physical Scientists III (M/M CC 161) | 4 | | |
| M 340 | Introduction to Ordinary Differential Equations (M/M CC 255 or M 261) | 4 | | |
| M 345 | Differential Equations (M 229; M/M CC 161 or M/M CC 255) | 4 | | |
| PHCC 142 | Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255) | 5 | | 3A |
| | Health and wellness¹ | 2 | | 3G |
| | Science/engineering elective¹ | 4 | | |
|**TOTAL** | | **34** | | | |

**JUNIOR**

| EE 311 | Linear System Analysis I (EE 202 and M 340 or M 345) | 3 | | |
| EE 312 | Linear System Analysis II (EE 311) | 3 | | |
| EE 331 | Electronics Principles I (EE 202 and M 340 or M 345) | 4 | | |
| EE 332 | Electronics Principles II (EE 331) | 4 | | 4A |
| EE 341 | Electromagnetic Fields and Devices I (M 340 or M 345) | 3 | | |
| EE 342 | Electromagnetic Fields and Devices II (EE 341) | 3 | | |
| EE 372 | Physical Electronics (EE 341, PH/PHCC 142) | 3 | | |
| PH 353 | Optics and Waves (M 261, PH/PHCC 142) | 4 | | |
| | Global and cultural awareness³ | 3 | | 3E |
| | Historical perspectives³ | 3 | | 3D |
|**TOTAL** | | **33** | | | |

**SENIOR**

| ECC 202 | Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B) | 3 | | 3C |
| EE 303 | Introduction to Communications Principles (M 261) | 3 | | |
| OR | Introduction to Communications Principles (M 261) | 3 | | |
| EE 401 | Senior Design Project I (EE 312, EE 332 and EE 342 or EE 343) | 3 | | 4A, 4B |
| EE 402 | Senior Design Project II (EE 401) | 3 | | 4C |
| EE 404 | Experiments in Optical Electronics (concurrent reg. in EE 441) | 2 | | |
| EE 441 | Optical Electronics (EE 342) | 3 | | |
| EE 457 | Optical Information Processing (EE 312, EE 342 or EE 343) | 3 | | |
| | Arts/humanities⁴ | 3 | | 3B |
| | U.S. public values and institutions⁵ | 3 | | 3F |
| | Technical electives⁶ | 9 | | |
|**TOTAL** | | **35** | | | |

**PROGRAM TOTAL = 132 credits**
DEPARTMENT OF
MECHANICAL ENGINEERING

Office in Engineering Building, Room A 101
Professor Timothy W. Tong, Head

Major in Mechanical Engineering

Does creating new designs for the auto industry, or in the fields of aeronautics and aerospace sound interesting? Would designing, analyzing, and doing research and development in a wide range of industrial and governmental enterprises be of interest to you? Does studying thermal sciences and the integration of electronic and mechanical devices interest you? Do you like putting ideas and designs to work? Would you enjoy the challenge of finding alternative energy sources, doing computer-aided design, or biomedical research? If your answer to any of these questions is “yes,” then a major in mechanical engineering may be for you.

Mechanical engineers design, develop, and manufacture the machinery and instrumentation that runs factories, transportation systems, mining operations, and utilities. Examples include production machinery, ground/air/space vehicles, robots, heating/refrigeration/air conditioning units, environmental control equipment and power plants. Mechanical engineers are involved in nearly all aspects of energy conversion, environmental control, heat and mass transfer, propulsion, system dynamics and design, manufacturing systems, and computing engineering. Students take basic science and mathematics courses while beginning their engineering studies in design and computing. A broad spectrum of classes is designed to sharpen problem-solving skills. The senior year focuses on a year-long design course to help students in the transition from college to career. Students also choose two areas of technical electives from energy, industrial engineering, materials, mechanics and controls, and thermal sciences. Participation in labs further develops design, modeling, and analysis skills. Students participate in an intercollegiate engineering competition, applying their knowledge to the solution of real world problems.

Characteristics And Skills

- Aptitude in math and physical sciences
- Strong analytical skills
- Aptitude for and interest in computer applications and design
- Strong mechanical skills
- Inventive
- Able to draw information and ideas from a variety of sources
- Good team player
- Good oral and written & communication skills
- Organizational and leadership ability
- Curiosity and creativity
- Interest in developing solution for real problems and needs
- Perseverance
- Attention to detail
- Leadership ability and interpersonal skills
- Versatility

Potential Occupations

Graduates from the Mechanical Engineering Department are expected to have the fundamental knowledge required for the successful practice of mechanical engineering. Colorado State University engineering graduates are generally well prepared for a professional career with a greater than 90% pass rate on the Fundamentals of Engineering professional exam. Currently the demand for mechanical engineers is high and entry level salaries are generous. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:

- Field service engineer
- Measurement superintendent
- Aeronautical engineer
- Production engineer
- Automotive engineer
- Quality control manager
- Industrial engineer
- Aerospace engineer
- Biomedical engineer
- Industrial safety and health technician

## Major in Mechanical Engineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
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<td></td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
<td>4</td>
<td>2C</td>
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<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124 and M/M CC 160)</td>
<td>4</td>
<td>2C</td>
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<tr>
<td>ME 120</td>
<td>Introduction to Computer-Aided Design (ME 121 or concurrent reg.)</td>
<td>3</td>
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<tr>
<td>ME 121</td>
<td>Mechanical Engineering Shop Practicum</td>
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<td>MECC 192</td>
<td>Introduction to Mechanical Engineering</td>
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<td>1</td>
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<tr>
<td>PHCC 141</td>
<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
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<td>PHCC 142</td>
<td>Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255)</td>
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<td></td>
<td>Arts/humanities³</td>
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<td>Health and wellness²</td>
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<td><strong>SOPHOMORE</strong></td>
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<tr>
<td>CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
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<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
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<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<tr>
<td>CE 260</td>
<td>Engineering Mechanics-Statics (M/M CC 160, PH/PHCC 141)</td>
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<tr>
<td>CE 261</td>
<td>Engineering Mechanics-Dynamics (CE 260, CB 103/CBCC 192 or CE 108 or ME 101/MECC 192)</td>
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<tr>
<td>EE 204</td>
<td>Introduction to Electrical Engineering (M/M CC 161, PH/PHCC 142)</td>
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<tr>
<td>M 261</td>
<td>Calculus for Physical Scientists III (M/M CC 161)</td>
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<tr>
<td>M 340</td>
<td>Introduction to Ordinary Differential Equations (M/M CC 255 or M 261)</td>
<td>4</td>
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<tr>
<td>ME 237</td>
<td>Introduction to Thermal Sciences (PH/PHCC 142)</td>
<td>3</td>
<td></td>
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<tr>
<td>ME 250</td>
<td>Computer Application in Mechanical Engineering (M/M CC 161)</td>
<td>2</td>
<td></td>
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<tr>
<td>STCC 309</td>
<td>Statistics for Engineers and Scientists (M/M CC 161 or M/M CC 255)</td>
<td>3</td>
<td>2D</td>
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<td>Additional communications³</td>
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<td><strong>JUNIOR</strong></td>
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<tr>
<td>CE 360</td>
<td>Mechanics of Solids (CE 260 or CE 262)</td>
<td>3</td>
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<tr>
<td>CE 363</td>
<td>Material Properties (CE 360)</td>
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<td></td>
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<td>ME 304</td>
<td>Engineering Design (ME 250)</td>
<td>3</td>
<td>4A</td>
</tr>
<tr>
<td>ME 307</td>
<td>Mechatronics and Measurement Systems (CE 261, EE 204, M 340, ME 250)</td>
<td>4</td>
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<td>ME 324</td>
<td>Dynamics of Machines (CE 261, concurrent reg. in M 340)</td>
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<td>ME 325</td>
<td>Machine Design (CE 360)</td>
<td>3</td>
<td></td>
</tr>
<tr>
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<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>---------</td>
<td>---------------</td>
</tr>
<tr>
<td>ME 331</td>
<td>Introduction to Engineering Materials (C/C CC 112, C 113, PH/PHCC 142)</td>
<td>4</td>
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<tr>
<td>ME 337</td>
<td>Thermodynamics (M 261, ME 237)</td>
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<td>ME 338</td>
<td>Thermosciences Laboratory (ME 344 or concurrent reg.)</td>
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<td></td>
</tr>
<tr>
<td>ME 342</td>
<td>Mechanics and Thermodynamics of Flow Processes (M 340, ME 337 or concurrent reg.)</td>
<td>3</td>
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<tr>
<td>ME 344</td>
<td>Heat and Mass Transfer (ME 342)</td>
<td>3</td>
<td>4B</td>
</tr>
</tbody>
</table>

**TOTAL** 32

**SENIOR**

| ME 486A | Engineering Design Practicum I (CE 363, ME 304, ME 307, ME 324, ME 325, ME 331, ME 338, ME 344) | 3       | 4C            |
| ME 486B | Engineering Design Practicum II (ME 486A)                                              | 3       | 4C            |
|         | Global and cultural awareness<sup>4</sup>                                               | 3       | 3E            |
|         | Historical perspectives<sup>5</sup>                                                     | 3       | 3D            |
|         | Social/behavioral sciences<sup>6</sup>                                                  | 3       | 3C            |
|         | U.S. public values and institutions<sup>7</sup>                                          | 3       | 3F            |
|         | Technical electives<sup>8</sup>                                                        | 12      |               |

**TOTAL** 30

**PROGRAM TOTAL = 130 credits**

---

1. Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 3G in the AUCC.
3. Select from the list of courses in category 2B in the AUCC.
4. Select from the list of courses in category 3E in the AUCC.
5. Select from the list of courses in category 3D in the AUCC.
6. Select from the list of courses in category 3C in the AUCC.
7. Select from the list of courses in category 3F in the AUCC.
8. Select from department list of approved courses.
College of Liberal Arts

Office in Clark Building, Room C 138
Professor Robert W. Hoffert, Acting Dean
Professor Alan C. Lamborn, Associate Dean

UNDERGRADUATE MAJORS

Anthropology
Art
Economics
English
History
Language, Literature, and Culture Studies
Liberal Arts
Music
Performing Arts
Philosophy
Political Science
Sociology
Speech Communication
Technical Journalism

The college educates citizens for life through studies and experiences which lead to an understanding of people, their history, literature, and art; their social, political, and economic systems; and their relationship to a social and physical environment. Specific college functions are:

1. To provide through courses in the arts, humanities, and social sciences a broad, liberal education for all students, both in its own majors and those of other Colorado State colleges.
2. To provide concentrated study in the arts, humanities, and social sciences, preparing students for a wide selection of careers e.g., in teaching, research, music therapy, journalism, the creative arts, business, industry, and government.
3. To provide graduate study in disciplines of the arts, humanities, and social sciences.
4. To offer preprofessional training for advanced study of law and foreign service and professional training in technical journalism.

COLLEGE PROGRAMS

Undergraduate Majors

Undergraduate majors lead to one of three degrees: bachelor of arts, bachelor of fine arts, and bachelor of music. These degrees require a minimum of 120 credits with a minimum of 42 in upper-division courses. Some programs of study require more than the 120-credit minimum. Descriptions of departmental and interdepartmental majors and concentrations are given on the following pages.

Students should consider simultaneously completing the requirements of a second major, a minor, or an interdisciplinary studies program, either in the College of Liberal Arts or in another college. Numerous combinations, all of which enhance the value of the University experience, are available with careful planning. Some of these may be completed within, or close to, the normal four years of study—for example, English/computer science, or liberal arts/history. See Second Major Requirements in the Graduation Requirements section of this catalog for a complete description of the program.

Graduation Average Requirement

The minimum scholastic average acceptable for graduation in any college program is a 2.0 average in all major courses in addition to the overall grade point average requirement of 2.0 for Colorado State courses. Some departments have a more rigorous requirement, e.g., a minimum grade of C in each course taken in the major. Consult the requirements for the major.

Prelaw

Offices in Clark Building, Rooms C 346 and B 349

Students preparing for law school usually major in business administration, economics, English, history, philosophy, political science, or a planned program in liberal arts. Law schools seek above-average students with a broad background. Prelaw students, regardless of major, should design a course of study which develops
their basic skills with language and symbolic logic, accounting skills, insight into social, cultural, economic, and political forms, and analytical capabilities.

Law schools generally require an undergraduate degree for admission.

**Foreign Service Officer Career**

Students wishing a foreign service officer career may prepare for both the general Foreign Service Officer Examination and the associated language examination within the following majors: economics, foreign languages, history, liberal arts, political science, sociology, or technical journalism.

**Study Abroad**

Knowledge of at least one other culture in some depth is invaluable to understanding our own. Students are strongly encouraged to take a semester or longer to study outside of the United States to broaden their perspectives and understanding of other cultures. Students interested in study abroad should plan, far in advance, by discussing opportunities with their adviser and with the study abroad staff in the Office of International Programs.

**OPEN OPTION PROGRAM**

*Office in Clark Building, Room C 138*

This program is for freshmen and sophomores with undeclared majors but with interests in the general areas of the College of Liberal Arts. Students may declare a specific major any time after freshman fall registration and must do so no later than the second semester of the sophomore year.

**INTERDEPARTMENTAL MAJOR IN LIBERAL ARTS**

*Office in Clark Building, Room C 138*

Are you committed to a life of learning and a broad-based education? Are you interested in knowing past and contemporary cultures? Would you like exposure to a diversity of worldviews? Do you wish to develop excellent writing, speaking, thinking, and reading abilities? Would you like to study human behavior, history, and institutions over time and in diverse societies? Have you wanted to explore the ways cultural forms and beliefs unite and give coherence to the American experience? Do you ever wonder about the wide variety of cultural expressions and values within American society? If your answers are “yes,” then a major in Liberal Arts may be for you.

Liberal arts majors can select from five concentrations. The **Arts and Humanities** concentration emphasizes the study of many forms of creative human expression. This includes coursework in art, American studies, dance, English, foreign language, music, philosophy, speech communication, and theatre.

The **Social Sciences** concentration focuses upon the study of human behavior, history and social institutions. This concentration includes courses in anthropology, economics, ethnic studies, geography, history, technical journalism, political science, psychology and sociology. Students interested in teaching social studies at the secondary level are encouraged to explore the social studies licensure option in the social sciences concentration.

A concentration in **American Studies** offers a multidisciplinary and interdisciplinary exploration of the American culture. This concentration requires courses in American studies along with philosophy, political science, history, sociology, anthropology, English, ethnic studies, art, music, and speech communication.

The **International Studies** concentration is a multidisciplinary, transcultural program designed to help students understand the interconnections among diverse cultures and peoples. Students can select the Asian, European, or Latin American Studies options. Courses are required in foreign language, history, international education, philosophy, political science, art, ethnic studies, anthropology, and economics.

In addition to the four liberal arts concentrations, the College of Liberal Arts and the College of Engineering offer a five-year joint program with dual degrees in liberal arts (B.A.) and engineering science (B.S.). The 156-credit program prepares students for a vast array of career options.

With the aid of an academic adviser, Liberal Arts majors have maximum flexibility to choose a curriculum that best suits individual interests. However, pursuing a minor or focusing on one or two subject areas of interest is required in order to enhance a student’s expertise and career opportunities.

Liberal Arts majors with proper advice and planning are able to prepare for many careers or for advanced studies in graduate and other professional programs. In addition to a well-rounded education, the liberal arts curriculum emphasizes a number of transferable skills including problem solving abilities, reading comprehension, analytical skills, and communication skills.
Characteristics and Skills

- Interest in a broad range of topics
- A creative spirit
- Ability to adapt to a variety of situations
- A desire for an interdisciplinary approach to education
- Reading and comprehension abilities
- A strong desire and an ability to learn how to learn
- Ability to integrate knowledge from several perspectives into a coherent whole
- Excellent writing and speaking skills
- Ability to think critically and logically
- A strong interest in beauty and creativity
- A capacity to study human expression, behavior, history, and institutions
- Ability to research and write on topics of interest
- A desire to know past and contemporary cultures
- A desire to understand American culture
- A desire for responsible and creative participation in society
- Knowledge of diverse cultures and viewpoints
- Leadership abilities

Potential Occupations

Graduates apply their education in jobs in the private, non-profit, and public sectors. Others enter graduate and professional schools for more specialized study. Because Liberal Arts graduates are broadly educated, communicate well, and think both logically and critically, many graduates find satisfying jobs after a period of “job moving.” Liberal arts majors who are able to achieve some depth in one or two areas have better job prospects. Many employers appreciate liberal arts majors for their multiple skills and their ability to adapt to a variety of tasks and work environments. Careers for graduates are available in education, business and government. Participation in paid or voluntary work, internships and cooperative education opportunities is recommended to hone your skills and enhance your resume. Depending on your interests, focus, and the concentration you select, a large variety of careers can be found in the following areas among others:

- Public policy
- Artistic production
- Mass media
- Engineering
- Law
- City planning
- Business
- Personnel management
- Information systems
- Travel and resort business
- International business
- International relations
- Journalism
- Publishing
- Education
- Management and administration
- Politics
- Government
- Communications
- Museum work
- Entertainment

AMERICAN STUDIES CONCENTRATION

Major in Liberal Arts
American Studies Concentration

<table>
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<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td>FRESHMAN</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
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<tr>
<td></td>
<td>Arts/humanities(^1)</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>Biological/physical sciences(^2)</td>
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<td>First-year seminar(^3)</td>
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<td>SOPHOMORE</td>
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<tr>
<td>AUCC 200</td>
<td>Self/Community in American Culture, 1600-1877</td>
<td>3</td>
<td>3D</td>
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<tr>
<td>AUCC 201</td>
<td>Self/Community in American Culture Since 1877</td>
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<td>Biological/physical sciences(^2)</td>
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<td></td>
<td>Global and cultural awareness(^7)</td>
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<td>Logical/critical thinking(^8)</td>
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<td>TOTAL</td>
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| JUNIOR   |                                                          |         |               |
|          | AU 300 American Lives-Methods in American Studies        | 3       | 4A, 4B        |
|          | OR                                                       |         |               |
|          | E 300 American Lives-Methods in American Studies         | 3       | 4A, 4B        |
|          |                                                          |         |               |
|          | American pluralism\(^{10}\)                              | 6       |               |
|          | American studies option\(^{11}\)                         | 10      |               |
|          | Foreign language\(^{12}\)                                | 6-10    |               |
|          | Electives                                                | 1-5     |               |
|          | TOTAL                                                    | 30      |               |

| SENIOR   |                                                          |         |               |
|          | AU 492 Seminar in American Studies (AU 300/E 300; senior status or written consent of instructor) | 3       | 4C            |
|          | AU 499 Thesis in American Studies (AU 492)                | 3       |               |
|          | American pluralism\(^{10}\)                              | 3       |               |
|          | American studies option\(^{11}\)                         | 11      |               |
|          | Electives                                                | 10      |               |
|          | TOTAL                                                    | 30      |               |

**PROGRAM TOTAL = 120 credits**

\(^1\)Select from list of courses in category 3B of the All University Core Curriculum (AUCC).
\(^2\)Select from list of courses in category 3A of the AUCC. One course must have a laboratory component.
\(^3\)Select from list of courses in category 1 of the AUCC.
\(^4\)Select from list of courses in category 3G of the AUCC.
\(^5\)Select from list of courses in category 2C of the AUCC.
\(^6\)Select from list of courses in category 2B of the AUCC.
\(^7\)Select from list of courses in category 3E of the AUCC.
\(^8\)Select from list of courses in category 2D of the AUCC.
\(^9\)Select from list of courses in category 3C of the AUCC.

\(^{10}\)Students must select 3 courses (9 credits) from the American pluralism option. Students choosing the American pluralism option will select 3 courses from other options in consultation with the program director.

\(^{11}\)Students must select one of the following options: American images, American institutions, American pluralism, or American regions. Within each option, students must select courses totaling 21 credits from at least 3 different prefixes from an approved list for the option.

\(^{12}\)Placement exam required. One year (2 semesters) college or university foreign language courses required, regardless of level; i.e. first or second year in the SAME language (L CC 105/L CC 107, L CC 200/L CC 201, or L CC 300).
Major in Liberal Arts
American Studies Concentration
American Images Option

In addition to the American studies concentration core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>AR 310</td>
<td>History of American Art (AR 212)</td>
<td>3</td>
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<tr>
<td>AR 315</td>
<td>United States Art Since 1945 (AR 212)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>E 234</td>
<td>Native American Literature</td>
<td>3</td>
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</tbody>
</table>

Select 21 credits from the following courses (minimum of 3 prefixes):

- Native American Literature
- Vietnam War in Fiction
- Introduction to American Literature
- Images of Women in Literature
- Modern Women Writers
- American Folklore
- Western Mythology
- American Drama
- American Authors to 1870 (one course in literature)
- American Authors Since 1870 (one course in literature)
- Nature Writing (one course in literature or CO/COCC 301A-D or E 311A-C)
- American Fiction, 1865-1914 (one course in literature)
- American Fiction, 1914-1945 (one course in literature)
- American Fiction, 1945-present (one course in literature)
- Heritage of the West (one course in American history)
- Contemporary Native American Literature

- OR

- Novel in the American West (E 179 or E/E CC 270)
- American Poetry (E 240)
- American Intellectual History
- History of Jazz
- American Music
- Social and Political Philosophy (PL 105 or PL 205 or PL 206 or any upper-division philosophy course)
- American Political Theories (PO/POCC 101)
- Leisure and Society (S/S CC 100 or S/S CC 105)
- Sport and Society
- Sociology-Religion and Medicine (S/S CC 100 or S/S CC 105)
- Historical Speeches on American Issues
- Freedom of Speech
- Contemporary Speeches on American Issues

- OR

- American Pluralism

Pluralism

TOTAL 30

1Students must select three courses from the American pluralism option, for a total of nine credits.
Major in Liberal Arts
American Studies Concentration
American Institutions Option

In addition to the American studies concentration core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC 310</td>
<td>Poverty and the Welfare State (EC/ECCC 101 or EC/ECCC 202 or EA/EACC 202)</td>
<td>3</td>
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<tr>
<td>EC 379</td>
<td>Economic History of the United States (EC/ECCC 101 or EC/ECCC 202 or EA/EACC 202; or any two courses in American history)</td>
<td>3</td>
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</tbody>
</table>
| OR
| HY 379 | Economic History of the United States (EC/ECCC 101 or EC/ECCC 202 or EA/EACC 202; or any two courses in American history) | 3 | |
| HY 360 | Colonial and Provincial America to 1740 | 3 | |
| HY 362 | Era of the American Revolution | 3 | |
| HY 364 | Age of Jefferson (HY/HYCC 150) | 3 | |
| HY 368 | Age of Jackson (HY/HYCC 150) | 3 | |
| HY 370 | Civil War Era (HY/HYCC 150) | 3 | |
| HY 372 | Reconstruction and the New South (HY/HYCC 150) | 3 | |
| HY 375 | United States, 1876-1917 | 3 | |
| HY 376 | United States, 1917-1945 | 3 | |
| HY 377 | United States Since 1945 | 3 | |
| PL 350 | Social and Political Philosophy (PL 105 or PL 205 or PL 206 or any upper-division course in philosophy) | 3 | |
| PL 447 | Ethical Theory (PL 205 or PL 300 or PL 301) | 3 | |
| POCC 101 | American Government and Politics | 3 | |
| POCC 103 | State and Local Government and Politics | 3 | 3C, 3F |
| PO 301 | Political Parties and Interest Groups (PO/POCC 101) | 3 | 3C, 3F |
| PO 304 | Legislative Politics (PO/POCC 101) | 3 | |
| PO 305 | Judicial Politics (PO/POCC 101) | 3 | |
| PO 306 | Executive Politics (PO/POCC 101) | 3 | |
| PO 309 | Urban Politics (PO/POCC 101 or PO/POCC 103) | 3 | |
| PO 351 | Public Administration (PO/POCC 101) | 3 | |
| PO 361 | U.S. Environmental Politics and Policy (PO/POCC 101) | 3 | |
| PO 413 | U.S. Civil Rights and Liberties (PO/POCC 101) | 3 | |
| PO 423 | American Political Theories (PO/POCC 101) | 3 | |
| S 330 | Social Stratification (S/S CC 100 or S/S CC 105) | 3 | |
| S 360 | Political Sociology (S/SCC 100 or S/S CC 105) | 3 | |
| -- | Pluralism¹ | 9 | |
| TOTAL | | 30 | |

¹Students must select three courses from the American Pluralism option, for a total of nine credits.

Major in Liberal Arts
American Studies Concentration
American Pluralism Option

In addition to the American studies concentration core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>AP 412</td>
<td>Indians of North America</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AP 413</td>
<td>North American Indians Today (AP/APCC 100)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 314</td>
<td>Women in Art History (AR/ARCC 100 or AR 110)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 318</td>
<td>Native American Art (AR 110; AR/ARCC 100 or AR 111 or AR 113)</td>
<td>3</td>
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</tr>
<tr>
<td>E 330</td>
<td>Images of Women in Literature</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>E 332</td>
<td>Modern Women Writers</td>
<td>3</td>
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</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
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</tr>
<tr>
<td>ETCC 200</td>
<td>Ethnicity in America</td>
<td>3</td>
<td>3F</td>
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<tr>
<td>ET 310</td>
<td>African-American Studies</td>
<td>3</td>
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<tr>
<td>ET 312</td>
<td>African-American Situation</td>
<td>3</td>
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<td>ET 320</td>
<td>Ethnicity and Film Asian-American Experience</td>
<td>3</td>
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<tr>
<td>ET 324</td>
<td>Asian-Pacific Americans and the Law</td>
<td>3</td>
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<td>ET 332</td>
<td>Contemporary Chicana/o/Latina/o Issues</td>
<td>3</td>
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<tr>
<td>ET 340</td>
<td>Native-American Perspectives on Conquest</td>
<td>3</td>
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<tr>
<td>ET 344</td>
<td>Native-American Ceremony and the Sacred</td>
<td>3</td>
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<tr>
<td>ET 410</td>
<td>African-American Periods and Personalities</td>
<td>3</td>
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<tr>
<td>ET 412</td>
<td>Africa and African Diaspora</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ET 420</td>
<td>Asian/Pacific-American Families/Communities</td>
<td>3</td>
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<tr>
<td>ET 424</td>
<td>Asian/Pacific-American Literature and Culture</td>
<td>3</td>
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<tr>
<td>ET 430</td>
<td>Chicana/o/Latina/o/Creative Expression</td>
<td>3</td>
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<tr>
<td>ET 432</td>
<td>Chicana/o/Latina/o/Routes to Empowerment</td>
<td>3</td>
<td></td>
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<tr>
<td>ET 444</td>
<td>Federal Indian Law and Policy</td>
<td>3</td>
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</table>

Students must select three courses from other options in consultation with program director.

| HYCC 250  | African-American History 1619-1865 | 3 | 3D |
| ETCC 250  | African-American History 1619-1865 | 3 | 3D |
| HYCC 251  | African-American History Since 1865 | 3 | 3D |
| ETCC 251  | African-American History Since 1865 | 3 | 3D |

| HY 468  | Women In America | 3 |  |
| PO 413  | U.S. Civil Rights and Liberties (PO/POCC 101) | 3 |  |
| PO 423  | American Political Theories (PO/POCC 101) | 3 |  |
| S CC 100 | General Sociology | 3 | 3C, 3F |
| S CC 105 | Social Problems | 3 | 3C, 3F |
| S CC 205 | Contemporary Race-Ethnic Relations | 3 | 3E |
| S 332  | Comparative Majority-Minority Relations (S/S CC 100 or S/S CC 105) | 3 |  |
| S 333  | Gender Roles in Society (S/S CC 100 or S/S CC 105) | 3 |  |
| S 341  | Sociology of Rural Life (S/S CC 100 or S/S CC 105) | 3 |  |
| S 342  | Leisure and Society (S/S CC 100 or S/S CC 105) | 3 |  |
| S 343  | Sport and Society | 3 |  |
| S 372  | Sociology of Deviance (S/S CC 100 or S/S CC 105) | 3 |  |
| S 375  | Sociology of Religion and Medicine (S/S CC 100 or S/S CC 105) | 3 |  |

Other options¹

TOTAL

30

¹Students must select three courses from other options in consultation with program director.
### American Studies Concentration

**American Regions Option**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
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<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>AP 350</td>
<td>Archaeology of North America (AP/APCC 140)</td>
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<tr>
<td>AP 412</td>
<td>Indians of North America</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AP 413</td>
<td>North American Indians Today (AP/APCC 100)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AP 455</td>
<td>Great Plains Archaeology (AP/APCC 140)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>E 179</td>
<td>Western American Literature</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>E 234</td>
<td>Native American Literature</td>
<td>3</td>
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</tr>
</tbody>
</table>

**Select 21 credits from the following courses (minimum of 3 prefixes):**

- AP 350 Archaeology of North America (AP/APCC 140)
- AP 412 Indians of North America
- AP 413 North American Indians Today (AP/APCC 100)
- AP 455 Great Plains Archaeology (AP/APCC 140)
- E 179 Western American Literature
- E 234 Native American Literature

**OR**

- ET 234 Native American Literature
- E 403 Nature Writing (one course in literature or CO/COSC 301A-D or E 311A-C)
- E 437 Heritage of the West (one course in American history)
- E 438 Contemporary Native American Literature

**OR**

- ET 438 Contemporary Native American Literature
- E 439 Novel in the American West (E 179 or E/E CC 270)
- HY 470 American West to 1900
- HY 471 American West Since 1900
- HY 472 American Southwest
- PO 331 Politics and Society Along Mexican Border
- S 341 Sociology of Rural Life (S/S CC 100 or S/S CC 105)

<table>
<thead>
<tr>
<th>Pluralism</th>
<th>9</th>
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</thead>
<tbody>
<tr>
<td>TOTAL 30</td>
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</tr>
</tbody>
</table>

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1 Students must select three courses from the American Pluralism option, for a total of nine credits.

### ARTS AND HUMANITIES CONCENTRATION

#### Major in Liberal Arts

**Arts and Humanities Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
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<td></td>
<td>Arts and humanities¹</td>
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<td></td>
<td>Biological/physical sciences²</td>
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<td>3A</td>
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<td></td>
<td>First-year seminar¹</td>
<td>2-3</td>
<td>1</td>
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<td></td>
<td>Historical perspectives⁴</td>
<td>6</td>
<td>3D</td>
</tr>
<tr>
<td></td>
<td>Mathematics³</td>
<td>3</td>
<td>2C</td>
</tr>
<tr>
<td></td>
<td>Social/behavioral sciences⁶</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td></td>
<td>U.S. public values and institutions²</td>
<td>3</td>
<td>3F</td>
</tr>
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<td>TOTAL</td>
<td>29-30</td>
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</tr>
<tr>
<td>Course</td>
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<td>Credits</td>
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<tr>
<td>--------</td>
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<td>---------</td>
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</tr>
<tr>
<td>COCC 300</td>
<td>Writing Arguments (CO/COCC 150)⁸</td>
<td>3</td>
<td>2B2</td>
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<tr>
<td>COCC 301</td>
<td>Writing in the Disciplines (CO/COCC 150)</td>
<td>3</td>
<td>2B2</td>
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<tr>
<td>COCC 302</td>
<td>Writing Online (CO/COCC 150)</td>
<td>3</td>
<td>2B2</td>
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<tr>
<td>JTCC 300</td>
<td>Professional and Technical Communication (CO/COCC 150)</td>
<td>3</td>
<td>2B2</td>
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<tr>
<td>L CC</td>
<td>Foreign language</td>
<td>3-5</td>
<td>2B3</td>
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<tr>
<td>SPCC 200</td>
<td>Public Speaking</td>
<td>3</td>
<td>2B1</td>
</tr>
</tbody>
</table>

Select one of the following:

- Additional areas of emphasis⁹
- Biological/physical sciences²
- Global and cultural awareness¹⁰
- Health and wellness¹¹
- Logical/critical thinking¹²
- Minor/certificate courses¹³
- Electives¹⁴

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
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**TOTAL** 30

**JUNIOR**

<table>
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<tr>
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<th>Title</th>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

**TOTAL** 30

**SENIOR**

<table>
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<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
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<td>LB 492A</td>
<td>Seminar-Arts and Humanities</td>
<td>1</td>
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<tr>
<td></td>
<td>Additional areas of emphasis⁹,¹⁵</td>
<td>12</td>
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<tr>
<td></td>
<td>Minor/certificate courses¹³</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Social sciences, upper division</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Electives¹⁴</td>
<td>5-6</td>
</tr>
</tbody>
</table>

**TOTAL** 30-31

**PROGRAM TOTAL = 120 credits**¹⁶

¹ Select one course from each of the following subsets of category 3B in the All-University Core Curriculum (AUCC): Arts: ARCC 100, D CC 110, MUCC 100, MUCC 111, MUCC 231, THCC 141; and Humanities: E CC 140, E CC 232, E CC 242, E CC 270, E CC 275, ETCC 205, ETCC 240, PLCC 100, SPCC 100, SPCC 201.

² Select from the list of courses in category 3A in the AUCC. One course must have a laboratory component.

³ Select from the list of courses in category 1 in the AUCC.

⁴ Select one pair of courses from the following subset of courses in category 3D in the AUCC: AUCC 200/AUCC 201 (AUCC 201 will also count for category 3F), HYCC 100/HYCC 101, HYCC 150/HYCC 151, HYCC 170/HYCC 171, HYCC 250/HYCC 251 or ETCC 250/ETCC 251, HYCC 270/HYCC 271, HYCC 273/HYCC 274. Students may also select a pair of courses designed to achieve programmatic objectives, if approved by the adviser.

⁵ Select from the list of courses in category 2C in the AUCC.

⁶ Select from the list of courses in category 3C in the AUCC with the following prefixes: APCC, ECCC, JTCC, POCC, PYCC, or S CC.

⁷ Select from the following subset of courses in category 3F in the AUCC: AUCC 201 (may also count in category 3D), ECC 204, ECC 212, ECC 240 or EACC 240, ETCC 200, ETCC 204, HYCC 150, HYCC 151, JTCC 100 (may also count in category 3C), NRCC 320, PLCC 103, POCC 101, POCC 103, S CC 100, S CC 105 (POCC 101, POCC 103, S CC 100, and S CC 105 may also count in category 3C).

⁸ COCC 300 is listed in both category 2B and 2D. If selected, the course can fulfill only one category, not both.

⁹ Two additional areas of emphasis are required in the arts and humanities, each of which must have 15 credits and a minimum of 9 upper-division courses.

¹⁰ Select from the following subset of courses in category 3E in the AUCC: APCC 200, E CC 238, E CC 245, ECC 211, ETCC 253, ETCC 256, HYCC 216, HYCC 219, HYCC 230, HYCC 270, HYCC 271, HYCC 273, HYCC 274, L CC 130, L CC 215, L CC 250, L CC 255, LBCC 170, LBCC 171, PFCC 110, PLCC 170, POCC 131, POCC 241, SACC 482, S CC 205, SPCC 105. The HYCC courses, if selected here, cannot also count in category 2D.
Select from the list of courses in category 3G in the AUCC.

Select from the following subset of courses in category 2D in the AUCC: COCC 300 (see note 8), PLCC 110, SPCC 207, STCC 101, STCC 110, STCC 201, STCC 204, STCC 301, STCC 307 or EHCC 307, STCC 309.

Students must complete a minor in the arts and humanities, or one of the following interdisciplinary certificate programs: American Ethnicity; Asian Studies; Criminal Justice; Environmental Affairs; Latin American Studies; Religious Studies; Russian, Eastern and Central European Studies; Women’s Studies; or, with prior approval of adviser and the College of Liberal Arts, any other minor or interdisciplinary studies program consistent with the student’s program of study in the arts and humanities. A minimum total is 21 credits, 12 of which are upper-division.

Courses taken in fulfillment of the AUCC may, where appropriate, be double-counted in fulfilling the requirements of a minor (or a certificate) plus two additional areas of emphasis. Consequently, the actual number of free electives can vary between 17-35.

At least six of the upper-division arts and humanities credits taken as part of the areas of emphasis must be in courses approved for category 4A and 4B, Depth and Integration, in the areas of emphasis.

Students must complete 120 credits, and a minimum total of 42 upper-division credits.

ARTS AND HUMANITIES AND ENGINEERING SCIENCE CONCENTRATION

Major in Liberal Arts

Arts and Humanities and Engineering Science Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
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<td></td>
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</tr>
<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
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<td>3A</td>
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<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
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<tr>
<td>CE 108</td>
<td>Civil Engineering Principles I</td>
<td>3</td>
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<tr>
<td>CECC 192</td>
<td>Civil Engineering Principles II (CE 108)</td>
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<td>EG 192</td>
<td>Seminar</td>
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<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>M 229</td>
<td>Matrices and Linear Equations (M/M CC 141 or M/M CC 155 or M/M CC 160)</td>
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<tr>
<td>PHCC 141</td>
<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
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<td></td>
<td>Arts/humanities¹</td>
<td>6</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>Global and cultural awareness²</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>TOTAL</td>
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<td>32</td>
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</tbody>
</table>

SOPHOMORE

<p>| C 113 | General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160) | 3 | |
| COCC 150 | College Composition (Composition Placement Exam) | 3 | 2A |
| M CC 161 | Calculus for Physical Scientists II (M/M CC 124 and M/M CC 160) | 4 | 2C |
| M 261 | Calculus for Physical Scientists III (M/M CC 161) | 4 | |
| PHCC 142 | Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255) | 5 | 3A |
| SPCC 200 | Public Speaking | 3 | 2B1 |
| | Historical perspectives¹ | | |
| | Social/behavioral sciences² | 3 | 3C |
| | U.S. public values and institutions³ | (3) | 3F |
| TOTAL | | 31 | |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td><strong>JUNIOR</strong></td>
<td></td>
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<tr>
<td>CE 260</td>
<td>Engineering Mechanics-Statics (M/M CC 160, PH/PHCC 141)</td>
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<tr>
<td>CE 261</td>
<td>Engineering Mechanics-Dynamics (CE 260; CB 103/CBCC 192 or CE 108 or ME 101/MECC 192)</td>
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<td>M 340</td>
<td>Introduction to Ordinary Differential Equations (M/M CC 255 or M 261)</td>
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<td>ME 237</td>
<td>Introduction to Thermal Sciences (PH/PHCC 142)</td>
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<td>Statistics for Engineers and Scientists (M/M CC 161 or M/M CC 255)</td>
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<td>Additional areas of emphasis⁶</td>
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<td>Minor or certificate⁷</td>
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<td>CE 300</td>
<td>Fluid Mechanics (CE 261 or CE 262, ME 237)</td>
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<td>Introduction to Electrical Engineering (M/M CC 161, PH/PHCC 142)</td>
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<td>LB 492A</td>
<td>Seminar-Arts and Humanities</td>
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<td>4C</td>
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<td>Additional areas of emphasis⁶</td>
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<td>Minor or certificate⁷</td>
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<td><strong>FIFTH YEAR</strong></td>
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<td>CB 470</td>
<td>Engineering Design I (CB 201 or CB 204/EV 204)</td>
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<tr>
<td>CB 471</td>
<td>Engineering Design II (CB 470)</td>
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<td></td>
<td>Health and wellness⁸</td>
<td>2</td>
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<tr>
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<td>Technical electives in engineering⁹</td>
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<td><strong>PROGRAM TOTAL</strong></td>
<td></td>
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</tbody>
</table>

¹ Select one course from each of the following subsets of category 3B in the All-University Core Curriculum (AUCC): Arts: ARCC 100, D CC 110, MUCC 100, MUCC 111, MUCC 231, THCC 141; and Humanities: E CC 140, E CC 232, E CC 242, E CC 270, E CC 275, ETCC 205, ETCC 240, PLCC 100, SPCC 100, SPCC 201.
² Select from the following subset of courses in category 3E in the AUCC: APCC 200, E CC 238, E CC 245, ECCC 211, ETCC 253, ETCC 256, HYCC 216, HYCC 219, HYCC 230, HYCC 270, HYCC 271, HYCC 273, HYCC 274, L CC 130, L CC 215, L CC 250, L CC 255, LBCC 170, LBCC 171, PFCC 110, PLCC 170, POCC 131, POCC 241, SACC 482, S CC 205, SPCC 105. The HYCC courses, if selected here, cannot also count in category 2D.
³ Select one pair of courses from the following subset of courses in category 3D in the AUCC: AUCC 200/AUCC 201 (AUCC 201 will also count for category 3F), HYCC 100/HYCC 101, HYCC 150/HYCC 151, HYCC 170/HYCC 171, HYCC 250/HYCC 251 or ETCC 250/ETCC 251, HYCC 270/HYCC 271, HYCC 273/HYCC 274. Students may also select a pair of courses designed to achieve programmatic objectives, if approved by the adviser.
⁴ Select from the list of courses in category 3C in the All-University Core Curriculum (AUCC) with the following prefixes: APCC, ECCC, JTCC, POCC, PYCC, or S CC.
⁵ Select a course in category 3F that also fulfills another category in the AUCC. The courses that fulfill this category and also count for 3D are: AUCC 201, HYCC 150 and HYCC 151. The courses that fulfill this category and also count for 3C are: JTCC 100, POCC 101, POCC 103, S CC 100 and S CC 105. Selection of any other course in the category will lengthen the program.
⁶ Two additional areas of emphasis within the arts and humanities must include a minimum of 18 credits, of which 12 must be upper-division. Because courses taken in fulfillment of the AUCC may, where appropriate, be double counted in fulfilling this requirement, the actual number of new credits generated by this requirement can vary.
⁷ Students must complete a minor in the arts and humanities or one of the following interdisciplinary certificate programs: American Ethnicity; Asian Studies; Criminal Justice; Environmental Affairs; Latin American Studies; Religious Studies; Russian, Eastern and Central European Studies; Women’s Studies; or, with the approval of the student’s adviser and the College of Liberal Arts, any other minor or interdisciplinary studies program consistent with the student’s program in the Arts and Humanities. The minor or certificate must include
a minimum of 21 credits, of which 12 must be upper-division. Because courses taken in fulfillment of the AUCC may, where appropriate, be double counted in fulfilling this requirement, the actual number of new credits generated by this requirement of a minor or interdisciplinary certificate program can vary.

1 Select from the list of courses in category 3G in the AUCC.

2 Select courses from departmental list.

---

**INTERNATIONAL STUDIES CONCENTRATION**

Major in Liberal Arts

**International Studies Concentration (Core)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>FRESHMAN</strong></td>
<td></td>
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<tr>
<td></td>
<td>Select one of the following courses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APCC</td>
<td>200 Cultures and the Global System</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>E CC</td>
<td>238 20th Century Fiction</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>E CC</td>
<td>245 World Drama</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>ECC</td>
<td>211 Gender in the Economy</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>ETCC</td>
<td>253 Chicana/o History and Culture</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>ETCC</td>
<td>256 Americans in a Changing World</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>L CC</td>
<td>130 Modern Languages/Cultures: Italian/Japanese</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>L CC</td>
<td>215 Translation Between Cultures and Languages</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>L CC</td>
<td>250 Language, Literature, Culture in Translation</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>L CC</td>
<td>255 Crossing Cultures</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>LBCC</td>
<td>170 World Literatures to 1500</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>LBCC</td>
<td>171 World Literatures -The Modern Period</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>PFCC</td>
<td>110 Performing Arts Around the World</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>PLCC</td>
<td>170 World Philosophies</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>POCC</td>
<td>131 Current World Problems</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>POCC</td>
<td>241 Comparative Government and Politics</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>S CC</td>
<td>205 Contemporary Race-Ethnic Relations</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>SACC</td>
<td>482V Study Abroad(^1)</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td>Select one of the following courses:</td>
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<td></td>
</tr>
<tr>
<td>ARCC</td>
<td>100 Introduction to the Visual Arts</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>D CC</td>
<td>110 Understanding Dance</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>E CC</td>
<td>140 The Study of Literature</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>E CC</td>
<td>232 Introduction to Humanities</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>E CC</td>
<td>242 Reading Shakespeare</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>E CC</td>
<td>270 Introduction to American Literature</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>E CC</td>
<td>275 Introduction to British Literature</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>ETCC</td>
<td>205 Ethnicity and the Media</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>ETCC</td>
<td>240 Native American Cultural Expressions</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>MUCC</td>
<td>100 Music Appreciation</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>MUCC</td>
<td>111 Music Theory Fundamentals</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>MUCC</td>
<td>231 Women in Music</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>PLCC</td>
<td>100 Appreciation of Philosophy</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>S SCC</td>
<td>100 Communication and Popular Culture</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>S SCC</td>
<td>201 Rhetoric in Western Thought</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>THCC</td>
<td>141 Introduction to Theatre</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>Select one of the following courses:</td>
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<td></td>
</tr>
<tr>
<td>AUCC</td>
<td>200 Self/Community in American Culture, 1600-1877</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>AUCC</td>
<td>201 Self/Community in American Culture Since 1877</td>
<td>3</td>
<td>3D, 3F</td>
</tr>
<tr>
<td>HYCC</td>
<td>100 Western Civilization, Pre-Modern</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>HYCC</td>
<td>101 Western Civilization, Modern</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>HYCC</td>
<td>150 U.S. History to 1876</td>
<td>3</td>
<td>3D, 3F</td>
</tr>
<tr>
<td>HYCC</td>
<td>151 U.S. History Since 1876</td>
<td>3</td>
<td>3D, 3F</td>
</tr>
<tr>
<td>HYCC</td>
<td>170 World Civilizations, Ancient-1500</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>HYCC</td>
<td>171 World Civilizations, 1500-Present</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>POCC</td>
<td>131 Current World Problems</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>POCC</td>
<td>232 International Relations</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------------------------------------</td>
<td>---------</td>
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</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td></td>
<td>First-year seminar(^2)</td>
<td>2-3</td>
<td>1</td>
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<tr>
<td></td>
<td>Health and wellness(^3)</td>
<td>2</td>
<td>3G</td>
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<tr>
<td></td>
<td>Mathematics(^4)</td>
<td>3</td>
<td>2C</td>
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<tr>
<td></td>
<td>TOTAL</td>
<td>19-20</td>
<td></td>
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</tbody>
</table>

**SOPHOMORE**

Select one of the following courses:

- COCC 300 Writing Arguments (CO/COCC 150) 3 2D
- PLCC 110 Logic and Critical Thinking 3 2D
- SPCC 207 Rhetoric and Argumentation 3 2D
- STCC 101 Activity Based Statistics (math placement exam) 3 2D
- STCC 110 Statistical Thinking-Concepts and Applications (math placement exam) 3 2D
- STCC 201 General Statistics (M/M CC 120A-B) 3 2D
- STCC 204 Statistics for Business Students (M/M CC 120A-B) 3 2D
- STCC 301 Introduction to Statistical Methods (M/M CC 121) 3 2D
- STCC 307 Introduction to Biostatistics (M/M CC 121) 3 2D

OR

- EHCC 307 Introduction to Biostatistics (M/M CC 121) 3 2D
- STCC 309 Statistics for Engineers and Scientists (M/M CC 161 or M/M CC 255) 3 2D

Select one of the following courses:

- ECCC 204 Principles of Macroeconomics (EC/ECCC 202 or EA/EACC 202) 3 3F
- ECCC 212 Racial Inequality and Discrimination 3 3F
- ECCC 240 Issues in Environmental Economics 3 3F

OR

- EACC 240 Issues in Environmental Economics 3 3F
- ETCC 200 Ethnicity in America 3 3F
- ETCC 204 Ethnicity in Colorado 3 3F
- HYCC 150 U.S. History to 1876 3 3F, 3D
- HYCC 151 U.S. History Since 1876 3 3F, 3D
- NRCC 320 Natural Resources History and Policy 3 3F
- PLCC 103 Moral and Social Problems 3 3F
- POCC 101 American Government and Politics 3 3F
- POCC 103 State and Local Government and Politics 3 3F
- S CC 100 General Sociology 3 3F, 3C
- S CC 105 Social Problems 3 3F, 3C

- L CC 200 Second-Year Language I (L/L CC 107 or L 108 or placement exam) 3-5 2B3
- Biological/physical sciences\(^5\) 7 3A
- Social/behavioral sciences\(^6\) 3 3C

TOTAL 19-21

**JUNIOR**

- IN 300 Approaches to International Studies (nine credits from AUCC categories 3C, 3D, 3E, and/or 3F; one year of a foreign language) 3 4A, 4B

TOTAL 3

**SENIOR**

- IN 492A-C Seminar\(^7\) (A) HY/HYCC 273, HY/HYCC 274, IN 300. B) HY/HYCC 270, HY/HYCC 271, IN 300. C) two courses in European history, IN 300) 3 4C

TOTAL 3

CORE TOTAL = 45-46 credits\(^8\)

---

1 Study Abroad; recommended in junior year.
2 Select from the list of courses in category 1 in the All-University Core Curriculum (AUCC).
3 Select from the list of courses in category 3G in the AUCC.
4 Select from the list of courses in category 2C in the AUCC.
5 Select from the list of courses in category 3A in the AUCC. One course must have a laboratory component.
6 Select from the list of courses in category 3C in the AUCC with one of the following prefixes: APCC, ECC, JTCC, POCC, PYCC, or SC.
7 Select subtopic according to option.
8 Select one of the following options–Asian studies, European studies, or Latin American studies–to complete the concentration.

Major in Liberal Arts
International Studies Concentration
Asian Studies Option

In addition to the international studies concentration core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L CC</td>
<td>First-Year Language I (no previous experience in language)</td>
<td>5</td>
<td>2B3</td>
</tr>
<tr>
<td>[C, J]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L CC</td>
<td>First-Year Language II (L/L CC 105 or L 106)</td>
<td>5</td>
<td>2B3</td>
</tr>
<tr>
<td>[C, J]</td>
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<tr>
<td>SOPHOMORE</td>
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<td></td>
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<tr>
<td>HYCC</td>
<td>Asian Civilizations I</td>
<td>3</td>
<td>3D or 3E</td>
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<tr>
<td>273</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HYCC</td>
<td>Asian Civilizations II</td>
<td>3</td>
<td>3D or 3E</td>
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<tr>
<td>274</td>
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<tr>
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<td>Second-Year Language II (L/L CC 200 or placement exam)</td>
<td>5</td>
<td>2B3</td>
</tr>
<tr>
<td>[C, J]</td>
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<tr>
<td>JUNIOR</td>
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<tr>
<td>Track courses</td>
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<td>18</td>
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<td>Electives</td>
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<td>9</td>
</tr>
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</tr>
<tr>
<td>Track courses</td>
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<td>3</td>
</tr>
<tr>
<td>Electives</td>
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<td>23-24</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>26-27</td>
</tr>
</tbody>
</table>

PROGRAM TOTAL =120 credits

1 Chinese or Japanese
3 Minimum number of credits to complete the program. To fulfill the 42 upper-division credit minimum, at least 15 elective credits must be upper-division.

Major in Liberal Arts
International Studies Concentration
European Studies Option

In addition to the international studies concentration core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
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<tbody>
<tr>
<td>FRESHMAN</td>
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<td></td>
</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
</tr>
<tr>
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<td>--------------------------------------------------------------------</td>
<td>---------</td>
<td>---------------</td>
</tr>
<tr>
<td>L CC 105</td>
<td>First-Year Language I (no previous experience in language)</td>
<td>5</td>
<td>2B3</td>
</tr>
<tr>
<td>L CC 107</td>
<td>First-Year Language II (L/L CC 105 or L 106)</td>
<td>5</td>
<td>2B3</td>
</tr>
<tr>
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<td><strong>TOTAL</strong></td>
<td><strong>10</strong></td>
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<tr>
<td><strong>SOPHOMORE</strong></td>
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<td></td>
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</tr>
<tr>
<td>L CC 201</td>
<td>Second-Year Language II (L/L CC 200 or placement exam)</td>
<td>3-4</td>
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<td>Electives²</td>
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<td><strong>9-10</strong></td>
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<td><strong>JUNIOR</strong></td>
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<tr>
<td>HYCC 216</td>
<td>The Islamic World</td>
<td>3</td>
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<td>HYCC 230</td>
<td>Medieval Europe</td>
<td>3</td>
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<tr>
<td>HY 235</td>
<td>Slavic and East Central European Civilizations</td>
<td>3</td>
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<td>HY 240</td>
<td>History of England</td>
<td>3</td>
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</tr>
<tr>
<td>HY 242</td>
<td>History of Ireland</td>
<td>3</td>
<td></td>
</tr>
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<td>HY 245</td>
<td>World War II</td>
<td>3</td>
<td></td>
</tr>
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<td>HY 312</td>
<td>The Age of Enlightenment</td>
<td>3</td>
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</tr>
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<td>HY 316</td>
<td>Modern Europe, 1815-1914</td>
<td>3</td>
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<td>HY 319</td>
<td>Contemporary Europe</td>
<td>3</td>
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<tr>
<td>HY 459</td>
<td>European Diplomatic History Since 1914</td>
<td>3</td>
<td></td>
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<td>HY 463</td>
<td>European Culture-20th Century</td>
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<td><strong>Track courses³</strong></td>
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<td></td>
<td>Electives²</td>
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<td><strong>TOTAL</strong></td>
<td><strong>27</strong></td>
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</tr>
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<td><strong>SENIOR</strong></td>
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</tr>
<tr>
<td></td>
<td><strong>Track courses³</strong></td>
<td><strong>3</strong></td>
<td></td>
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<tr>
<td></td>
<td>Electives²</td>
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</tr>
<tr>
<td></td>
<td><strong>PROGRAM TOTAL = 120 credits</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 French, German, Italian, Russian, or Spanish.
2 Minimum number of credits to complete the program. To fulfill the 42 upper-division credit minimum, at least 15 elective credits must be upper-division.
Major in Liberal Arts
International Studies Concentration
Latin American Studies Option

In addition to the international studies concentration core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L CC  105S</td>
<td>First-Year Language I-Spanish (no previous study in language)</td>
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<tr>
<td>L CC  107S</td>
<td>First-Year Language II-Spanish (L/L CC 105S or L 106S)</td>
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<tr>
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<td>TOTAL</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SOPHOMORE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HYCC  270</td>
<td>Colonial Latin America</td>
<td>3</td>
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</tr>
<tr>
<td>HYCC  271</td>
<td>Latin America Since Independence</td>
<td>3</td>
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<tr>
<td>L CC  201S</td>
<td>Second-Year Language II-Spanish (L/L CC 200S or placement exam)</td>
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<tr>
<td>Electives</td>
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<tr>
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<td>TOTAL</td>
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<td>Track courses(^1)</td>
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<td>TOTAL</td>
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<tr>
<td>SENIOR</td>
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<td></td>
<td>Track courses(^1)</td>
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<tr>
<td></td>
<td>Electives(^2)</td>
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<td>TOTAL</td>
<td>25-26</td>
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<tr>
<td>PROGRAM TOTAL = 120 credits(^2)</td>
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</table>

\(^1\) Three different prefixes, 6 credits minimum from each track, for a total of 21 credits. Track I–Social Sciences: AP 319, AP 331, AP 332, EA 460, EA 462, PO 331, PO 446, PO 447, S 366; Track II–Civilization, History, and Literature of Latin America: AR 312, HY 350, HY 352, L 310S, L 335S, L 336, L 436S, L 449, L 452S.

\(^2\) Minimum number of credits to complete the program. To fulfill the 42 upper-division credit minimum, at least 15 elective credits must be upper-division.

SOCIAL SCIENCES CONCENTRATION

Major in Liberal Arts
Social Sciences Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
<td></td>
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<tr>
<td>COCC  150</td>
<td>College Composition (Composition Placement Exam)</td>
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<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
</tr>
<tr>
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<td>---------------</td>
</tr>
<tr>
<td>E CC 140</td>
<td>The Study of Literature</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>E CC 232</td>
<td>Introduction to Humanities</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>E CC 242</td>
<td>Reading Shakespeare</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>E CC 270</td>
<td>Introduction to American Literature</td>
<td>3</td>
<td>3B or 3D</td>
</tr>
<tr>
<td>E CC 275</td>
<td>Introduction to British Literature</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>ETCC 205</td>
<td>Ethnicity and The Media</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>ETCC 240</td>
<td>Native American Cultural Expressions</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>PLCC 100</td>
<td>Appreciation of Philosophy</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>SPCC 100</td>
<td>Communication and Popular Culture</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>SPCC 201</td>
<td>Rhetoric in Western Thought</td>
<td>3</td>
<td>3B</td>
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</table>

Select one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological/physical sciences</td>
<td>4</td>
<td>3A</td>
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<tr>
<td>First-year seminar</td>
<td>2-3</td>
<td>1</td>
<td></td>
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<tr>
<td>Health and wellness</td>
<td>2</td>
<td>3G</td>
<td></td>
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<tr>
<td>Historical perspectives</td>
<td>6</td>
<td>3D</td>
<td></td>
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<tr>
<td>Mathematics</td>
<td>3</td>
<td>2C</td>
<td></td>
</tr>
<tr>
<td>Social/behavioral sciences</td>
<td>3</td>
<td>3C</td>
<td></td>
</tr>
<tr>
<td>U.S. public values and institutions</td>
<td>3</td>
<td>3F</td>
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TOTAL 29-30

**SOPHOMORE**

Select one of the following courses:

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCC 100</td>
<td>Introduction to the Visual Arts</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>D CC 110</td>
<td>Understanding Dance</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>MUCC 100</td>
<td>Music Appreciation</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>MUCC 111</td>
<td>Music Theory Fundamentals</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>MUCC 231</td>
<td>Women in Music</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>THCC 141</td>
<td>Introduction to Theatre</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>Additional areas of emphasis</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional communication</td>
<td>3</td>
<td>2B</td>
<td></td>
</tr>
<tr>
<td>Biological/physical sciences</td>
<td>3</td>
<td>3A</td>
<td></td>
</tr>
<tr>
<td>Global and cultural awareness</td>
<td>3</td>
<td>3E</td>
<td></td>
</tr>
<tr>
<td>Logical/critical thinking</td>
<td>3</td>
<td>2D</td>
<td></td>
</tr>
<tr>
<td>Minor/certificate courses</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives</td>
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TOTAL 30

**JUNIOR**

<table>
<thead>
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<th>Course</th>
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<tr>
<td>Minor/certificate courses</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
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</tbody>
</table>

TOTAL 30

**SENIOR**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>LB 492B</td>
<td>Seminar-Social Sciences</td>
<td>1</td>
<td>4C</td>
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<tr>
<td>Additional areas of emphasis</td>
<td>12</td>
<td>4A, 4B</td>
<td></td>
</tr>
<tr>
<td>Arts/humanities, upper-division</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor/certificate courses</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>5-6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### PROGRAM TOTAL = 120 credits\(^1\)

1. Select from the list of courses in category 3A in the All-University Core Curriculum (AUCC). One course must have a laboratory component.
2. Select from the list of courses in category 1 in the AUCC.
3. Select from the list of courses in category 3G in the AUCC.
4. Select one pair of courses from the following subset of courses in category 3D in the AUCC: AUCC 200/AUCC 201 (AUCC 201 will also count for category 3F), HYCC 100/HYCC 101, HYCC 150/HYCC 151, HYCC 250/HYCC 251 or ETCC 250/ETCC 251, HYCC 270/HYCC 271, HYCC 273/HYCC 274. Students may also select a pair of courses designed to achieve programmatic objectives, if approved by the adviser.
5. Select from the list of courses in category 2C in the AUCC.
6. Select from the list of courses in category 3C with the following prefixes: APCC, ECCC, JTCC, POCC, PYCC, or S CC.
7. Select from the following subset of courses in category 3F in the AUCC: AUCC 201 (may also count in category 3D), ECCC 204, ECC 212, ECC 240 or EACC 240, ETCC 200, ETCC 204, HYCC 150, HYCC 151, JTCC 100 (may also count in category 3C), NRCC 320, PLCC 103, POCC 101, POCC 103, S CC 100, S CC 105 (POCC 101, POCC 103, S CC 100, and S CC 105 may also count in category 3C).
8. Two additional areas of emphasis are required in the social sciences, each of which must have 15 credits and a minimum of 9 upper-division credits.
9. Select from the following subset of courses in category 2B in the AUCC: COCC 300 (if selected here, cannot also be counted in category 2D), COCC 301A-D, COCC 302, SPCC 200, or approved language courses (L CC).
10. Select from the following subset of courses in category 3E in the AUCC: APCC 200, ECC 238, ECC 245, ECC 211, ETCC 253, ETCC 256, HYCC 216, HYCC 219, HYCC 230, HYCC 270, HYCC 271, HYCC 273, HYCC 274, L CC 130, L CC 215, L CC 250, L CC 255, LBCC 170, LBCC 171, PFCC 110, PLCC 170, POCC 241, SACC 482, S CC 205, SPCC 192. The HYCC courses, if selected here, cannot also be counted in category 3D.
11. Select from the following subset of courses in category 2D in the AUCC: COCC 300 (if selected here, cannot also be counted in category 2B), PLCC 110, SPCC 207, STCC 101, STCC 110, STCC 201, STCC 204, STCC 301, STCC 307 or EHCC 307, STCC 309.
12. Students must complete a minor in the social sciences, or one of the following interdisciplinary certificate programs: American Ethnicity; Asian Studies; Criminal Justice; Environmental Affairs; Latin American Studies; Religious Studies; Russian, Eastern and Central European Studies; Women’s Studies; or, with prior approval of advisor and College of Liberal Arts, any other minor or interdisciplinary studies program consistent with the student’s program of study in the social sciences. A minimum total is 21 credits of which 12 are upper-division.
13. Courses taken in fulfillment of the AUCC may, where appropriate, be double-counted in fulfilling the requirements of a minor (or a certificate) plus two additional areas of emphasis. Consequently, the actual number of free electives can vary between 17-35.
14. At least six of the upper-division social science credits taken as part of the areas of emphasis must be in courses approved for category 4A and 4B, Depth and Integration, in the areas of emphasis.
15. Students must complete 120 credits, and a minimum total of 42 upper-division credits.

### SOCIAL SCIENCES AND ENGINEERING SCIENCE CONCENTRATION

#### Major in Liberal Arts

**Social Sciences and Engineering Science Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>CE 108</td>
<td>Civil Engineering Principles I</td>
<td>3</td>
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<tr>
<td>CECC 192</td>
<td>Civil Engineering Principles II (CE 108)</td>
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<td>1</td>
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<tr>
<td>EG 192</td>
<td>Seminar</td>
<td>1</td>
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<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>M 229</td>
<td>Matrices and Linear Equations (M/M CC 141 or M/M CC 155 or M/M CC 160)</td>
<td>2</td>
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<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<tr>
<td>PHCC 141</td>
<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
<td>5</td>
<td>3A</td>
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<td></td>
<td>Health and wellness[^1]</td>
<td>2</td>
<td>3G</td>
</tr>
<tr>
<td></td>
<td>Historical perspectives[^2]</td>
<td>6</td>
<td>2D</td>
</tr>
<tr>
<td></td>
<td>Social/behavioral sciences[^3]</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>34</strong></td>
<td></td>
</tr>
</tbody>
</table>

**SOPHOMORE**

*Select one course from Arts and one from Humanities:*

**Arts**

- ARCC 100 Introduction to the Visual Arts
- D CC 110 Understanding Dance
- MUCC 100 Music Appreciation
- MUCC 111 Music Theory Fundamentals
- MUCC 231 Women in Music
- THCC 141 Introduction to Theatre

**Humanities**

- E CC 140 The Study of Literature
- E CC 232 Introduction to Humanities
- E CC 242 Reading Shakespeare
- E CC 270 Introduction to American Literature
- E CC 275 Introduction to British Literature
- ETCC 205 Ethnicity and the Media
- ETCC 240 Native American Cultural Expressions
- PLCC 100 Appreciation of Philosophy
- SPCC 100 Communication and Popular Culture
- SPCC 201 Rhetoric in Western Thought

C 113 General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 151 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160) 3 3B

- COCC 150 College Composition (Composition Placement Exam) 3 2A
- M CC 161 Calculus for Physical Scientists II (M/M CC 124 and M/M CC 160) 4 2C
- M 261 Calculus for Physical Scientists III (M/M CC 161) 4
- PHCC 142 Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255) 5 3A
- SPCC 200 Public Speaking 3 2B1
- **Global and cultural awareness[^4]** 3 3E
- **U.S. public values and institutions[^5]** 3 3F
- **TOTAL** 34

**JUNIOR**

- CE 260 Engineering Mechanics-Statics (M/M CC 160, PH/PHCC 141) 3
- CE 261 Engineering Mechanics-Dynamics (CE 260; CB 103/CBCC 192 or CE 108 or ME 101/MEECC 192) 3
- M 340 Introduction to Ordinary Differential Equations (M/M CC 255 or M 261) 4 4A, 4B
- ME 237 Introduction to Thermal Sciences (PH/PHCC 142) 3
- STCC 309 Statistics for Engineers and Scientists (M/M CC 161 or M/M CC 255) 3 2D
- **Additional areas of emphasis[^6]** 6
- **Arts and humanities, upper-division** 3
- **Minor or certificate[^7]** 9
- **TOTAL** 34
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>SENIOR</td>
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<tr>
<td>CE</td>
<td>Fluid Mechanics (CE 261 or CE 262, ME 237)</td>
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<tr>
<td>EE</td>
<td>Introduction to Electrical Engineering (M/M CC 161, PH/PHCC 142)</td>
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<tr>
<td>LB</td>
<td>Seminar-Social Sciences</td>
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<td>4C</td>
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<td></td>
<td>Additional areas of emphasis</td>
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<td></td>
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<tr>
<td></td>
<td>Arts and humanities, upper-division</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minor or certificate</td>
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<td>FIFTH YEAR</td>
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<tr>
<td>CB</td>
<td>Engineering Design I (CB 201 or CB 204/EV 204)</td>
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<tr>
<td>CB</td>
<td>Engineering Design II (CB 470)</td>
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<td>4C</td>
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<td></td>
<td>Technical electives in engineering</td>
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<tr>
<td></td>
<td><strong>TOTAL</strong></td>
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</table>

**PROGRAM TOTAL = 156 credits**

1 Select from the list of courses in category 3F of the All-University Core Curriculum (AUCC).
2 Select one pair of courses from the following subset of courses in category 3D in the AUCC: AUCC 200/AUCC 201 (AUCC 201 will also count for category 3F), HYCC 100/HYCC 101, HYCC 150/HYCC 151, HYCC 170/HYCC 171, HYCC 250/HYCC 251 or ETCC 250/ETCC 251, HYCC 270/HYCC 271, HYCC 273/HYCC 274. Students may also select a pair of courses designed to achieve programmatic objectives, if approved by the adviser.
3 Select from the list of courses in category 3C in the AUCC with the following prefixes: APCC, ECCC, JTCC, POCC, PYCC, or S CC.
4 Select from the following subset of courses in category 3E in the AUCC: APCC 200, E CC 238, E CC 245, ECCC 211, ETCC 253, ETCC 256, HYCC 216, HYCC 219, HYCC 230, HYCC 270, HYCC 271, HYCC 273, HYCC 274, L CC 130, L CC 215, L CC 250, L CC 255, LBCC 170, LBCC 171, P FCC 110, PLCC 170, POCC 131, POCC 241, S ACC 482, S CC 205, SPCC 192. The HYCC courses, if selected here, cannot also be counted in category 3D.
5 Select from the following subset of courses in category 3F in the AUCC: AUCC 201 (may also count in category 3D), ECCC 204, ECCC 212, ECCC 240 or EACC 240, ETCC 200, ETCC 204, HYCC 150, HYCC 151, JTCC 100 (may also count in category 3C), NRCC 320, PLCC 103, POCC 101, POCC 103, S CC 100, S CC 105 (POCC 101, POCC 103, S CC 100, and S CC 105 may also count in category 3C).
6 Two additional areas of emphasis within the social sciences must include a minimum of 18 credits, of which 12 must be upper-division. Because courses taken in fulfillment of the AUCC may, where appropriate, be double counted in fulfilling this requirement, the actual number of new credits generated by this requirement can vary.
7 Students must complete a minor in the social sciences, or one of the following interdisciplinary certificate programs: American Ethnicity; Asian Studies; Criminal Justice; Environmental Affairs; Latin American Studies; Religious Studies; Russian, Eastern and Central European Studies; Women’s Studies; or, with the approval of the student’s adviser and the College of Liberal Arts, any other minor or interdisciplinary studies program consistent with the student’s program in the social sciences. The minor or certificate must include a minimum of 21 credits, of which 12 must be upper-division. Because courses taken in fulfillment of the AUCC may, where appropriate, be double counted in fulfilling this requirement, the actual number of new credits generated by this requirement of a minor or interdisciplinary certificate program can vary.
8 Select from departmental list.

**SOCIAL SCIENCES CONCENTRATION WITH SOCIAL STUDIES LICENSURE**

Major in Liberal Arts
Social Sciences Concentration with Social Studies Licensure*

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
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<tr>
<td>FRESHMAN</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>COCC</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>2A</td>
</tr>
<tr>
<td></td>
<td><strong>Select one of the following courses:</strong></td>
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<td></td>
</tr>
<tr>
<td>ECC</td>
<td>The Study of Literature</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>ECC</td>
<td>Introduction to Humanities</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>---------</td>
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</tr>
<tr>
<td>ECC 242</td>
<td>Reading Shakespeare</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>ECC 270</td>
<td>Introduction to American Literature</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>ECC 275</td>
<td>Introduction to British Literature</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>ETCC 205</td>
<td>Ethnicity and the Media</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>ETCC 240</td>
<td>Native American Cultural Expressions</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>PLC 100</td>
<td>Appreciation of Philosophy</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>SPCC 100</td>
<td>Communication and Popular Culture</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>SPCC 201</td>
<td>Rhetoric in Western Thought</td>
<td>3</td>
<td>3B</td>
</tr>
</tbody>
</table>

Select one of the following pairs of courses:

- HYCC 100 Western Civilization, Pre-Modern 3 3D
- HYCC 101 Western Civilization, Modern 3 3D

OR

- HYCC 170 World Civilizations, Ancient-1500 3 3D
- HYCC 171 World Civilizations, 1500-Present 3 3D

| GR 100  | Introduction to Geography                                                          | 3       |
| PLCC 110| Logic and Critical Thinking                                                        | 3       | 2D            |
| POCC 101| American Government and Politics                                                   | 3       | 3C, 3F        |
|         | Biological/physical sciences\(^1\)                                                 | 4       | 3A            |
|         | First-year seminar\(^2\)                                                           | 3       | 1             |
|         | Mathematics\(^3\)                                                                  | 3       | 2C            |

TOTAL 31

**SOPHOMORE**

Select one of the following courses:

- ARCC 100 Introduction to the Visual Arts 3 3B
- DCC 110 Understanding Dance 3 3B
- MUCC 100 Music Appreciation 3 3B
- MUCC 211 Music Theory Fundamentals 3 3B
- MUCC 231 Women in Music 3 3B
- THCC 141 Introduction to Theatre 3 3B

| ECC 202| Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)                       | 3       |
| ECC 204| Principles of Macroeconomics (EC/ECCC 202 or EA/EACC 202)                      | 3       |
| GR 320 | Cultural Geography (GR 100)                                                     | 3       |
| HYCC 150| U.S. History to 1876                                                            | 3       |
| HYCC 151| U.S. History Since 1876                                                         | 3       |
| POCC 241| Comparative Government and Politics                                              | 3       | 3E            |
| SPCC 200| Public Speaking                                                                  | 3       | 2B            |
|         | Biological/physical sciences\(^1\)                                                | 3       | 3A            |
|         | Health and wellness\(^5\)                                                        | 2       | 3G            |

TOTAL 29

**JUNIOR**

| APCC 100| Introduction to Cultural Anthropology                                             | 3       |
| EDCC 275| Schooling in the United States (consent of Teacher Licensure Office)            | 3       | 3F            |
| ED 331 | Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office) | 1 |

<p>| ED 340| Literacy and the Learner (completion of 30 credits of course work; consent of Teacher Licensure Office) | 3 |</p>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
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<tr>
<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
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<tr>
<td>ED 386</td>
<td>Practicum (ED 320 or concurrent reg.)</td>
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<tr>
<td></td>
<td>Arts and humanities upper-division</td>
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<tr>
<td></td>
<td>Non-U.S. history, upper-division</td>
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<tr>
<td></td>
<td>Upper-division U.S. history pre-1865</td>
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<td>Upper-division U.S. history post-1865</td>
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**SENIOR**

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<tr>
<td>ED 450</td>
<td>Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
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<tr>
<td>ED 365</td>
<td>Methods and Materials in Social Studies (ED 320, admission to Teacher Licensure Program)</td>
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<td>ED 485B</td>
<td>Student Teaching-Secondary (ED 450, ED 365)</td>
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<td>ED 486J</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
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<td>ED 493A</td>
<td>Seminar-Professional Relations (concurrent reg. in ED 485A or B or VE 485)</td>
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<td>ED 493B</td>
<td>Seminar-Assessment of Learning (concurrent reg. in ED 485A or B or VE 485)</td>
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<td>LB 492B</td>
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<td>Upper-division political science/economics</td>
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**PROGRAM TOTAL = 120 credits**

1 Select from the list of courses in category 3A in the All-University Core Curriculum (AUCC). One of the courses must have a laboratory component.
2 Any approved first-year seminar (category 1 in the AUCC) in the social sciences.
3 Select from the list of courses in category 2C in the AUCC.
4 Select from the list of courses in category 3G in the AUCC.
5 Students must complete six upper-division credits in the arts and humanities.
6 Students must complete six upper-division credits in non-U.S. history.
7 Any upper-division U.S. history pre-1876.
8 Any upper-division U.S. history post-1876.
9 Any upper-division course in political science of economics.

*The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.*
DEPARTMENT OF ANTHROPOLOGY

Office in Clark Building, Room C 207
Professor Jeffrey L. Eighmy, Chair

Major in Anthropology

Do you wonder what forces led to the rise of agricultural or industrial societies? Would you like to understand how human biology, behavior and the natural environment have interacted to produce past or present cultures? Have you ever wondered why all human groups practice religion, have creation myths and practice marriage customs? Has the question of how human beings came to be human ever interested you? If you are curious about any of these issues, then a major in anthropology may be right for you.

Anthropology bridges the natural and social sciences and humanities. It includes such diverse fields as contemporary culture, ethnicity, linguistics, comparative religion, farming practices, archaeology, human ecology, human anatomy, evolution, and the behavior of non-human primates. Anthropology is a holistic field, and therefore, views the human condition as a result of the interaction of economics, social organization, history, technology, biology, ideology, and the environment. Majors can specialize in cultural anthropology, archaeology, and biological anthropology.

Anthropology majors follow a liberal arts curriculum that provides a broad education with an emphasis on learning how to learn. Field classes involving the excavation of archaeological sites are offered during the summer. The senior capstone seminar explores ways in which anthropological issues arise in our daily lives. Graduates should be able to view the human condition with equal ability from its behavioral, biological, and historical perspectives. The well-rounded liberal arts education plus acquisition of important marketable skills including analytical ability, communication and people skills, make anthropology graduates valuable in business, government, and education. This is an extremely useful major for students who plan to pursue careers in which they anticipate contact with non-Western cultures; and, with careful planning, a second major in any field can be obtained to complement and enhance professional preparation.

Characteristics and Skills

Human Relations
- Appreciation of different ways of life
- Enjoy leading and participating in groups
- Investigative

- Ability to observe people, data and things
- Ability to analyze and evaluate relationships between factors

Scientific
- Laboratory skills
- Enjoy researching origins and uses of artifacts
- Qualitative and quantitative analytical skills
- Computational skills
- Ability to investigate the nature of the past

Cultural
- Information gathering skills
- Ability to conduct field studies
- Sampling and surveying skills
- Enjoy data collection and comparison
- Enjoy examination of archaeological remains, settlements, tools, pottery

Project Development
- Project planning and design skills
- Maintenance of records and data tabulation skills
- Excellent writing and speaking skills

Potential Occupations

Anthropology like many liberal arts majors provides students with a broad academic background suitable for a variety of jobs in the public and private sectors. Anthropology majors are trained to think independently and critically, communicate effectively, and function in a multicultural world. Many employers appreciate liberal arts majors for their multiple skills and their ability to adapt to a variety of tasks and work environments. Participating in internships and cooperative education opportunities is highly recommended to enhance your practical training and development. Careers for graduates are available in education, business and government. Graduates who go on for advanced studies can pursue careers in Anthropology or attain advanced positions with the possibility of rising to top professional levels. Some career opportunities for anthropology graduates include:

Historical/Intercultural
- Museum curator/researcher
- Genealogist
- International relief representative
- Salvage archeologist
- Collections assistant
- Heritage conservationist
- Historic preservationist
- Librarian

Government
- Urban planner
- Archivist or artifact conservator
- Resource specialist
- Classical or historical anthropologist
- Cultural affairs officer
- Diplomatic service representative
- Immigration or foreign service officer


**Communications**
- Linguist
- Educational television researcher
- Biographical writer
- Scientific/technical writer
- Reporter
- Ethnographic photographer

**Human services**
- Anthropological linguist
- Rural development worker
- Ethnic groups special concerns advocate

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**Major in Anthropology**

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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td>APCC 100</td>
<td>Introductory Cultural Anthropology OR Cultures of the World</td>
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<td>3C</td>
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<td>APCC 101</td>
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<td>1, 3C</td>
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<td>APCC 120</td>
<td>Human Origins and Variation</td>
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<td>Human Origins and Variation Laboratory (AP/APCC 120 or concurrent reg.)</td>
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<td>APCC 140</td>
<td>Introduction to Prehistory OR Humans in Prehistory</td>
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<td>Additional communication</td>
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<td>Mathematics</td>
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<td>Global and cultural awareness</td>
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<td>AP 300</td>
<td>History of Anthropological Theory (AP/APCC 100 or AP/APCC 101 or AP/APCC 200; AP/APCC 140 or AP/APCC 141 or AP 150/APCC 120 and AP 151/APCC 121)</td>
<td>3</td>
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<td>EHCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
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<tr>
<td>STCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
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<td>2D</td>
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<td>S 310</td>
<td>Quantitative Sociological Analysis (3 credits of math)</td>
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<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
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<td>Statistics for Behavioral Sciences I (M/M CC 121)</td>
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<td>Upper-division cultural anthropology</td>
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**SENIOR**

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**PROGRAM TOTAL = 120 credits**

1 Select from the list of courses in category 2B in the All-University Core Curriculum (AUCC).
2 Select from the list of courses in category 1 in the AUCC.
3 Select from the list of courses in category 3G in the AUCC.
4 Select from the list of courses in category 2D in the AUCC.
5 Select three credits except M/M CC 133 from the courses in category 2C in the AUCC.
6 Select from the list of courses in category 3F in the AUCC.
7 Select three credits from the list of courses in category 3B in the AUCC. See department advising manual for selection of the remaining six credits.
8 Select 3-4 credits from the list of courses in category 3A in the AUCC. See department advising manual for selection of the remaining seven credits (must include one lab course).
9 Select from the list of courses in category 3E in the AUCC.
10 See department advising manual for course selection.

**DEPARTMENT OF ART**

*Office in Visual Arts Building, Room G 100
Professor Phil Risbeck, Chair*

**Major in Art**

Do you feel compelled to satisfy your need for self-expression by creating works of art? Does the history of human artistic expression interest you? Would you like to develop your artistic talents through structured study and practice? Are you interested in educating people in the arts? Do learning technical skills and creating artwork through a wide variety of mediums excite you? Do concepts and expressions of beauty motivate you? Then, a major in Art may be the choice for you.

Visual arts comprise the study of the variety of means of visually expressing human thoughts, interests, attitudes, emotions, and ideas. Artists use several mediums such as oils, watercolors, acrylics, pastels, clay, plaster and computers. Visual artists create abstract works and images of objects, people, nature, topography, and events. The Art Department offers several options of study. The B.A. (Bachelor’s of Art) degree is a professional degree, leading to a Colorado teaching license and other careers related to art. Three concentrations are available:

**Art History** provides a basic preparation in art history for
graduate studies; careers in research and teaching at the college level; for positions in museums, libraries, or private collections; or for writing and criticism in the arts. Graduate studies or advanced level classes are necessary for advancement.

**Art Education** embraces the artist-teacher concept, which allows students to develop a studio concentration while preparing to teach art at the K-12 level. The program is comprehensive, meaning students take coursework to prepare them to teach at the elementary and secondary school levels. The Art Education program enjoys good working relationships with school districts in the state of Colorado. Students integrate studio, art history, criticism, and aesthetics as they observe and teach—through a variety of experiences—in the public schools.

**Studio** gives students a liberal education with a focus on one or more of the visual arts. The concentration enables graduates to incorporate their specialty into their careers and life activities. People who are knowledgeable about art may contribute much by supporting community arts activities and teaching others.

The B.F.A. (Bachelor of Fine Arts) is a professional program for careers in art. Students have an opportunity to concentrate in one or more of nine studio fields: drawing, graphic design, fibers, metalsmithing, painting, photo image making, pottery, printmaking, and sculpture. The B.F.A. is a professional degree for students interested in pursuing careers in art.

The curriculum progression in the department is similar within the concentrations. Freshmen study foundation courses in the fine arts, which include drawing, painting and sculpture, along with art history. Sophomores sample introductory concentration courses, and juniors and seniors focus on advanced courses in their chosen concentration. Exhibitions and lecture series present world-famous, academically relevant art programs that complement course work. An established study abroad program is offered in Castiglion Fiorentino, Italy, for students in the major.

**Characteristics and Skills**

- Creativity and artistic ability
- Good powers of observation
- Imagination
- Ability to concentrate for long periods of time
- Ability to communicate thoughts and feelings through visual aides
- Ability to communicate ideas
- Aptitude for spatial relationships
- Ability to recognize differences in shapes shading, and color

**Potential Occupations**

Employment of visual artists is expected to grow faster than average through the year 2000. Demand for the work of graphic artists will be strong as producers of information, goods, and services put increasing emphasis on visual appeal in product design, advertising, marketing and television. Because art graduates possess a number of transferable communication, analytical, critical thinking and people skills, they find positions in government, industry, and academia. Many employers appreciate liberal arts majors for their multiple skills and their ability to adapt to a variety of tasks and work environments. Participation in internships and cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Depending on your interests, the electives you take or the concentration you select, available career choices include but are not limited to:

- Art appraiser
- Art consultant cartographer
- Art director
- Cartoonist
- Art therapist
- Exhibit designer
- Art critic
- Fashion illustrator
- Jeweler
- Gallery director
- Graphic design artist
- Film editor/producer
- Interior decorator
- Free lance artist
- Sculptor
- Technical illustrator
- Photojournalist
- Painter
- Weaver
- Motion picture photographer
- Medical illustrator
- Art educator
- Art historian
- Art curator
- Art librarian
- Fashion illustrator
- Art restorer
### ART EDUCATION CONCENTRATION

**Major in Art (B.A.)**
**Art Education Concentration**

<table>
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<th>Credits</th>
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<tr>
<td>AR</td>
<td>110</td>
<td>History of Western Art I</td>
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<td>AR</td>
<td>111</td>
<td>History of Western Art II (AR 110)</td>
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<tr>
<td>AR</td>
<td>135</td>
<td>Introduction to Drawing</td>
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<td>AR</td>
<td>136</td>
<td>Introduction to Figure Drawing (AR 135)</td>
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<td>AR</td>
<td>160</td>
<td>Foundations Painting</td>
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<td>AR</td>
<td>170</td>
<td>Foundations Sculpture</td>
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<td>College Composition (Composition Placement Exam)</td>
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<td>Biological/physical sciences&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>First-year seminar&lt;sup&gt;2&lt;/sup&gt;</td>
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<td>AR</td>
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<td>History of Western Art III (AR 111)</td>
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<td>AR</td>
<td>230</td>
<td>Photo Image Making I</td>
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<td>AR</td>
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<td>Pottery I</td>
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<td>AR</td>
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<td>Painting I (AR 135, AR 160)</td>
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<td>AR</td>
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<td>Sculpture I (AR 170)</td>
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<td>Global and cultural awareness&lt;sup&gt;3&lt;/sup&gt;</td>
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<td>Mathematics&lt;sup&gt;5&lt;/sup&gt;</td>
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<td></td>
<td>Social/behavioral sciences&lt;sup&gt;6&lt;/sup&gt;</td>
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<td></td>
</tr>
<tr>
<td>AR</td>
<td>325</td>
<td>Concepts in Art Education (ED 310/EDCC 257; admission to Teacher Licensure Program)</td>
<td>3</td>
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<tr>
<td>ED</td>
<td>331</td>
<td>Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
<td>1</td>
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<tr>
<td>ED</td>
<td>340</td>
<td>Literacy and the Learner (completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<tr>
<td>ED</td>
<td>350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
<td>3</td>
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<tr>
<td>ED</td>
<td>386</td>
<td>Practicum (ED 320 or concurrent reg.; admission to Teacher Licensure Program)</td>
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<tr>
<td></td>
<td></td>
<td>Arts/humanities&lt;sup&gt;7&lt;/sup&gt;</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>Health and wellness&lt;sup&gt;8&lt;/sup&gt;</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Historical perspectives&lt;sup&gt;9&lt;/sup&gt;</td>
<td>3</td>
</tr>
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### Course Information

<table>
<thead>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td></td>
<td>Studio teaching emphasis&lt;sup&gt;10&lt;/sup&gt;</td>
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<td></td>
<td>Upper-division art history</td>
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#### SENIOR

<table>
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<th>AUCC Category</th>
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<td>AR 326</td>
<td>Art Education Studio (EDCC 275, admission to Teacher Licensure Program)</td>
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</tr>
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<td>ED 450</td>
<td>Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
<td>4</td>
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<tr>
<td>ED 466</td>
<td>Methods in Elementary and Secondary School Art (ED 320, admission to Teacher Licensure Program)</td>
<td>4</td>
<td>4B</td>
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<td>ED 485A</td>
<td>Student Teaching-Elementary (ED 450, ED 466)</td>
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<td>4B</td>
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<tr>
<td>ED 485B</td>
<td>Student Teaching-Secondary (ED 450, ED 466)</td>
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<tr>
<td>ED 486J</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
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<td>Seminar-Professional Relations (concurrent reg. in ED 485A or B or VE 485)</td>
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</table>

**PROGRAM TOTAL = 122-123 credits**

<sup>1</sup> Select from the list of courses in category 3A in the All-University Core Curriculum (AUCC). One course must have a laboratory component.

<sup>2</sup> Select from the list of courses in category 1 in the AUCC.

<sup>3</sup> Select from the list of courses in category 3E in the AUCC.

<sup>4</sup> Select from the list of courses in category 2D in the AUCC.

<sup>5</sup> Select from the list of courses in category 2C in the AUCC.

<sup>6</sup> Select from the list of courses in category 3C in the AUCC.

<sup>7</sup> Select from the list of courses in category 3B in the AUCC, except ARCC 100.

<sup>8</sup> Select from the list of courses in category 3G in the AUCC.

<sup>9</sup> Select from the list of courses in category 3D in the AUCC.

<sup>10</sup> Select eight credits from one upper-division concentration area other than graphic design.

*The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.*

### ART HISTORY CONCENTRATION

#### Major in Art (B.A.)

**Art History Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 110</td>
<td>History of Western Art I&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 111</td>
<td>History of Western Art II (AR 110)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 135</td>
<td>Introduction to Drawing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 160</td>
<td>Foundations Painting</td>
<td>3</td>
<td></td>
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</tbody>
</table>
### Course Title (Prerequisite) Credits AUCC Category

<table>
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<th>Category</th>
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<tbody>
<tr>
<td>AR 170</td>
<td>Foundations Sculpture</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>2A</td>
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<tr>
<td>PL 318</td>
<td>Aesthetics-Visual Arts</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts/humanities²</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>First-year seminar¹</td>
<td>2-3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Health and wellness⁴</td>
<td>2</td>
<td>3G</td>
</tr>
<tr>
<td></td>
<td>Logical/critical thinking⁵</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>31-32</td>
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#### SOPHOMORE

Select two courses from the following:

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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>AR 112</td>
<td>History of Asian Art</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>AR 113</td>
<td>Native Art Survey</td>
<td>3</td>
<td>2C</td>
</tr>
<tr>
<td>AR 230</td>
<td>Photo Image Making I</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>AR 240</td>
<td>Pottery I</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>AR 245</td>
<td>Metalsmithing and Jewelry I (AR 111, AR 136, AR 160, AR 170)</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>AR 250</td>
<td>Fibers I</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>AR 255</td>
<td>Introduction to Graphic Design (completion of 100-level art courses)</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>AR 260</td>
<td>Painting I (AR 135, AR 160)</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>AR 265</td>
<td>Printmaking I-Intaglio and Relief (AR 136)</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>AR 270</td>
<td>Sculpture I (AR 170)</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>AR 212</td>
<td>History of Western Art III (AR 111)</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td></td>
<td>Historical perspectives⁶</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td></td>
<td>Mathematics²</td>
<td>3</td>
<td>2C</td>
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<tr>
<td></td>
<td>Second field⁸</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Social/behavioral sciences⁹</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td></td>
<td>U.S. public values and institutions¹⁰</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
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#### JUNIOR

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>L CC 105</td>
<td>First-Year Language (no previous study in language)</td>
<td>5</td>
<td>2B3</td>
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<tr>
<td>L 120</td>
<td>Reading for Proficiency</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td>Global and cultural awareness¹¹</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td>Second field⁸</td>
<td>12</td>
<td>4A, 4B</td>
</tr>
<tr>
<td></td>
<td>Art history upper-division electives¹²</td>
<td>9</td>
<td>4A, 4B</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>32</td>
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</table>

#### SENIOR

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>AR 419</td>
<td>Historiography and Methodology of Art History (written consent of instructor)</td>
<td>3</td>
<td>4C</td>
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<tr>
<td></td>
<td>Biological/physical sciences¹³</td>
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<td>3A</td>
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<tr>
<td></td>
<td>Art electives, upper-division</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Art history electives, upper-division¹²</td>
<td>12</td>
<td>4A, 4B</td>
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<tr>
<td></td>
<td>Non-art electives</td>
<td>0-1</td>
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<tr>
<td></td>
<td>TOTAL</td>
<td>26-27</td>
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</table>

PROGRAM TOTAL = 120 credits

¹ Transfer students who have taken or transferred in credit for AR/ARCC 100 may use it in lieu of AR 110.
² Select three credits (other than AR/ARCC 100) from category 3B in the All-University Core Curriculum (AUCC).
3 Select from the list of courses in category 1 in the AUCC.
4 Select from the list of courses in category 3G in the AUCC.
5 Select from the list of courses in category 2D in the AUCC.
6 Select from the list of courses in category 3D in the AUCC.
7 Select from the list of courses in category 2C in the AUCC.
8 Select 21 credits from the same non-art prefix. Satisfy remaining upper-division non-art credits to total 14.
9 Select from the list of courses in category 3C in the AUCC.
10 Select from the list of courses in category 3F in the AUCC.
11 Select from the list of courses in category 3E in the AUCC.
12 Select a total of 21 credits from the following: AR 310, AR 311, AR 312, AR 314, AR 315, AR 316, AR 318, AR 319, AR 410, AR 411, AR 412, AR 414, AR 415, AR 416, AR 417.
13 Select from the list of courses in category 3A in the AUCC. One course must have a laboratory component.

###STUDIO CONCENTRATION

Major in Art (B.A.)

**Studio Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 110</td>
<td>History of Western Art I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 111</td>
<td>History of Western Art II (AR 110)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 135</td>
<td>Introduction to Drawing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 136</td>
<td>Introduction to Figure Drawing (AR 135)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 160</td>
<td>Foundations Painting</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 170</td>
<td>Foundations Sculpture</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 212</td>
<td>History of Western Art III (AR 111)</td>
<td>3</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td></td>
<td>First-year seminar</td>
<td>2-3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Health and wellness</td>
<td>2</td>
<td>3G</td>
</tr>
<tr>
<td></td>
<td>Logical/critical thinking</td>
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<td></td>
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<td>31-32</td>
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**SOPHOMORE**

Select two of the following courses:

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<th>AUCC Category</th>
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<tr>
<td>AR 230</td>
<td>Photo Image Making I</td>
<td>3</td>
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<tr>
<td>AR 240</td>
<td>Pottery I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 245</td>
<td>Metalsmithing and Jewelry I (AR 111, AR 136, AR 160, AR 170)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 250</td>
<td>Fibers I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 255</td>
<td>Introduction to Graphic Design (completion of required 100-level art courses)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 260</td>
<td>Painting I (AR 135, AR 160)</td>
<td>3</td>
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</tr>
<tr>
<td>AR 270</td>
<td>Printmaking I-Intaglio and Relief (AR 136)</td>
<td>3</td>
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</tr>
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<td></td>
<td>Sculpture I (AR 170)</td>
<td>3</td>
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<td>Arts/humanities</td>
<td>3</td>
<td>3B</td>
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<td>Global and cultural awareness</td>
<td>3</td>
<td>3E</td>
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<td></td>
<td>Historical perspectives</td>
<td>3</td>
<td>3D</td>
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<td></td>
<td>Mathematics</td>
<td>3</td>
<td>2C</td>
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<td></td>
<td>Social/behavioral sciences</td>
<td>3</td>
<td>3C</td>
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<td>U.S. public values and institutions</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
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<td>Non-art electives</td>
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<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<td>----------------------</td>
<td>---------</td>
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</tr>
<tr>
<td>JUNIOR</td>
<td>Biological/physical sciences</td>
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<td>Foreign language</td>
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<td>Upper division art history</td>
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SENIOR

Select four credits from the following in the appropriate concentration:

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<th>AUCC Category</th>
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<tbody>
<tr>
<td>AR 430</td>
<td>Advanced Photo Image Making I (AR 331)</td>
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<td>AR 431</td>
<td>Advanced Photo Image Making II (AR 430)</td>
<td>4</td>
<td>4C</td>
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<tr>
<td>AR 435</td>
<td>Drawing Workshop IV (AR 336)</td>
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<td>4C</td>
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<tr>
<td>AR 436</td>
<td>Drawing Workshop V (AR 435)</td>
<td>3</td>
<td>4C</td>
</tr>
<tr>
<td>AR 440</td>
<td>Pottery IV (AR 341)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td>AR 441</td>
<td>Pottery V (AR 440)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td>AR 445</td>
<td>Metalsmithing and Jewelry IV (AR 346)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td>AR 446</td>
<td>Metalsmithing and Jewelry V (AR 445)</td>
<td>4</td>
<td>4C</td>
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<td>AR 450</td>
<td>Fibers IV (AR 350, AR 351)</td>
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<td>4C</td>
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<tr>
<td>AR 451</td>
<td>Fibers V (AR 351 or AR 450)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td>AR 455</td>
<td>Advanced Typography and Design Systems (AR 160, AR 170, AR 255)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td>AR 456</td>
<td>Advanced Illustration (AR 356)</td>
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<td>4C</td>
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<td>AR 460</td>
<td>Advanced Painting I (AR 360, AR 361)</td>
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<td>4C</td>
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<tr>
<td>AR 461</td>
<td>Advanced Painting II (AR 460)</td>
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<td>4C</td>
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<td>AR 465</td>
<td>Printmaking IV-Studio Workshop (AR 366)</td>
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<td>4C</td>
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<tr>
<td>AR 466</td>
<td>Printmaking V-Studio Workshop (AR 465)</td>
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<td>4C</td>
</tr>
<tr>
<td>AR 470</td>
<td>Sculpture IV (AR 370, AR 371)</td>
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<td>4C</td>
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<tr>
<td>AR 471</td>
<td>Sculpture V (AR 470)</td>
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<td>4C</td>
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<td>Non-art electives</td>
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<td>27-28</td>
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PROGRAM TOTAL = 120 credits

---

1 Select from the list of courses in category 1 in the All-University Core Curriculum (AUCC).
2 Select from the list of courses in category 3G in the AUCC.
3 Select from the list of courses in category 2D in the AUCC.
4 Select three credits (other than ARCC 100) from category 3B in the AUCC.
5 Select from the list of courses in category 3E in the AUCC.
6 Select from the list of courses in category 3D in the AUCC.
7 Select from the list of courses in category 2C in the AUCC.
8 Select from the list of courses in category 3C in the AUCC.
9 Select from the list of courses in category 3F in the AUCC.
10 Select from the list of courses in category 3A in the AUCC. One course must have a laboratory component.
11 Select from the list of courses in category 2B3 in the AUCC.
12 Choose eight upper-division credits in one area of concentration in addition to the four credit capstone course.
13 Select nine credits (at least four upper-division) of art electives.

Major in Art (B.F.A.) Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 110</td>
<td>History of Western Art I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 111</td>
<td>History of Western Art II (AR 110)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 135</td>
<td>Introduction to Drawing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------------------------------</td>
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</tr>
<tr>
<td>AR 136</td>
<td>Introduction to Figure Drawing (AR 135)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 160</td>
<td>Foundations Painting</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 170</td>
<td>Foundations Sculpture</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td></td>
<td>Additional communication¹</td>
<td>3</td>
<td>2B</td>
</tr>
<tr>
<td></td>
<td>First-year seminar²</td>
<td>2-3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Health and wellness³</td>
<td>2</td>
<td>3G</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>28-29</strong></td>
<td></td>
</tr>
</tbody>
</table>

**SOPHOMORE**

| AR 212 | History of Western Art III (AR 111)                               | 3       |               |

*Select three of the following courses:

| AR 230 | Photo Image Making I                                             | 3       |               |
| AR 240 | Pottery I                                                        | 3       |               |
| AR 245 | Metallurgy and Jewelry I (AR 111, AR 136, AR 160, AR 170)       | 3       |               |
| AR 250 | Fibers I                                                         | 3       |               |
| AR 255 | Introduction to Graphic Design (completion of required 100-level art courses) | 3       |               |
| AR 260 |                                                                 | 3       |               |
| AR 265 | Painting I (AR 135, AR 160)                                     | 3       |               |
| AR 270 | Printmaking I-Intaglio and Relief (AR 136)                      | 3       |               |

| AR 235 | Drawing Workshop I (AR 136)                                      | 3       |               |
|        | Arts/humanities⁴                                                 | 3       | 3B            |
|        | Global and cultural awareness⁵                                   | 3       | 3E            |
|        | Historical perspectives⁶                                         | 3       | 3D            |
|        | Logical/critical thinking⁵                                       | 3       | 2D            |
|        | Social/behavioral sciences⁸                                      | 3       | 3C            |
|        | U.S. public values and institutions⁹                            | 3       | 3F            |
|        | **TOTAL**                                                        | **33**  |               |

**JUNIOR**

| Mathematics¹⁰                                    | 3       | 2C            |
| Upper-division art history¹¹                      | 6       | 4A, 4B        |
| **TOTAL**                                        | **9**   |               |

**SENIOR**

| Biological/physical sciences¹²                    | 7       | 3A            |
| Non-art electives                                | 14-15   |               |
| **TOTAL**                                        | **21-22** |               |

**CORE TOTAL = 92 credits¹³**

¹ Select from the list of courses in category 2B in the All-University Core Curriculum (AUCC).
² Select from the list of courses in category 1 in the AUCC.
³ Select from the list of courses in category 3G in the AUCC.
⁴ Select from the list of courses (other than ARCC 100) in category 3B in the AUCC.
⁵ Select from the list of courses in category 3E in the AUCC.
⁶ Select from the list of courses in category 3D in the AUCC.
⁷ Select from the list of courses in category 2D in the AUCC.
⁸ Select from the list of courses in category 3C in the AUCC.
⁹ Select from the list of courses in category 3F in the AUCC.
¹⁰ Select from the list of courses in category 2C in the AUCC.
11 Select six credits of upper-division art history.
12 Select from the list of courses in category 3A in the AUCC. One course must have a laboratory component.
13 In order to complete the degree, a student must also complete one of the following concentrations: drawing, fibers, graphic design, metalsmithing, painting, photo image making, pottery, printmaking, or sculpture.

### DRAWING CONCENTRATION

**Major in Art (B.F.A.)**

**Drawing Concentration**

In addition to the art (B.F.A.) core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>JUNIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 335</td>
<td>Drawing Workshop II (AR 235)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AR 336</td>
<td>Drawing Workshop III (AR 335 or AR 365)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Art electives</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>22</strong></td>
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</tr>
<tr>
<td><strong>SENIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 435</td>
<td>Drawing Workshop IV (AR 336)</td>
<td>3</td>
<td>4C</td>
</tr>
<tr>
<td>AR 436</td>
<td>Drawing Workshop V (AR 435)</td>
<td>3</td>
<td>4C</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>6</strong></td>
<td></td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

1 At least 12 upper-division credits.

### FIBERS CONCENTRATION

**Major in Art (B.F.A.)**

**Fibers Concentration**

In addition to the art (B.F.A.) core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>JUNIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 350</td>
<td>Fibers II (AR 250)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>AR 351</td>
<td>Fibers III (AR 250)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Art electives</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>20</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SENIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 450</td>
<td>Fibers IV (AR 350 AR 351)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td>AR 451</td>
<td>Fibers V (AR 351 or AR 450)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>8</strong></td>
<td></td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

1 At least eight upper-division credits.
## GRAPHIC DESIGN CONCENTRATION

**Major in Art (B.F.A.)**

**Graphic Design Concentration**

In addition to the art (B.F.A.) core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>JUNIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 355</td>
<td>Typography and Design Systems (AR 255)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>AR 356</td>
<td>Illustration (AR 255, six credits in drawing)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Art electives&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>12</strong></td>
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</tr>
<tr>
<td><strong>SENIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 455</td>
<td>Advanced Typography and Design Systems (AR 160, AR 170, AR 255)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td>AR 456</td>
<td>Advanced Illustration (AR 356)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>8</strong></td>
<td></td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

<sup>1</sup> At least eight upper-division credits.

## METALSMITHING CONCENTRATION

**Major in Art (B.F.A.)**

**Metalsmithing Concentration**

In addition to the art (B.F.A.) core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>JUNIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 345</td>
<td>Metalsmithing and Jewelry II (AR 245)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>AR 346</td>
<td>Metalsmithing and Jewelry III (AR 245)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Art electives&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>12</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SENIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 445</td>
<td>Metalsmithing and Jewelry IV (AR 346)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td>AR 446</td>
<td>Metalsmithing and Jewelry V (AR 445)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>8</strong></td>
<td></td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

<sup>1</sup> At least eight upper-division credits.
# PAINTING CONCENTRATION

**Major in Art (B.F.A.)**  
**Painting Concentration**

In addition to the art (B.F.A.) core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUNIOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 360</td>
<td>Painting II (AR 260)</td>
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</tr>
<tr>
<td>AR 361</td>
<td>Painting III (AR 235, AR 260)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Art electives¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>12</strong></td>
<td></td>
</tr>
<tr>
<td>SENIOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 460</td>
<td>Advanced Painting I (AR 360, AR 361)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td>AR 461</td>
<td>Advanced Painting II (AR 460)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>8</strong></td>
<td></td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

¹ At least eight upper-division credits.

---

# PHOTO IMAGE MAKING CONCENTRATION

**Major in Art (B.F.A.)**  
**Photo Image Making Concentration**

In addition to the art (B.F.A.) core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUNIOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 330</td>
<td>Photo Image Making II (AR 230 or portfolio review)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>AR 331</td>
<td>Photo Image Making III (AR 330)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Art electives¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>12</strong></td>
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<tr>
<td>SENIOR</td>
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<td></td>
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</tr>
<tr>
<td>AR 430</td>
<td>Advanced Photo Image Making I (AR 331)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td>AR 431</td>
<td>Advanced Photo Image Making II (AR 430)</td>
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<td>4C</td>
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<tr>
<td></td>
<td><strong>TOTAL</strong></td>
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<td></td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

¹ At least eight upper-division credits.
### POTTERY CONCENTRATION

**Major in Art (B.F.A.)**  
**Pottery Concentration**

In addition to the art (B.F.A.) core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUNIOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 340</td>
<td>Pottery II (AR 240)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>AR 341</td>
<td>Pottery III (AR 340)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Art electives(^1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>12</strong></td>
<td></td>
</tr>
<tr>
<td>SENIOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 440</td>
<td>Pottery IV (AR 341)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td>AR 441</td>
<td>Pottery V (AR 440)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>8</strong></td>
<td></td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

\(^1\) At least eight upper-division credits.

### PRINTMAKING CONCENTRATION

**Major in Art (B.F.A.)**  
**Printmaking Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUNIOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 365</td>
<td>Printmaking II-Lithography (AR 136)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>AR 366</td>
<td>Printmaking III-Studio Workshop (AR 365)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Art electives(^1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>12</strong></td>
<td></td>
</tr>
<tr>
<td>SENIOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 465</td>
<td>Printmaking IV-Studio Workshop (AR 366)</td>
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<td>4C</td>
</tr>
<tr>
<td>AR 466</td>
<td>Printmaking V-Studio Workshop (AR 465)</td>
<td>4</td>
<td>4C</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>8</strong></td>
<td></td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

\(^1\) At least eight upper-division credits.
SCULPTURE CONCENTRATION

Major in Art (B.F.A.)
Sculpture Concentration

In addition to the art (B.F.A.) core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>JUNIOR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 370</td>
<td>Sculpture II (AR 270)</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 371</td>
<td>Sculpture III (AR 270)</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Art electives¹</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SENIOR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR 470</td>
<td>Sculpture IV (AR 370, AR 371)</td>
<td>4</td>
<td>4C</td>
<td></td>
</tr>
<tr>
<td>AR 471</td>
<td>Sculpture V (AR 470)</td>
<td>4</td>
<td>4C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PROGRAM TOTAL = 120 credits

¹ At least eight upper-division credits.

DEPARTMENT OF ECONOMICS

Office in Clark Building, Room C 306
Associate Professor Robert W. Kling, Chair

Major in Economics

Are you curious about the forces that affect our economic welfare? Would you like to help clean up the environment or deal with overpopulation and poverty? Would you enjoy helping businesses explore new markets? Are you interested in the history of economic thought and institutions? Are you curious about different economic theories and philosophies? Would you like to apply sophisticated mathematical and statistical techniques to the analysis of economic problems? Are you interested in international trade and finance? Would you like to know the fundamentals behind government economic policies? If any of your answers are “yes” then a major in Economics may be for you.

Economics is the study of how people and societies use scarce resources to produce the things they want. Economic theory provides a framework for understanding economic issues, analyzing and predicting the likely effects of economic behavior and government policies, and formulating efficient and equitable solutions to pressing economic problems.

A strong liberal arts curriculum including arts and humanities, social and natural sciences, advanced composition, mathematics, and statistics provides the depth and breadth of knowledge needed to systematically and logically analyze problems, generate and test ideas, and develop effective communication and quantitative skills. Economics majors develop an appreciation of economic issues, and learn to analyze and critically evaluate economic phenomena and policies. The major core includes four semesters of economic theory, a semester of econometrics, and several semesters of economics electives covering a wide variety of economic topics from environmental and natural resource economics to the history of economic institutions and Marxist economic thought.

Characteristics and Skills

- A strong interest in economic and social issues
- Aptitude for mathematics and logic
- Analytical and critical thinking ability
- Creative
- Able to identify key issues
- Able to integrate a variety of concepts
- Good written and oral communication skills
- Desire to understand how political and social contexts affect behavior

Potential Occupations

Economists are employed in a wide variety of fields from education and research to business and government.
Nonprofit and international organizations use economists in overseas development, environmental conservation, and international relations. Economics like many liberal arts majors provides students with a broad academic background suitable for a variety of jobs. Economics majors are trained to think independently and critically, communicate effectively, and function in a multicultural world. Many employers appreciate liberal arts majors for their multiple skills and their ability to adapt to a variety of tasks and work environments. Careers for graduates are available in education, business and government. Participation in internships or cooperative education opportunities is highly recommended to enhance practical training and development. Graduates who go on for advanced studies can pursue careers in Economics or attain advanced positions with the possibility of rising to top professional levels. Depending on your interests, the electives you take, or the minor you select, available career choices include but are not limited to the following:

**Banking/Financial**
- Commodities/stock broker
- Financial analyst
- Economic forecaster
- Trust administrator
- Loan counselor
- Pension funds administrator
- Bank examiner
- Securities analyst
- Internal auditor

**Human services**
- Educator
- Program administrator
- Researcher
- Community organizer
- Environmental activist
- International aid organization analyst or administrator

**Business**
- Marketing analyst
- Purchasing agent
- Public relations/media planner
- Program consultant
- Contract administrator
- Systems evaluator
- Personnel administrator
- Portfolio administrator
- Finance manager

**Education**
- Instructor
- Professor
- Secondary school teacher
- Administrator
- Academic advisor

**Government**

Economics majors must achieve a minimum grade of 2.0 (C) in each of the economics courses counted toward the major.

### Major in Economics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC</th>
<th>Category</th>
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<tr>
<td><strong>FRESHMAN</strong></td>
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<td>COCC  150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>Principles of Macroeconomics (EC/EACC 202 or EA/EACC 202)</td>
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<td>HYCC  150</td>
<td>U.S. History to 1876</td>
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<td>U.S. History Since 1876</td>
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<td>HYCC  170</td>
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<td>HYCC  171</td>
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<td>Health and wellness³</td>
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**SOPHOMORE**

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<td>EC 304</td>
<td>Intermediate Macroeconomics (EC/ECCC 204, M/M CC 141)</td>
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<td>EC 370</td>
<td>Comparative Economic Systems (EC/ECCC 101 or EC/ECCC 202 or EA/EACC 202)</td>
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<td>EC 372</td>
<td>History of Economic Institutions and Thought (EC/ECCC 101 or EC/ECCC 202 or EA/EACC 202)</td>
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<td>EC 376</td>
<td>Marxist Economic Thought (EC/ECCC 101 or EC/ECCC 202 or EA/EACC 202)</td>
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<td>EC 474</td>
<td>Recent Economic Thought (EC 304, EC 306)</td>
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<td>Introduction to Statistical Methods (M/M CC 121)</td>
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**JUNIOR**

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<td>Introduction to Econometrics (EC/ECCC 204, ST/STCC 301)</td>
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<td>EA 335</td>
<td>Introduction to Econometrics (EC/ECCC 204, ST/STCC 301)</td>
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**SENIOR**

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<td>EC 492</td>
<td>Capstone Seminar</td>
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<td>Additional arts/humanities⁷</td>
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<td>Economics⁸</td>
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**PROGRAM TOTAL = 120 credits**
Major in English

Do you love to read great literature? Do the insights of literary figures from different cultures and time periods interest you? Do you enjoy communicating your ideas imaginatively and effectively? Does analyzing works of prose and poetry intrigue you? Would you like to develop a career in writing, education or literary criticism? Does poetry awaken your spirit? Have you dreamed about writing a play or a novel one day? If you answered “yes” to any of these questions, then a major in English may be for you.

English majors develop an understanding of diverse cultures, literary traditions, and great works of English, American, and world literature. Students expand their ability to analyze texts and view them through the lenses of diverse, critical perspectives. Graduates have the ability to write for both specialized and general audiences. The major emphasizes American, British, and World literatures for students who wish to focus fully on the study of literature and literary theory. There are three concentrations plus a teacher licensure program.

In the Creative Writing concentration students study prose and poetry, as well as the writing of literary nonfiction. The concentration is designed for students who wish to combine the study of creative writing with the study of literature.

The Language concentration focuses on linguistics and TESL/TEFL. It is designed for students interested in all aspects of language and linguistics. It offers students the ability to study key theories in linguistics and second-language learning, functional aspects of language production and reception, and the impact of social and cultural contexts on language production and reception.

The Writing concentration focuses on composition and nonfiction writing, as well as in technology-based writing and writing instruction. It is designed for students who wish to pursue the study of writing from a humanities perspective and particularly for those students who wish to combine the study of writing with the study of literature. The writing concentration offers students the ability to study writing in a department that takes a humanistic approach to learning; and, to study writing without sacrificing the study of literature. This concentration also provides a wider range of writing and writing theory than is possible in the Department's creative writing concentration.

The Teaching Endorsement concentration provides students with preparation for teaching in secondary schools. It is designed for students who wish to pursue a career in teaching language arts and offers a range of courses in language, literature, and writing. Students may receive endorsements from the State of Colorado in Language Arts and Teaching English as a Second Language. In addition to the common requirements for the English major, students pursuing teaching licensure take several extra courses in English, as well as education classes through the School of Education.

Characteristics and Skills
- Enjoy reading
- Enjoy writing
- Ability to generate creative ideas
- Ability to see connections among ideas
- Ability to influence and persuade
- Logical argumentation skills
- Independence in thought and work
- Critical listening and reading skills
- Problem solving skills
- Enjoy working in groups

Potential Occupations

A major in English prepares students for business, government, or education careers which require broadly educated people who can think critically, communicate effectively, analyze texts, and write well. Many employers appreciate liberal arts majors for their multiple skills and their ability to adapt to a variety of tasks and work
environments.

The department encourages experiential education by offering a variety of internship opportunities. Students are also invited to generate their own positions in fields of interests as well as pursue established local, regional or national internships. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Depending on your interests, the electives you take or the concentration you select, available career choices include but are not limited to:

**Publishing**
- Copy editor
- Project editor
- Manuscript reader or story analyst
- Sales representative
- Publicity and promotion specialist
- Advertising coordinator
- Production specialist
- Assistant book publicist
- Contracts and permission specialist

**Human services**
- Agency or arts administrator
- Human resource manager
- Program developer
- Business
- Communications
- Public relations
- Advertising
- Telecommunications

**Education**
- English Teacher
- Teacher of English as a second language
- Curriculum developer
- Administrator

**Writing**
- Grant writer
- Technical writer for business, industry or science
- Writer for magazines, newspapers, television, education, government, etc.
- Biographer or writer of prose, fiction and nonfiction
- Lyricist (song writer)

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### Major in English

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<td><strong>FRESHMAN</strong></td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<tr>
<td>E 160</td>
<td>Mythical and Biblical Backgrounds</td>
<td>3</td>
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Select one pair of courses from the following:

| AUCC 200 | Self/Community in American Culture 1600-1877 | 3 | 3D |
| AUCC 201 | Self/Community in American Culture Since 1877 | 3 | 3D, 3F |
| HYCC 100 | Western Civilization, Pre-Modern | 3 | 3D |
| HYCC 101 | Western Civilization, Modern | 3 | 3D |
| OR | | | |
| HYCC 150 | U.S. History to 1876 | 3 | 3D, 3F |
| HYCC 151 | U.S. History Since 1876 | 3 | 3D, 3F |
| OR | | | |
| HYCC 170 | World Civilizations Ancient-1500 | 3 | 3D |
| HYCC 171 | World Civilizations, 1500-Present | 3 | 3D |
| OR | | | |
| SPCC 200 | Public Speaking | 3 | 2B1 |
| Arts/humanities | 3 | 3B |
| First-year seminar | 2-3 | 1 |
| Health and wellness | 2 | 3G |
| Mathematics | 3 | 2C |
| Electives | | | 4-5 |
| TOTAL | | | 29-31 |

**SOPHOMORE**

<p>| E 240 | Introduction to Poetry | 3 | |</p>
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<td>ECC 275</td>
<td>Introduction to British Literature</td>
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<td>Biological/physical sciences(^7)</td>
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<td>Global and cultural awareness(^6)</td>
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<td>Logical/critical thinking(^5)</td>
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<td>Philosophy(^4)</td>
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<td>Social/behavioral sciences(^9)</td>
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<td>English elective(^10)</td>
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**JUNIOR**

| COCC 300 | Writing Arguments (CO/COC 150) | 3 | 2B2, 2D |
| COCC 301A-D | Writing in the Disciplines (CO/COC 150) | 3 | 2B2 |
| E 341 | Principles of Literary Criticism (one course in literature) | 3 | 4B |
| E 342 | Shakespeare I | 3 | |
| E 343 | Shakespeare II | 3 | |
| | Second field\(^1\) | 6 | |
| | U.S. public values and institutions\(^2\) | 3 | 3F |
| | Upper-division English/composition elective\(^3\) | 6 | |
| | Electives | 6 | |
| **TOTAL** | | **30** | |

**SENIOR**

Select one of the following:

| E 460 | Chaucer (E 160, E 341, and one other upper-division E prefix course) | 3 | 4C |
| E 463 | Milton (E 160, E 341, and one other upper-division E prefix course) | 3 | 4C |
| E 470 | Individual Author (E 341 and one other upper-division E prefix course) | 3 | 4C |
| | Second field\(^1\) | 6 | |
| | Upper-division electives\(^3\) | 12 | |
| | Electives | 9 | |
| **TOTAL** | | **30** | |

**PROGRAM TOTAL = 120 credits**

\(^1\) Select from the list of courses in category 3B (but excluding E and PL prefix courses) in the All-University Core Curriculum (AUCC).

\(^2\) Select from the list of courses in category 1 in the AUCC.

\(^3\) Select from the list of courses in category 3G in the AUCC.

\(^4\) Select from the list of courses in category 2C in the AUCC.

\(^5\) Select two courses, one having a lab, from the list of courses for category 3A in the AUCC.

\(^6\) Select from the list of courses in category 3E in the AUCC.

\(^7\) Select from the list of courses in category 2D in the AUCC.

\(^8\) Select PL course from English Department green sheet list of courses.

\(^9\) Select from the list of courses in category 3C in the AUCC.

\(^10\) Select any lower or upper division E prefix course.

\(^11\) The department requires majors to complete a second field. This may be met by completing the equivalent of the second semester of the second year course in a foreign language or by completing 12 hours of upper division credit in a coherent field of study outside English.

\(^12\) Select from list of courses in category 3F in the AUCC.
The department requires majors to take 18 credits of upper division E and/or CO courses; 3 credits must be in British literature before 1800 or American literature before 1870; 3 credits must be in British literature after 1800 or American literature after 1870; and 3 credits must be in literature translation.

**CREATIVE WRITING CONCENTRATION**

Major in English
Creative Writing Concentration

<table>
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<td>AUCC 200</td>
<td>Self/Community in American Culture 1600-1877</td>
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<td>3D</td>
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<tr>
<td>AUCC 201</td>
<td>Self/Community in American Culture Since 1877</td>
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<td>3D, 3F</td>
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<td>HYCC 100</td>
<td>Western Civilization, Pre-Modern</td>
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<tr>
<td>HYCC 150</td>
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<td>HYCC 170</td>
<td>World Civilizations Ancient-1500</td>
<td>3</td>
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<td>E CC 140</td>
<td>The Study of Literature</td>
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<td>E 160</td>
<td>Mythical and Biblical Backgrounds</td>
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<td>SPCC 200</td>
<td>Public Speaking</td>
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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
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<tbody>
<tr>
<td>COCC 300</td>
<td>Writing Arguments (CO/COCC 150)</td>
<td>3</td>
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</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
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<td>COCC 301A-D</td>
<td>Writing in the Disciplines (COCC 150)</td>
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<tr>
<td>E 311A</td>
<td>Intermediate Creative Writing-Fiction (E 210 with grade of B or better)</td>
<td>3</td>
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<tr>
<td>E 311B</td>
<td>Intermediate Creative Writing-Poetry (E 210 with grade B or better)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>E 311C</td>
<td>Intermediate Creative Writing-Nonfiction (CO/COCC 150; E 210 with grade B or better or JT 210)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>E 341</td>
<td>Principles of Literary Criticism (one course in literature)</td>
<td>3</td>
<td>4B</td>
</tr>
<tr>
<td>E 342</td>
<td>Shakespeare I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E 343</td>
<td>Shakespeare II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. public values and institutions(^{10})</td>
<td>3</td>
<td>3F</td>
<td></td>
</tr>
<tr>
<td>Second field(^{11})</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English elective(^{12})</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper division English/composition(^{13})</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
<td></td>
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</tr>
<tr>
<td>TOTAL</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SENIOR**

| E 412A | Creative Writing Workshop - Fiction (Grade B or better in E 311A) | 3 | |
| E 412B | Creative Writing Workshop - Poetry (Grade B or better in E 311B) | 3 | |
| E 412C | Creative Writing Workshop - Nonfiction (Grade of B or better in E 311A or E 311C) | 3 | |
|  |
| Select one of the following: |
| E 460 | Chaucer (E 160, E 341, and one other upper-division E prefix course) | 3 | 4C |
| E 463 | Milton (E 160, E 341, and one other upper-division E prefix course) | 3 | 4C |
| E 470 | Individual Author (E 341 and one other upper-division E prefix course) | 3 | 4C |
|  |
| Second field\(^{11}\) | 9 | |
| Upper division English/composition\(^{13}\) | 9 | |
| Electives | 6 | |
| TOTAL | 30 | |

**PROGRAM TOTAL = 120 credits**

---

\(^1\) Select from the list of courses in category 3B (but excluding E and PL prefix courses) in the All-University Core Curriculum (AUCC).

\(^2\) Select from the list of courses in category 1 in the AUCC.

\(^3\) Select from the list of courses in category 3G in the AUCC.

\(^4\) Select from the list of courses in category 2C in the AUCC.

\(^5\) Select two courses, one with lab, from list of courses in category 3A in the AUCC.

\(^6\) Select from the list of courses in category 3E in the AUCC.

\(^7\) Select from the list of courses in category 2D in the AUCC.

\(^8\) Select from the list of PL courses on English Department green sheet.

\(^9\) Select from the list of courses in category 3C in the AUCC.

\(^10\) Select from the list of courses in category 3F in the AUCC.

\(^11\) The department requires majors to complete a second field. This may be met by completing the second semester of the second year of a foreign language or by completing 12 credits of upper division courses in a coherent field of study outside English.

\(^12\) Select any lower or upper level E prefix course.

\(^13\) Fifteen credits of upper division E or CO courses; 3 credits must be in British literature before 1800 or American literature before 1870; 3 credits must be in British literature after 1800 or American literature after 1870; and 3 credits must be in literature in translation.

\(^14\) Selection must match subtopic of E 311A-C.
# LANGUAGE CONCENTRATION

## Major in English

**Language Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>AUCC200</td>
<td>Self/Community in American Culture, 1600-1877</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>AUCC201</td>
<td>Self/Community in American Culture Since 1877</td>
<td>3</td>
<td>3D,3F</td>
</tr>
<tr>
<td>HYCC100</td>
<td>Western Civilization, Pre-Modern</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>HYCC101</td>
<td>Western Civilization, Modern</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>HYCC150</td>
<td>U.S. History to 1876</td>
<td>3</td>
<td>3D,3F</td>
</tr>
<tr>
<td>HYCC151</td>
<td>U.S. History Since 1876</td>
<td>3</td>
<td>3D,3F</td>
</tr>
<tr>
<td>HYCC170</td>
<td>World Civilizations Ancient-1500</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>HYCC171</td>
<td>World Civilizations, 1500-Present</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>E 160</td>
<td>Mythical and Biblical Backgrounds</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SPCC 200</td>
<td>Public Speaking</td>
<td>3</td>
<td>2B</td>
</tr>
<tr>
<td></td>
<td>Arts/humanities¹</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>First-year seminar²</td>
<td>2-3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Foreign language³</td>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health and wellness⁴</td>
<td>2</td>
<td>3G</td>
</tr>
<tr>
<td></td>
<td>Mathematics⁵</td>
<td>3</td>
<td>2C</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>0-2</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td>28-33</td>
</tr>
</tbody>
</table>

**SOPHOMORE**

| E 240    | Introduction to Poetry                                | 3       |               |
| E CC 270 | Introduction to American Literature                   | 3       | 3B, 3D        |
| OR       |                                                       |         |               |
| E CC 275 | Introduction to British Literature                    | 3       | 3B, 3D        |
|          | Biological and physical sciences⁶                     | 7       | 3A            |
|          | Foreign language³                                     | 3-5     |               |
|          | Global and cultural awareness³                        | 3       | 3E            |
|          | Logical/critical thinking⁸                            | 3       | 2D            |
|          | Philosophy⁹                                          | 3       |               |
|          | Social/behavioral science¹⁰                           | 3       | 3C            |
| Electives|                                                        | 0-2     |               |
| **TOTAL**|                                                        |         | 28-30         |

**JUNIOR**

<p>| COCC 300 | Writing Arguments (CO/COCC 150)                      | 3       | 4A            |
| OR       |                                                       |         |               |
| COCC 301A-D | Writing in the Disciplines (CO/COCC 150) | 3       | 4A            |
| E 322    | English Language for Teachers I                      | 3       |               |
| E 323    | English Language for Teachers II (E 322)             | 3       |               |
| E 326    | Development of the English Language                  | 3       |               |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>E 341</td>
<td>Principles of Literary Criticism (one course in literature)</td>
<td>3</td>
<td>4B</td>
</tr>
<tr>
<td>E 342</td>
<td>Shakespeare I</td>
<td>3</td>
<td>OR</td>
</tr>
<tr>
<td>E 343</td>
<td>Shakespeare II</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Foreign language**
- Credits: 5

**U.S. public values and institutions**
- Credits: 3

**Electives**
- Credits: 4

**TOTAL**
- Credits: 30

### SENIOR

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>E 460</td>
<td>Chaucer (E 160, E 341, and one other upper division E prefix course)</td>
<td>3</td>
<td>4C</td>
</tr>
</tbody>
</table>

**Foreign language**
- Credits: 5

**Upper division English/composition**
- Credits: 15

**Electives**
- Credits: 5-7

**TOTAL**
- Credits: 28-30

**PROGRAM TOTAL = 120 credits**

1. Select from the list of courses in category 3B (excluding PL and E prefix courses) in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 1 in the AUCC.
3. This requirement must be met by completing the second year of one foreign language and the first year of another foreign language.
4. Select from the list of courses in category 3G in the AUCC.
5. Select from the list of courses in category 2C in the AUCC.
6. Select two courses, one with a lab, from the list of courses in category 3A in the AUCC.
7. Select from the list of courses in category 3E in the AUCC.
8. Select from the list of courses in category 2D in the AUCC.
9. Select from the list of courses on English Department green sheet.
10. Select from the list of courses in category 3C in the AUCC.
11. Select from the list of courses in category 3F in the AUCC.

---

**TEACHING ENDORSEMENT CONCENTRATION**

Major in English

Teaching Endorsement Concentration*

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>E 160</td>
<td>Mythical and Biblical Backgrounds</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>E 240</td>
<td>Introduction to Poetry</td>
<td>3</td>
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<tr>
<td>LBCC 170</td>
<td>World Literatures to 1500</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>OR LBCC 171</td>
<td>World Literatures-The Modern Period</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>SPCC 200</td>
<td>Public Speaking</td>
<td>3</td>
<td>2B1</td>
</tr>
<tr>
<td></td>
<td>Arts/humanities</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>Biological/physical sciences</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td></td>
<td>First-year seminar</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Historical perspectives</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<tr>
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<td>---------------</td>
</tr>
<tr>
<td></td>
<td>Mathematics³</td>
<td>3</td>
<td>2C</td>
</tr>
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<td>TOTAL</td>
<td>31</td>
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**SOPHOMORE**

<table>
<thead>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>COCC</td>
<td>301D Writing in the Disciplines-Education (CO/COC 150)</td>
<td>3</td>
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<tr>
<td>E CC</td>
<td>270 Introduction to American Literature</td>
<td>3</td>
<td>3B or 3D</td>
</tr>
<tr>
<td>E CC</td>
<td>275 Introduction to British Literature</td>
<td>3</td>
<td>3B or 3D</td>
</tr>
<tr>
<td>E</td>
<td>342 Shakespeare I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>343 Shakespeare II</td>
<td>3</td>
<td></td>
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<tr>
<td>EDCC</td>
<td>275 Schooling in the United States (consent of Teacher Licensure Office)</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td>ED</td>
<td>331 Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<tr>
<td>ED</td>
<td>340 Literacy and the Learner (completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
<td>3</td>
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<tr>
<td></td>
<td>Biological/physical sciences²</td>
<td>3</td>
<td>3A</td>
</tr>
<tr>
<td></td>
<td>Health and wellness⁶</td>
<td>2</td>
<td>3G</td>
</tr>
<tr>
<td></td>
<td>Logical/critical thinking⁷</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td></td>
<td>Social/behavioral sciences⁸</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>30</td>
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</table>

**JUNIOR**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>322 English Language for Teachers I</td>
<td>3</td>
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</tr>
<tr>
<td>E</td>
<td>323 English Language for Teachers II (E 322)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>341 Principles of Literary Criticism (one course in literature)</td>
<td>3</td>
<td>4B</td>
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<tr>
<td>E</td>
<td>401 Teaching Reading (CO/COC 301D)</td>
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<tr>
<td>E</td>
<td>405 Adolescents Literature</td>
<td>3</td>
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<tr>
<td>ED</td>
<td>350 Instruction I-Individualization/Management (EDC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
<td>3</td>
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<tr>
<td>ED</td>
<td>386 Practicum-Instruction I</td>
<td>1</td>
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<tr>
<td>ED</td>
<td>463 Methods in Teaching Language Arts (ED 320; admission to Teacher Licensure Program)</td>
<td>4</td>
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<td></td>
<td>Upper-division English electives⁹</td>
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<td></td>
<td>TOTAL</td>
<td>32</td>
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**SENIOR**

<table>
<thead>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>402 Teaching Composition (CO/COC 301A-D)</td>
<td>3</td>
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<tr>
<td>ED</td>
<td>450 Instruction II-Standards and Assessment (ED 350; ED 386; concurrent reg. in ED 486J)</td>
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<tr>
<td>ED</td>
<td>485B Student Teaching-Secondary (ED 450, ED 463)</td>
<td>11</td>
<td>4B</td>
</tr>
<tr>
<td>ED</td>
<td>486J Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
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<tr>
<td>ED</td>
<td>493A Seminar-Professional Relations (concurrent reg. in ED 485A or B or VE 485)</td>
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<tr>
<td>ED</td>
<td>493B Seminar-Assessment of Learning (concurrent reg. in ED 485A or B or VE 485)</td>
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<td></td>
</tr>
</tbody>
</table>
Course | Title (Prerequisite) | Credits | AUCC Category
--- | --- | --- | ---
English elective\(^9\) | 3
Upper-division English elective\(^9\) | 3 | 4C

TOTAL | 27

PROGRAM TOTAL =120 credits

1. Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 3A in the AUCC. One course must have a laboratory component.
3. Select from the list of courses in category 1 in the AUCC.
4. Select one course from the following: AUCC 200, AUCC 201, HYCC 100, HYCC 101, HYCC 150, HYCC 151, HYCC 170, HYCC 171.
5. Select from the list of courses in category 2C in the AUCC.
6. Select from the list of courses in category 3G in the AUCC.
7. Select from the list of courses on English Department green sheet.
8. Select from the list of courses in category 3C in the AUCC.

The department requires Licensure majors to take 12 hours of upper-division E or CO prefix courses: 3 hours must be in British literature before 1800 or American literature before 1870; 3 hours must be in British literature after 1800 or American literature after 1870; and 3 hours must be in literature in translation. One of these courses must be a Major Authors capstone course (E 460, E 463, E 470), preferably taken in the senior year.

Any lower or upper-division E prefix course.

*The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.

WRITING CONCENTRATION

Major in English
Writing Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
<td>Select one pair of courses from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUCC 200</td>
<td>Self/Community in American Culture, 1600-1877</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>AUCC 201</td>
<td>Self/Community in American Culture Since 1877</td>
<td>3</td>
<td>3D, 3F</td>
</tr>
<tr>
<td>HYCC 100</td>
<td>Western Civilization, Pre-Modern</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>HYCC 101</td>
<td>Western Civilization, Modern</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>HYCC 150</td>
<td>U.S. History to 1876</td>
<td>3</td>
<td>3D, 3F</td>
</tr>
<tr>
<td>HYCC 151</td>
<td>U.S. History Since 1876</td>
<td>3</td>
<td>3D, 3F</td>
</tr>
<tr>
<td>HYCC 170</td>
<td>World Civilizations, Ancient-1500</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>HYCC 171</td>
<td>World Civilizations, 1500-Present</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>E 160</td>
<td>Mythical and Biblical Backgrounds</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SPCC 200</td>
<td>Public Speaking</td>
<td>3</td>
<td>2B1</td>
</tr>
<tr>
<td></td>
<td>Arts/humanities(^1)</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>First-year seminar(^2)</td>
<td>2-3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Health and wellness(^3)</td>
<td>2</td>
<td>3G</td>
</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC</td>
</tr>
<tr>
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</tr>
<tr>
<td>Mathematics$^4$</td>
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<td>3</td>
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<tr>
<td>Electives</td>
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<td>4-5</td>
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</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>29-31</td>
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</tr>
</tbody>
</table>

**SOPHOMORE**

| E | 240 | Introduction to Poetry | 3 | |
| E CC | 270 | Introduction to American Literature | 3 | 3B, 3D |
| E CC | 275 | Introduction to British Literature | 3 | 3B, 3D |
| Biological/physical sciences$^5$ | | 7 | | 3A |
| English elective$^6$ | | 3 | | |
| Global and cultural awareness$^7$ | | 3 | | 3E |
| Logical/critical thinking$^8$ | | 3 | | 2D |
| Philosophy$^9$ | | 3 | | |
| Social/behavioral sciences$^{10}$ | | 3 | | 3C |
| Electives | | 2 | | |
| TOTAL | | 30 | | |

**JUNIOR**

| COCC | 300 | Writing Arguments (CO/COCC 150) | 3 | 4A |
| COCC | 301A-D | Writing in the Disciplines (CO/COCC 150) | 3 | 4A |
| E | 341 | Principles-Literary Criticism (one course in literature) | 3 | 4B |
| E | 342 | Shakespeare I | 3 | |
| E | 343 | Shakespeare II | 3 | |
| Second Field$^{11}$ | | 6 | | |
| U.S. public values and institutions$^{12}$ | | 3 | | 3F |
| Upper division English/composition$^{13}$ | | 6 | | |
| Electives | | 6 | | |
| TOTAL | | 30 | | |

**SENIOR**

| CO | 401 | Advanced Composition (CO/COCC 300 or CO/COCC 301Aor B or C or D or CO/COCC 302) | 3 | |
| Select one of the following: | | | | |
| E | 406A | Literacy and Cultural Difference | 3 | |
| E | 406B | Literacy and Gender | 3 | |
| E | 406C | Literacy and Technology | 3 | |
| E | 406D | Literacy and Education | 3 | |
| Select one of the following: | | | | |
| E | 460 | Chaucer (E 160, E 341, and one other upper-division E prefix course) | 3 | 4C |
| E | 463 | Milton (E 160, E 341, and one other upper-division E prefix course) | 3 | 4C |
| E | 470 | Individual Author (E 341 and one other upper-division E prefix course) | 3 | 4C |
| Second field$^{11}$ | | 6 | | |
| Upper division electives$^{13}$ | | 9 | | |
| Electives | | 6 | | |
| TOTAL | | 30 | | |

**PROGRAM TOTAL = 120 credits**
DEPARTMENT OF FOREIGN LANGUAGES AND LITERATURES

Office in Clark Building, Room C 104
Professor Sara M. Saz, Chair

Major in Language, Literature, and Culture Studies

Would you like to travel overseas knowing that you can communicate effectively and comfortably? Are you aware of worldwide career opportunities for graduates with foreign language skills? Are you interested in learning about the geography, history, literature, and culture associated with the foreign language you learn? Would you like to become proficient in understanding, speaking, reading, and writing in another language? If so, a major or minor in foreign languages may be for you.

Gaining insight into a foreign culture through proficiency in its language and familiarity with its culture furthers intercultural understanding and international perspectives in a student’s total program of study. It is particularly valuable in fields such as social work, international relations and political science, international business or finance, computer science, tourism, and natural sciences. The programs in foreign languages emphasize oral and written proficiency. They also develop knowledge of the culture and literature, and the critical and analytical skills necessary for an understanding of their relationships. A major in a second language focuses on broadening and deepening proficiency and integrates this knowledge with the strengths of a liberal arts curriculum. The Department offers one major in Language, Literature and Culture Studies with concentrations in French, German, and Spanish.

Language majors accomplish:
- real and measurable functional competencies in the target language
- a practical command of grammar and pronunciation approaching that of a native speaker
- comprehension in reading and listening
- ability in speaking and writing in a manner acceptable to an educated native
- a practical command of the culturally defined aspects of the language and related cultural patterns of behavior, including non-verbal communication
- comprehension in reading and listening
- functional capability in speaking and writing in a manner that would be acceptable to an educated native
- a practical command of most of its culturally defined semantic functions and related cultural patterns of behavior, including the use of non-verbal communication
- in advanced-level study, a comfortable familiarity with most of the language- and culture-specific characteristics of its literature

The department strongly encourages study abroad and has exchange agreements in place with universities in China, Japan, France, Spain, and Germany. A wide variety of other options are available through the Study Abroad Office on campus.

Minors are offered in French, German, Japanese, Russian, and Spanish. Basic courses may also be taken in Chinese, Italian, Korean, and Latin.
 Characteristics and Skills

- Motivation to learn
- Good listening, clarifying, and responding skills
- Ability to think logically and quickly
- Patience and perseverance
- Ability to adjust to new environments
- High proficiency in phonetics
- Good problem solving skills
- Attention to detail

Potential Occupations

Rapid technological, economic, and political changes have dramatically increased the demand for college graduates with proficiencies in one or more foreign languages and cultures. Because of the major role the United States plays in world politics, business, and industry, the demand for foreign language skills will remain high. International opportunities are also expanding as nations become more economically and technologically integrated. Positions are available in government, industry, and academia. Participating in internships and cooperative education opportunities is highly recommended to enhance practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. The following are some of the career opportunities available to foreign language graduates:
- Journalist
- Bilingual administrative staff person*
- Bilingual educator*
- Translator**
- Foreign correspondent*
- Customs inspector
- Diplomat
- Tour guide/agent
- Import/export clerk
- Flight attendant
- Social worker
- Intelligence agent**
- Librarian*
- Textbook publisher
- Researcher**
- Tutor*
- Foreign language teacher**
- Teacher for English as a second language*
- Vista/Peace Corps. volunteer*

* language is highly useful or required
**language is needed as primary skill to obtain the position

The Department of Foreign Languages and Literatures has adopted proficiency guidelines, reflecting those set by the American Council on the Teaching of Foreign Languages, in oral and written uses of the language, knowledge of its culture, and the analytical and critical reasoning skills necessary for successful communication. The department requires all undergraduate majors to submit a written portfolio and have oral interviews for outcome assessment in their language during their final academic semester.

Major in Language, Literature, and Culture Studies
French, German, and Spanish Concentrations

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FRESHMAN</td>
<td></td>
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<tr>
<td>COCC  150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
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<tr>
<td>L CC  105</td>
<td>First-Year Language I (for students with no previous study in the language)</td>
<td>5</td>
<td>2B3</td>
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<tr>
<td>L CC  107</td>
<td>First-Year Language II (L/L CC 105 or L 106)</td>
<td>5</td>
<td>2B3</td>
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<tr>
<td></td>
<td>Arts/humanities²</td>
<td>3</td>
<td>3B</td>
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<tr>
<td></td>
<td>First-year seminar³</td>
<td>2-3</td>
<td>1</td>
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<tr>
<td></td>
<td>Health and wellness⁴</td>
<td>2</td>
<td>3G</td>
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<td></td>
<td>Historical perspectives³</td>
<td>6</td>
<td>3D</td>
</tr>
<tr>
<td></td>
<td>Social/behavioral sciences⁶</td>
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<td>3C</td>
</tr>
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<td>29-30</td>
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<td>Course</td>
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<td>Credits</td>
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<tr>
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<tr>
<td>SOPHOMORE</td>
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<tr>
<td>L CC 200</td>
<td>Second-Year Language I (L/L CC 107 or L 108 or placement exam)</td>
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<td>2B3</td>
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<tr>
<td>L CC 201</td>
<td>Second-Year Language II (L/L CC 200 or placement exam)</td>
<td>3</td>
<td>2B3</td>
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<tr>
<td></td>
<td>Additional communication&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3</td>
<td>2B</td>
</tr>
<tr>
<td></td>
<td>Global and cultural awareness&lt;sup&gt;8&lt;/sup&gt;</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td>Logical/critical thinking&lt;sup&gt;6&lt;/sup&gt;</td>
<td>3</td>
<td>2D</td>
</tr>
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<td></td>
<td>Mathematics&lt;sup&gt;10&lt;/sup&gt;</td>
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</tr>
<tr>
<td></td>
<td>Biological/physical sciences&lt;sup&gt;11&lt;/sup&gt;</td>
<td>7</td>
<td>3A</td>
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<tr>
<td></td>
<td>U.S. public values and institutions&lt;sup&gt;12&lt;/sup&gt;</td>
<td>3</td>
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<tr>
<td>JUNIOR</td>
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</tr>
<tr>
<td>L CC 300</td>
<td>Reading and Writing for Communication (L/L CC 201 or L 208)</td>
<td>3</td>
<td>2B3</td>
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<tr>
<td>L 310</td>
<td>Approaches to Literature (L/L CC 201 or L 208)</td>
<td>3</td>
<td></td>
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<tr>
<td>L 335</td>
<td>Issues in Culture (L/L CC 201 or L 208)</td>
<td>3</td>
<td></td>
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<tr>
<td>TOTAL</td>
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<td></td>
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<tr>
<td>SENIOR</td>
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<td></td>
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<tr>
<td>L 400</td>
<td>Advanced Communication Skills (L/L CC 300)</td>
<td>3</td>
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<td></td>
<td>French students, select one:</td>
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<td></td>
</tr>
<tr>
<td>L 433A</td>
<td>Advanced French/Francophone Culture Representations (L 335F)</td>
<td>3</td>
<td>4A</td>
</tr>
<tr>
<td>L 433B</td>
<td>Advanced French/Francophone Culture Center and Margins (L 335F)</td>
<td>3</td>
<td>4A</td>
</tr>
<tr>
<td>L 434</td>
<td>Advanced German Culture&lt;sup&gt;13&lt;/sup&gt; (L 335G)</td>
<td>3</td>
<td>4A</td>
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<tr>
<td></td>
<td>Spanish students, select one:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L 436</td>
<td>Advanced Latin American Culture (L 335S)</td>
<td>3</td>
<td>4A</td>
</tr>
<tr>
<td>L 437</td>
<td>Advanced Spanish Culture (L 335S)</td>
<td>3</td>
<td>4A</td>
</tr>
<tr>
<td>L 492</td>
<td>Seminar-Language, Literature and Society (L 310 and two 400-level courses; senior status)</td>
<td>3</td>
<td>4B, 4C</td>
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<td>TOTAL</td>
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<tr>
<td>CORE TOTAL = 75-76 credits&lt;sup&gt;14&lt;/sup&gt;</td>
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</table>

<sup>1</sup> French, German, or Spanish.
<sup>2</sup> Select from the list of courses in category 3B of the All-University Core Curriculum (AUCC).
<sup>3</sup> Select from the list of courses in category 1 of the AUCC.
<sup>4</sup> Select from the list of courses in category 3G of the AUCC.
<sup>5</sup> Select six credits from the list of courses in category 3D of the AUCC.
<sup>6</sup> Select from the list of courses in category 3C in the AUCC.
<sup>7</sup> Select from the list of approved courses in the department.
<sup>8</sup> Select from the list of courses in category 3E of the AUCC.
<sup>9</sup> Select from the list of courses in category 2D in the AUCC.
<sup>10</sup> Select from the list of courses in category 2C in the AUCC.
<sup>11</sup> Select from the list of courses in category 3A in the AUCC.
<sup>12</sup> Select from the list of courses in category 3F in the AUCC.
<sup>13</sup> Requirement for German students only.
<sup>14</sup>
In order to complete the degree, each student must also complete one of the following options: language, literature, and culture or language, literature, culture, and second language.

**Major in Language, Literature and Culture Studies**

**French, German, and Spanish Concentrations**

**Language, Literature, and Culture Option**

In addition to the French, German, or Spanish concentration core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>JUNIOR</td>
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<td>French students, select three of the following courses:</td>
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</tr>
<tr>
<td>L 301F</td>
<td>Oral Communication-French (L/L CC 300F)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 313F</td>
<td>Introduction to Translation and Interpreting-French (L/L CC 300F or written consent of instructor)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 326F</td>
<td>French Phonetics (L/L CC 300F or concurrent reg.)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 345F</td>
<td>Business French (L/L CC 300F)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 355F</td>
<td>20th-Century French Literature (L 310F)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 450F</td>
<td>Selected French Literary Movements and Periods (L/L CC 300F, L 310F)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 452F</td>
<td>Genre Studies in French (L/L CC 300F, L 310F)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 453F</td>
<td>Author Studies in French (L/L CC 300F, L 310F)</td>
<td>3</td>
<td></td>
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<tr>
<td>L 454F</td>
<td>Topic Studies in French (L/L CC 300F, L 310F)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 460F</td>
<td>French/Francophone Women Writers (L/L CC 300F, L 310F)</td>
<td>3</td>
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<tr>
<td></td>
<td>German students, select three of the following courses:</td>
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<tr>
<td>L 301G</td>
<td>Oral Communication-German (L/L CC 300G)</td>
<td>3</td>
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<tr>
<td>L 313G</td>
<td>Introduction to Translation and Interpreting-German (L/L CC 300G or written consent of instructor)</td>
<td>3</td>
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<tr>
<td>L 326G</td>
<td>German Phonetics (L/L CC 300G or concurrent reg.)</td>
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<tr>
<td>L 345G</td>
<td>Business German (L/L CC 300G)</td>
<td>3</td>
<td></td>
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<tr>
<td>L 355G</td>
<td>20th-Century German Literature (L 310G)</td>
<td>3</td>
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</tr>
<tr>
<td>L 450G</td>
<td>Selected German Literature Movements and Periods (L/L CC 300G, L 310G)</td>
<td>3</td>
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<tr>
<td>L 452G</td>
<td>Genre Studies in German (L/L CC 300G, L 310G)</td>
<td>3</td>
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<tr>
<td>L 453G</td>
<td>Author Studies in German (L/L CC 300G, L 310G)</td>
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<tr>
<td>L 454G</td>
<td>Topic Studies in German (L/L CC 300G, L 310G)</td>
<td>3</td>
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<tr>
<td></td>
<td>Spanish students, select two of the following courses:</td>
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</tr>
<tr>
<td>L 301S</td>
<td>Oral Communication-Spanish (L/L CC 300S)</td>
<td>3</td>
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<tr>
<td>L 313S</td>
<td>Introduction to Translation and Interpreting-Spanish (L/L CC 300S or written consent of instructor)</td>
<td>3</td>
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<tr>
<td>L 326S</td>
<td>Spanish Phonetics (L/L CC 300S or concurrent reg.)</td>
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<tr>
<td>L 345S</td>
<td>Business Spanish (L/L CC 300S)</td>
<td>3</td>
<td></td>
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<tr>
<td>L 413</td>
<td>Advanced Spanish Translation/Interpreting (L 313S or written consent of instructor)</td>
<td>3</td>
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<tr>
<td>L 436</td>
<td>Advanced Latin American Culture (L 335S)</td>
<td>3</td>
<td></td>
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<tr>
<td>L 437</td>
<td>Advanced Spanish Culture (L 335S)</td>
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<td></td>
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<tr>
<td>L 442</td>
<td>Social Manifestations of Hispanic Poetry (L/L CC 300S, L 310S)</td>
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<td>L 443</td>
<td>Spanish Theatre (L/L CC 300S, L 310S)</td>
<td>3</td>
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<tr>
<td>L 445</td>
<td>Hispanic Women Writers (L/L CC 300S, L 310S)</td>
<td>3</td>
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<tr>
<td>L 450S</td>
<td>Selected Spanish Literature Movements and Periods (L/L CC 300S, L 310S)</td>
<td>3</td>
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</tr>
<tr>
<td>L 452S</td>
<td>Genre Studies in Spanish (L/L CC 300S, L 310S)</td>
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<tr>
<td>L 453S</td>
<td>Author Studies in Spanish (L/L CC 300S, L 310S)</td>
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<tr>
<td>L 454S</td>
<td>Topic Studies in Spanish (L/L CC 300S, L 310S)</td>
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<table>
<thead>
<tr>
<th>Electives</th>
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**SENIOR**

<table>
<thead>
<tr>
<th>400-level French</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>400-level German</td>
<td>OR</td>
</tr>
<tr>
<td>400-level Spanish</td>
<td>6</td>
</tr>
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<td>Course</td>
<td>Title (Prerequisite)</td>
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<td>-------</td>
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<tr>
<td></td>
<td>Electives, upper-division(^4)</td>
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<td></td>
<td>Electives(^5)</td>
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<td></td>
<td>TOTAL</td>
</tr>
</tbody>
</table>

PROGRAM TOTAL = 120 credits

1 For French students, select one 400-level French course from the list above.
2 For German students, select one 400-level German course from the list above.
3 For Spanish students, select two 400-level Spanish courses from the list above.
4 400-level course, English speaking FLL course in student’s concentration (L 465A-C) or non-Foreign Languages and Literatures course with adviser’s approval.
5 Select enough elective credits to bring total credits to 120.

Major in Language, Literature and Culture Studies
French, German, and Spanish Concentrations
Language, Literature, Culture, and a Second Language Option

In addition to the French, German, or Spanish concentration core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td></td>
<td>French students, select two of the following courses:</td>
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</tr>
<tr>
<td>L 301F</td>
<td>Oral Communication-French (L/L CC 300F)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 313F</td>
<td>Introduction to Translation and Interpreting-French (L/L CC 300F or written consent of instructor)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 326F</td>
<td>French Phonetics (L/L CC 300F or concurrent reg.)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 345F</td>
<td>Business French (L/L CC 300F)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 355F</td>
<td>20(^{th})-Century French Literature (L 310F)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 450F</td>
<td>Selected Literary Movements and Periods-French (L/L CC 300F, L 310F)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 452F</td>
<td>Genre Studies in French (L/L CC 300F, L 310F)</td>
<td>3</td>
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<tr>
<td>L 453F</td>
<td>Author Studies in French (L/L CC 300F, L 310F)</td>
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<tr>
<td>L 454F</td>
<td>Topic Studies in French (L/L CC 300F, L 310F)</td>
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<td></td>
</tr>
<tr>
<td>L 460F</td>
<td>French/Francophone Women Writers (L/L CC 300F, L 310F)</td>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td></td>
<td>German students, select two of the following courses:</td>
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<tr>
<td>L 301G</td>
<td>Oral Communication-German (L/L CC 300G)</td>
<td>3</td>
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<tr>
<td>L 313G</td>
<td>Introduction to Translation and Interpreting-German (L/L CC 300G or written consent of instructor)</td>
<td>3</td>
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</tr>
<tr>
<td>L 326G</td>
<td>German Phonetics (L/L CC 300G or concurrent reg.)</td>
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<tr>
<td>L 345G</td>
<td>Business German (L/L CC 300G)</td>
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<tr>
<td>L 355G</td>
<td>20(^{th})-Century German Literature (L 310G)</td>
<td>3</td>
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<tr>
<td>L 450G</td>
<td>Selected German Literature Movements and Periods (L/L CC 300G, L 310G)</td>
<td>3</td>
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<tr>
<td>L 452G</td>
<td>Genre Studies in German (L/L CC 300G, L 310G)</td>
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<td>L 453G</td>
<td>Author Studies in German (L/L CC 300G, L 310G)</td>
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<td>L 454G</td>
<td>Topic Studies in German (L/L CC 300G, L 310G)</td>
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<td>L 301S</td>
<td>L 302S</td>
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<tr>
<td>L 312</td>
<td>Introduction to Spanish Linguistics (L/L CC 300S or concurrent reg.)</td>
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</tr>
<tr>
<td>L 313S</td>
<td>Introduction to Translation and Interpreting-Spanish (L/L CC 300S or written consent of instructor)</td>
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<tr>
<td>L 326S</td>
<td>Spanish Phonetics (L/L CC 300S or concurrent reg.)</td>
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<tr>
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<tr>
<td>L 413</td>
<td>Advanced Spanish Translation/Interpreting (L 313S or written consent of instructor)</td>
<td>3</td>
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<tr>
<td>L 450S</td>
<td>Selected Spanish Literature Movements and Periods (L/L CC 300S, L 310S)</td>
<td>3</td>
<td></td>
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<tr>
<td>L 452S</td>
<td>Genre Studies in Spanish (L/L CC 300S, L 310S)</td>
<td>3</td>
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<td>L 453S</td>
<td>Author Studies in Spanish (L/L CC 300S, L 310S)</td>
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<tr>
<td>L 470</td>
<td>Spanish Syntax and Semantics-Teaching Methods (L 312)</td>
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<tr>
<td>Electives</td>
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<td>21</td>
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</tbody>
</table>

**SENIOR**

400-level French<sup>1</sup> OR 400-level German<sup>2</sup> OR 400-level Spanish<sup>3</sup>

Second language courses<sup>4</sup> 8-12 Electives<sup>5</sup> 8-13 23-24

**PROGRAM TOTAL = 120 credits**

<sup>1</sup> For French students, select one 400-level French course from the list above.
<sup>2</sup> For German students, select one 400-level German course from the list above.
<sup>3</sup> For Spanish students, select one 400-level Spanish course from the list above.
<sup>4</sup> Lower and/or upper-division second language courses.
<sup>5</sup> Select enough elective credits to bring total credits to 120.

**Major in Language, Literature, and Culture Studies**

**French, German, Spanish Concentrations**

**Teaching Endorsement**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>L CC 200</td>
<td>Second Year Language I (L/L CC 107 or L 108 or placement)</td>
<td>3</td>
<td>2B3</td>
</tr>
<tr>
<td>L CC 201</td>
<td>Second Year Language II (L/L CC 200 or placement)</td>
<td>3</td>
<td>2B3</td>
</tr>
<tr>
<td>LBCC 192</td>
<td>College of Liberal Arts First-Year Seminar</td>
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<tr>
<td>SPCC 200</td>
<td>Public Speaking</td>
<td>3</td>
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<tr>
<td>Biological/physical sciences&lt;sup&gt;1&lt;/sup&gt;</td>
<td>4</td>
<td>3A</td>
<td></td>
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<tr>
<td>Health and wellness&lt;sup&gt;2&lt;/sup&gt;</td>
<td>2</td>
<td>3G</td>
<td></td>
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<tr>
<td>Historical perspectives&lt;sup&gt;3&lt;/sup&gt;</td>
<td>6</td>
<td>3D</td>
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<tr>
<td>Mathematics&lt;sup&gt;4&lt;/sup&gt;</td>
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**SOPHOMORE**
<table>
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<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>COCC 300</td>
<td>Writing Arguments</td>
<td>3</td>
<td>2B2</td>
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<tr>
<td>EDCC 275</td>
<td>Schooling in the United States (consent of Teacher Licensure Office)</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td>ED 331</td>
<td>Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits or course work; consent of Teacher Licensure Office)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>L CC 300</td>
<td>Reading and Writing for Communication (L/L CC 201 or L 208)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 310</td>
<td>Approaches to Literature (L/L CC 201 or L 208)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 326</td>
<td>Phonetics (L 304/L CC 300 or concurrent reg.)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>L 335</td>
<td>Issues in Culture (L/L CC 201 or L 208)</td>
<td>3</td>
<td></td>
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<tr>
<td>OR</td>
<td></td>
<td></td>
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<tr>
<td>L 336</td>
<td>Introduction to Spanish-American Civilization (L/L CC 201S or L 208S)</td>
<td>3</td>
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<tr>
<td>PLCC 110</td>
<td>Logic and Critical Thinking</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>PYCC 100</td>
<td>General Psychology</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td></td>
<td>Biological/physical sciences^{1}</td>
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<td>3A</td>
</tr>
<tr>
<td></td>
<td>Global and cultural awareness^{5}</td>
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<td>3E</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>31</td>
<td></td>
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</tbody>
</table>

**JUNIOR**

| ED 350 | Instruction I: Individualization/Management (ED/EDCC 275; concurrent reg. in ED 386; admission to Teacher Licensure Program) | 3       |               |
| ED 386 | Practicum (ED 320 or concurrent registration)                                       | 1       |               |
| EDCC 430 | Diversity and Communication (ED/EDCC 310, admission to Teacher Licensure Program) | 3       | 3E            |
| L 312 | Introduction to Spanish Linguistics (L/L CC 300S or concurrent reg.)                | 3       |               |
| OR    |                                                                                     |         |               |
| E 320A-D | Introduction to the Study of Language                                               | 3       |               |
| L 400 | Advanced Communication Skills (L/L CC 300)                                          | 3       |               |
|        | Select one of the following courses:                                                |         |               |
| L 433A-B | Advanced French/ Francophone Culture (L 335F)                                      | 3       |               |
| L 434 | Advanced German Culture (L 335G)                                                    | 3       |               |
| L 436 | Advanced Latin American Culture (L 335S)                                            | 3       |               |
| L 437 | Advanced Spanish Culture (L 335S)                                                   | 3       |               |
| L 438 | 300- or 400-level language                                                           | 6       |               |
| L 400 | 400-level language                                                                  | 3       |               |
|        | Arts/humanities^{6}                                                                 | 3       | 3B            |
|        | U.S. public values and institutions^{2}                                              | 3       | 3F            |
| TOTAL  |                                                                                     | 31      |               |

**SENIOR**

| ED 450 | Instruction II: Standards and Assessment (EDCC 310/EDCC 275, ED 340, ED 350, ED 386; concurrent reg. in ED 486J) | 3       |               |
| ED 462 | Methods and Materials in Teaching Languages (ED 320; admission to Teacher Licensure Program; thirty-two 300-400 level credits in one language including phonetics and L 401; foreign language proficiency test) | 4       |               |
| ED 485B | Student Teaching-Secondary (ED 450 and appropriate special methods courses)        | 11      |               |
| ED 486J | Practicum-Methods and Assessment (admission to Teacher Licensure Program)           | 1       |               |
| ED 493A | Seminar in Professional Relations (concurrent reg. in ED 485A or B)                  | 1       |               |
The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher education will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the preparation with the new requirements, but it is important that they consult with their assigned adviser or the School of Education immediately to plan their curriculum.

DEPARTMENT OF HISTORY

Office in Clark Building, Room B 357
Professor Ruth M. Alexander, Chair

Major in History

Are you interested in understanding and interpreting past human events? Would you like to learn how and why important political and economic decisions were made? Are you interested in the histories of other cultures? Would you like to write a history of your community? Are you interested in genealogy, archiving, teaching, or curating a museum? These are a few of the things that historians do.

History is an accounting of our human past and seeks to interpret the course of human affairs through evidence and reason. Historians rely on written records and materials, using them to understand and comprehend the present. History provides insights that help us understand how individuals and groups make decisions, exercise power, or respond to change. History provides a form of knowledge which cannot be rendered obsolete by a changing technological world.

The program is designed to enhance the students' knowledge about the past, improve their ability to think logically and critically, and to express themselves in clear and precise language. Specialized programs are available in historic preservation and restoration, and in archival and records management. The Liberal Arts concentration is an excellent major for students planning further professional study in law, medicine, ministry, library science, archival and record management, or graduate work in history. The curriculum includes a foreign language option, or a quantitative option and requires approximately 120 credits to graduate. The Social Studies Teaching concentration is for students who plan to teach in junior high or high school. Students must also complete the requirements for the social studies undergraduate teaching endorsement in the School of Education. This concentration requires 122-23 credits.

Characteristics and Skills

Understanding Society
- Knowledge of how societies change
- A broadly developed world view
- Ability to analyze the impact of the past
- A clearer understanding of the present

Communications
- Excellent writing and speaking skills
- Mastery of summary and synthesis
- Expertise in interpreting events and ideas
- Capacity to compare and compile reports
- Ability to describe and evaluate issues, problems, and events

**Research**
- Analysis and comparison of contrasting ideas and information
- Interviewing and observation skills
- Capacity to work with details
- Organization and compiling skills

**Project Development**
- Ability to generate new ideas and projects
- Expertise in planning and organizing
- Decision making skills

**Potential Occupations**

History graduates apply their education in a large variety of occupations in the nonprofit, private and public sectors. History like many liberal arts majors provides students with a broad academic background suitable for a variety of jobs in the public and private sectors. History majors are trained to think independently and critically, communicate effectively, and function in a multicultural world. Many employers appreciate liberal arts majors for their multiple skills and their ability to adapt to a variety of tasks and work environments. Participating in internships and cooperative education opportunities is highly recommended to enhance your practical training and development. Careers for graduates are available in education, business, and government. Participation in internships or cooperative education opportunities is highly recommended to enhance practical training and development. Graduates who go on for advanced studies can pursue careers in History or attain advanced positions with the possibility of rising to top professional levels. Depending on your interests, the electives you take, or the minor you select, available career choices include but are not limited to the following:

**Nonprofit sector**
- Historical association or project coordinator
- Archivist
- Catalog researcher
- Technical librarian
- Museum curator or conservator
- Educational materials consultant
- Publication and public relations specialist

**Public sector**
- Public archivist
- Government planner
- Foreign service officer
- Historian
- Teacher/professor
- Heritage or cultural agency director
- Intelligence agent
- Legislative administrative assistant
- Librarian or museum curator
- State historic preservation officer

**Private sector**
- Consultant
- Free-lance writer
- Cultural resource manager
- Historical, legal, and policy researcher
- Preservationist
- Restoration supervisor
- Film editor, video specialist
- Publisher, editor, journalist
- Banker
- Investment consultant
- Insurance agent
- Attorney
- Marketing researcher
- Public relations consultant
- Travel agent
- Staff trainer
- Archival record-keeping technician

---

**LIBERAL ARTS CONCENTRATION**

**Major in History**
**Liberal Arts Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
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<tr>
<td>COCC 150</td>
<td>College Composition  (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>HYCC 100</td>
<td>Western Civilization, Pre-Modern</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>HYCC 101</td>
<td>Western Civilization, Modern</td>
<td>3</td>
<td>3D</td>
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</table>

Select one pair of courses from the following:

**OR**

<p>| HYCC 170 | World Civilizations, Ancient-1500     | 3       | 3D            |
| HYCC 171 | World Civilizations, 1500-Present     | 3       | 3D            |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
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<tbody>
<tr>
<td>HYCC 150</td>
<td>U.S. History to 1876</td>
<td>3</td>
<td>3F</td>
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<tr>
<td>HYCC 151</td>
<td>U.S. History Since 1876</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td></td>
<td>Arts/humanities¹</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>Biological/physical sciences²</td>
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<td>3A</td>
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<tr>
<td></td>
<td>First year seminar³</td>
<td>2-3</td>
<td>1</td>
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<td></td>
<td>Health and wellness⁴</td>
<td>2</td>
<td>3G</td>
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<tr>
<td></td>
<td>Mathematics⁵</td>
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**TOTAL** 29-30

**SOPHOMORE**

Select one of the following:

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<th>Course</th>
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<tbody>
<tr>
<td>HYCC 216</td>
<td>The Islamic World</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>HYCC 219</td>
<td>Africa: Pre-Colonial States and Empires</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>HYCC 230</td>
<td>Medieval Europe</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>HYCC 270</td>
<td>Colonial Latin America</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>HYCC 271</td>
<td>Latin America Since Independence</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>HYCC 273</td>
<td>Asian Civilizations I</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>HYCC 274</td>
<td>Asian Civilizations II</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td>Additional communication⁶</td>
<td>3</td>
<td>2B</td>
</tr>
<tr>
<td></td>
<td>Logic/critical thinking⁷</td>
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<td>2D</td>
</tr>
<tr>
<td></td>
<td>Social/behavioral sciences⁸</td>
<td>3</td>
<td>3C</td>
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<tr>
<td></td>
<td>Language and quantitative options⁹</td>
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<tr>
<td></td>
<td>History electives¹⁰</td>
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<td>Electives</td>
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**TOTAL** 25-36

**JUNIOR**

<table>
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<th>Course</th>
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<tr>
<td>HY 301</td>
<td>Historical Methods¹¹,¹²</td>
<td>3</td>
<td>4A</td>
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<tr>
<td></td>
<td>History, upper-division non-U.S.¹²,¹³</td>
<td>6</td>
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<tr>
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<td>History, upper-division U.S.¹²</td>
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**TOTAL** 30

**SENIOR**

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<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>HY 492</td>
<td>Capstone Seminar¹¹,¹² (HY 301; senior status or written consent of instructor)</td>
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<td>4B, 4C</td>
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<td></td>
<td>History electives, upper-division¹²</td>
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<td></td>
<td>Electives</td>
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</table>

**TOTAL** 30

**PROGRAM TOTAL = 120 credits**

¹ Select from list of courses in category 3B in the All-university Core Curriculum (AUCC).
² Select from list of courses in category 3A in the AUCC.
³ Select from list of courses in category 1 in the AUCC.
⁴ Select from list of courses in category 3G in the AUCC.
⁵ Select from list of courses in category 2C in the AUCC.
⁶ Select from list of courses in category 2B in the AUCC.
⁷ Select from list of courses in category 2D in the AUCC.
⁸ Select from list of courses in category 3C in the AUCC.
Each History major must choose either the “Foreign Language Option” or the “Quantitative Option,” (see below). The credit distribution for these options ranges from 9-16 depending on the specific courses taken, especially for those majors choosing the “Foreign Language Option.”

Select two history courses, any level.
Restricted to history majors only.
Any student seeking to register for 300- or 400-level history courses must have completed 45 credits or have received written consent from the instructor.
Select one upper-division course from two categories-Africa, East Asia, Europe, Latin America/Caribbean, Middle East, World.
Select one upper-division U.S. history course.
Select three upper-division history courses.

Language Option

In addition to the liberal arts concentration courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Foreign language option</td>
<td>6-10</td>
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</tr>
</tbody>
</table>

1 Placement exam required. One year (2 semesters) college or university foreign language courses required, regardless of level; i.e., first or second year in the same language. L/L CC 200 or placement into L CC 201 or higher may be used to fulfill the AUCC Additional Communication requirement (category 2B3)

Quantitative Option

In addition to the liberal arts concentration courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCC 151</td>
<td>C++ for Scientists and Engineers (M/M CC 124, M/M CC 126)</td>
<td>4</td>
<td>2D</td>
</tr>
<tr>
<td>CSCC 153</td>
<td>Java Programming (M/M CC 118 or M/M CC 121)</td>
<td>4</td>
<td>2D</td>
</tr>
<tr>
<td>CS 154</td>
<td>C++ to Java Programming Module (college-level C++ course)</td>
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</tr>
<tr>
<td>STCC 201</td>
<td>General Statistics (M/M CC 120A-B)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>STCC 204</td>
<td>Statistics for Business Students (M/M CC 120A-B)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
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<td>2D</td>
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<tr>
<td>ST 302</td>
<td>Design of Experiments (ST/STCC 301 or ST/STCC 307 or EH/EHCC 307 or ST/STCC 309 or ST 311)</td>
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<tr>
<td>ST 303</td>
<td>Introduction to Communications Principles (M 261)</td>
<td>2</td>
<td></td>
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<tr>
<td>EE 303</td>
<td>Introduction to communications Principles (M 261)</td>
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</tr>
<tr>
<td>ST 304</td>
<td>Multiple Regression Analysis (M 229, ST/STCC 301 or ST/STCC 307 or EH/EHCC 307 or ST/STCC 309 or ST 311)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ST 305</td>
<td>Sampling Techniques (ST/STCC 301 or ST/STCC 307 or EH/EHCC 307 or ST/STCC 309 or ST 311)</td>
<td>3</td>
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<tr>
<td>STCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
<td>3</td>
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<tr>
<td>EHCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>STCC 309</td>
<td>Statistics for Engineers or Scientists (M/M CC 161 or M/M CC 255)</td>
<td>3</td>
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<tr>
<td>ST 310</td>
<td>Data Analysis and Database Management Tools (ST/STCC 301 or ST/STCC 307 or EH/EHCC 307 or ST/STCC 309 or ST 311)</td>
<td>3</td>
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<tr>
<td>ST 311</td>
<td>Statistics for Behavioral Sciences I (M/M CC 121)</td>
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<tr>
<td>ST 312</td>
<td>Statistics for Behavioral Sciences II (ST 311 or written consent of instructor)</td>
<td>3</td>
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<tr>
<td>STCC 101</td>
<td>Activity Based Statistics (Math Placement Exam)</td>
<td>3</td>
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<tr>
<td>STCC 110</td>
<td>Statistical Thinking: Concepts and Applications (Math Placement Exam)</td>
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### SOCIAL STUDIES TEACHING CONCENTRATION

**Major in History**  
Social Studies Teaching Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
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<tr>
<td>HYCC 100</td>
<td>Western Civilization, Pre-Modern</td>
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<td>3D</td>
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<tr>
<td>HYCC 101</td>
<td>Western Civilization, Modern</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>HYCC 170</td>
<td>World Civilizations, Ancient-1500</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td>HYCC 171</td>
<td>World Civilizations, 1500-Present</td>
<td>3</td>
<td>3D</td>
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<tr>
<td>SPCC 200</td>
<td>Public Speaking¹</td>
<td>3</td>
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<td>Biological/physical sciences²</td>
<td>7</td>
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<tr>
<td></td>
<td>First-year seminar³</td>
<td>2-3</td>
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<td>Health and wellness⁴</td>
<td>2</td>
<td>3G</td>
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<td></td>
<td>Logical/critical thinking⁵</td>
<td>3</td>
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<td>Mathematics⁶</td>
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<td><strong>TOTAL</strong></td>
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<p>| <strong>SOPHOMORE</strong> |                                                        |         |               |
| ECCC 202      | Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)| 3       | 3C            |
| ECCC 204      | Principles of Macroeconomics (EA/EACC 202 or EC/ECCC 202)| 3       | 3F            |
| HYCC 150      | U.S. History to 1876                                     | 3       | 3F            |
| HYCC 151      | U.S. History Since 1876                                  | 3       | 3F            |
| HYCC 216      | The Islamic World                                         | 3       | 3E            |
| HYCC 219      | Africa: Pre-Colonial States and Empires                   | 3       | 3E            |
| HYCC 230      | Medieval Europe                                           | 3       | 3E            |
| HYCC 270      | Colonial Latin America                                    | 3       | 3E            |
| HYCC 271      | Latin America Since Independence                          | 3       | 3E            |
| HYCC 273      | Asian Civilizations I                                     | 3       | 3E            |
| HYCC 274      | Asian Civilizations II                                    | 3       | 3E            |
| GR 100        | Introduction to Geography                                 | 3       |               |
| GR 320        | Cultural Geography (GR 100)                               | 3       |               |
| POCC 101      | American Government and Politics                          | 3       | 3E, 3F        |
| POCC 103      | State and Local Government and Politics                   | 3       | 3E, 3F        |
|              | Arts/humanities⁷                                           | 3       | 3B            |
|              | History elective⁸                                         | 3       |               |
| <strong>TOTAL</strong>     |                                                           | 33      |               |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>JUNIOR</td>
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<tr>
<td>EDCC</td>
<td>275 Schooling in the United States (consent of Teacher Licensure Office)</td>
<td>3</td>
<td>3F</td>
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<tr>
<td>ED</td>
<td>331 Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<tr>
<td>ED</td>
<td>340 Literacy and the Learner (completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
<td>3</td>
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<tr>
<td>ED</td>
<td>350 Instruction I-Individualization/Management EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
<td>3</td>
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<tr>
<td>ED</td>
<td>386 Practicum (ED 320; admission to Teacher Licensure Program)</td>
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<tr>
<td>ED</td>
<td>465 Methods and Materials-Social Studies (ED 320, admission to Teacher Licensure Program)</td>
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<tr>
<td>HY</td>
<td>301 Historical Methods</td>
<td>3</td>
<td>4A</td>
</tr>
</tbody>
</table>

Select one of the following:
- APCC 100 Introductory Cultural Anthropology
- PYCC 100 General Psychology
- S CC 100 General Sociology
- S CC 105 Social Problems

Upper-division U.S. history$^9$

Total

<table>
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<tr>
<th>Credits</th>
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SENIOR

<table>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ED</td>
<td>450 Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
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<td>ED</td>
<td>485B Student Teaching-Secondary (ED 450, ED 465)</td>
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<tr>
<td>ED</td>
<td>486J Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
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<tr>
<td>ED</td>
<td>493A Seminar-Professional Relations (concurrent reg. in ED 485A or B or VE 485)</td>
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<tr>
<td>ED</td>
<td>493B Seminar-Assessment of Learning (concurrent reg. in ED 485A or B or VE 485)</td>
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<tr>
<td>HY</td>
<td>492 Capstone Seminar (HY 301; senior status or written consent of instructor)</td>
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</table>

Upper-division non-U.S. history$^9$

Total

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
</tr>
</tbody>
</table>

PROGRAM TOTAL = 122-123 credits

1 Students must earn a B in SPCC 200 for it to count toward certification.
2 Select from the list of courses in category 3A in the All-University Core Curriculum (AUCC). One course must have a laboratory component.
3 Select from the list of courses in category 1 in the AUCC.
4 Select from the list of courses in category 3G in the AUCC.
5 Select from the list of courses in category 2D in the AUCC.
6 Select from the list of courses in category 2C in the AUCC.
7 Select from the list of courses in category 3B in the AUCC.
8 One history course, any level.
9 One course pre-1876; one course post-1876; one student’s choice.
10 Students must take one upper-division course from three of the following categories: Africa, East Asia, Europe, Latin America/Caribbean, Middle East, World.

*The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the
catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.

DEPARTMENT OF JOURNALISM AND TECHNICAL COMMUNICATION

Office in Clark Building, Room C 225
Professor Gregory N. Luft, Interim Chair

Major in Technical Journalism

Do you enjoy writing? Are current news events, important social issues, or the exploration of new developments in art, travel, entertainment, science, technology, and business some topics that you would like to write about? Do investigating and reporting the real stories behind the scenes intrigue you? Does the fast moving world of advertising and promotion of the latest products, interesting places or new ideas sound exciting to you? Would you like to use modern techniques and the tools of video communications and television news production to inform people about what is happening around the world? If you answer “yes” to any of these questions then a major in Technical Journalism may be just for you.

The study of journalism and mass communication combines high-level professional training with a broad foundation in the liberal arts. Students complete a 13-credit core in one of four concentrations and 6-9 credits of mass media and society courses. Students also complete a professionally administered media internship program. Additional practical experience can be gained on the staffs of the daily Rocky Mountain Collegian, the award winning campus television station CTV, KCSU Radio, and the Silver Spruce year book. Graduating seniors present professional portfolios for assessment by panels of faculty and communication professionals from Denver and elsewhere in Colorado. Because successful communicators require broad knowledge, this flexible program encourages development of a background in the humanities, social sciences, natural sciences, and in-depth study in an area of interest outside journalism. The addition of a minor or double major in a related discipline such as political science, economics, business, speech communication, psychology or a foreign language is possible. The Department of Technical Journalism is one of a relatively small number of departments recognized nationally by the Accrediting Council for Education in Journalism and Mass Communications

The four concentrations offered are: News-Editorial for those who seek careers as newspaper and general magazine writers, reporters, and editors; Public Relations for training communication specialists in business, government, non-profit organizations, and public relations and advertising agencies; Specialized Communication for those who wish to write or edit for publications aimed at professional, technical, and other specialized audiences; and Television News and Video Communication for students pursuing television news and video production careers, in corporations, government agencies and institutions, cable television and the news media.

Characteristics And Skills

- Strong interest in and aptitude for writing
- Strong interest in mass communications
- Interest in a broad liberal arts education
- Ability to meet deadlines
- Ability to work in a team or independently
- Desire to investigate and analyze a variety of topics
- Ability to glean and synthesize information from a variety of sources
- Interest and aptitude for working with sophisticated communications technology
- Ability to work within a large organization
- Ability to pay attention to detail

Potential Occupations

The technical journalism program emphasizes the role of mass media in society and prepares students for entry-level work in a variety of capacities in private business, government, and education. Depending upon the concentration chosen, students may enter print and broadcast news media, public relations and marketing departments in private businesses and public institutions, publications firms and agencies oriented toward specialized audiences, and a variety of professional positions related to news video and computer-based communication technologies. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:
- News reporter/editor
- Publication editor
- Media consultant
- Public relations specialist
- Technical writer
- Photo journalist
- Investigative journalist
- Advertising specialist
- Television/Radio broadcaster
- Television camera operator
- Documentary producer
- Special events coordinator
- Technical advertising specialist
- Video producer/editor
- Fundraising specialist
- Public speaker
- Travel writer
- Columnist
- Advertising placement specialist
- Communications officer
- Program director

Major in Technical Journalism (Core)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
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<tbody>
<tr>
<td>FRESHMAN</td>
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<td></td>
<td></td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
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<td>Select one course from the following:</td>
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<tr>
<td>COCC 300</td>
<td>Writing Arguments (CO/COCC 150)</td>
<td>3</td>
<td>2B2</td>
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<tr>
<td>COCC 301A-D</td>
<td>Writing in the Disciplines (CO/COCC 150)</td>
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<td>2B2</td>
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<tr>
<td>COCC 302</td>
<td>Writing Online (CO/COCC 150)</td>
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<tr>
<td>L CC 105</td>
<td>First-Year Language I (no previous study in the language)</td>
<td>5</td>
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<tr>
<td>L CC 107</td>
<td>First-Year Language II (L/L CC 105 or L 106)</td>
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<td>2B3</td>
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<tr>
<td>L CC 200</td>
<td>Second-Year Language I (L/L CC 107 or L 108 or placement)</td>
<td>3-5</td>
<td>2B3</td>
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<tr>
<td>L CC 201</td>
<td>Second-Year Language II (L/L CC 200 or placement exam)</td>
<td>3-5</td>
<td>2B3</td>
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<tr>
<td>L CC 300</td>
<td>Reading and Writing for Communication (L/L CC 201 or L 208)</td>
<td>3</td>
<td>2B3</td>
</tr>
<tr>
<td>SPCC 200</td>
<td>Public Speaking</td>
<td>3</td>
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<tr>
<td>JTCC 100</td>
<td>Introduction to Mass Media</td>
<td>3</td>
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<td>Biological/physical sciences(^1)</td>
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<td>First-year seminar(^2)</td>
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SOPHOMORE

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<tbody>
<tr>
<td>JT 210</td>
<td>Newswriting(^5) (satisfactory performance on typing and diagnostic test)</td>
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<tr>
<td>JT 211</td>
<td>Computer-Mediated Visual Communication (JT 210)</td>
<td>3</td>
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<tr>
<td></td>
<td>Arts/humanities(^6)</td>
<td>9-12</td>
<td>3B</td>
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<td></td>
<td>Global and cultural awareness(^7)</td>
<td>3</td>
<td>3E</td>
</tr>
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<td>Historical perspectives(^8)</td>
<td>3</td>
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<td>Logical/critical thinking(^9)</td>
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<td>Social/behavioral sciences(^10)</td>
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<td>3C</td>
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<td>U.S. public values and institutions(^11)</td>
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JUNIOR
<table>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
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<tbody>
<tr>
<td>JT 311</td>
<td>History of Media</td>
<td>3</td>
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<tr>
<td>JT 316</td>
<td>Multiculturalism and the Media</td>
<td>3</td>
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<tr>
<td>ET 316</td>
<td>Multiculturalism and the Media</td>
<td>3</td>
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<tr>
<td>JT 411</td>
<td>Media and Society</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>JT 412</td>
<td>International Mass Communication</td>
<td>3</td>
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<tr>
<td>JT 413</td>
<td>New Communication Technologies and Society</td>
<td>3</td>
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<tr>
<td>JT 414</td>
<td>Media Effects</td>
<td>3</td>
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<tr>
<td>JT 471</td>
<td>Communication Research Methods (one statistics course)</td>
<td>3</td>
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**Select one course from the following:**

**OR**

<table>
<thead>
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<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>JT 411</td>
<td>Media and Society</td>
<td>3</td>
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<tr>
<td>JT 413</td>
<td>New Communication Technologies and Society</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>JT 414</td>
<td>Media Effects</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>JT 471</td>
<td>Communication Research Methods (one statistics course)</td>
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**Arts/humanities**

- Electives<br>  
- **TOTAL**

**SENIOR**

<table>
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<tr>
<td>JT 415</td>
<td>Communications Law</td>
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<td><strong>Option area</strong></td>
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</table>

**PROGRAM TOTAL = 88-89 credits**

---

1. Select a total of seven credits from category 3A in the All-University Core Curriculum (AUCC), including one laboratory course.
2. Select from the list of courses in category 1 in the AUCC. Journalism students may take JTCC 192. This course will fulfill the requirement for JT 210.
3. Select from the list of courses in category 3G in the AUCC.
4. Select any course or combination of courses in category 2C in the AUCC.
5. Students who have taken JT 110/JTCC 192 should not take this course, as JT 110/JTCC 192 fulfills the requirement for JT 210. Those students will be required to take an additional three credits of electives to replace this course.
6. Select three credits from category 3B in the AUCC. Select an additional nine credits from either the AUCC list or see department advising manual for course selection.
7. Select from the list of courses in category 3E in the AUCC from courses with the following prefixes: APCC, ECCC, LCC, LBCC, SCC, or PLCC.
8. Select from the list of courses in category 3D in the AUCC from courses with the following prefixes: APCC, AUCC, ETCC, HYCC, or PLCC.
9. Select any STCC course in category 2D in the AUCC.
10. Select three courses from three different prefixes of the following: AP/APCC, AU/AUCC, EC/ECCC, ET/ETCC, HY/HYCC, PO/POCC, PY/PYCC, or S/SCC. At least one course must be chosen from category 3C in the AUCC or see department. Students in the news-editorial concentration should select POCC 101 which will double count with category 3F.
11. Select any course in category 3F in the AUCC with the following prefixes: AUCC, ETCC, ECCC, HYCC, PLCC, POCC, or PYCC. Some courses in this category may be used to satisfy another AUCC requirement. Students in the news-editorial concentration should select POCC 101 or POCC 103 which will double count with category 3F.
12. Technical Journalism students must take a total of 65 credits in either the College of Liberal Arts or the College of Natural Sciences. This total does not include JT/JTCC courses.
13. See department advising manual for Option Area choices.
14. In order to complete a major in technical journalism, select a concentration from the following list: news-editorial, public relations, specialized communication, or television news and video production.

---

**NEWS-EDITORIAL CONCENTRATION**

**Major in Technical Journalism**

**News-Editorial Concentration**

In addition to the technical journalism core courses, the following must be completed:
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>POCC 101</td>
<td>American Government and Politics</td>
<td>3</td>
<td>3C, 3F</td>
</tr>
<tr>
<td>POCC 103</td>
<td>State and Local Government and Politics</td>
<td>3</td>
<td>3C, 3F</td>
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<td><strong>TOTAL</strong></td>
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<td><strong>6</strong></td>
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**JUNIOR**

Select two of the following:

- JT 235 Photojournalism 3
- JT 326 Online Journalism (JT 310 with grade of C or better or JT 340 with grade of C or better) 3
- JT 361 Writing for Specialized Magazines (JT 210) 3
- JT 372 Web Design and Management (JT 211) 3
- JT 460 Publication Management 3
- JT 461 Writing about Science, Health, and Environment (JT 310, one upper-division writing course; or written consent of instructor) 3
- JT 487 Internship 3

- JT 310 Copy Editing and Production (JT 210) 4
- JT 320 Reporting (JT 210) 3

Select one of the following:

- POCC 232 International Relations 3 3C or 3D
- POCC 241 Comparative Government and Politics 3 3C or 3E
- PO 421 Modern Political Theories 3
- PO 423 American Political Theories (PO/POCC 101) 3
- Electives 9-14

**TOTAL** 25-30

**SENIOR**

- JT 420 Advanced Reporting (JT 320) 3 4A, 4C
- **TOTAL** 5-6

**PROGRAM TOTAL = 120 credits**

**PUBLIC RELATIONS CONCENTRATION**

Major in Technical Journalism
Public Relations Concentration

In addition to the technical journalism core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>FRESHMAN</td>
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<tr>
<td>EACC 202</td>
<td>Agricultural and Resource Economics</td>
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<tr>
<td>ECC 202</td>
<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
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<td>BK 305</td>
<td>Fundamentals of Marketing (EC/ECCC 101 or EC/ECCC 202 or EA/EACC 202)</td>
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<td>BN 305</td>
<td>Fundamentals of Management</td>
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<td>JT 320</td>
<td>Reporting (JT 210)</td>
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<tr>
<td>JT 326</td>
<td>Online Journalism (JT 310 with grade of C or better or JT 340 with grade of</td>
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### Course Title (Prerequisite) Credits AUCC Category

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<tr>
<td>JT 310</td>
<td>Copy Editing and Production (JT 210)</td>
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<td>JT 350</td>
<td>Public Relations</td>
<td>3</td>
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<tr>
<td>JT 351</td>
<td>Public Relations Practices (JT 210, JT 350)</td>
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**SENIOR**

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<tr>
<td>JT 450</td>
<td>Public Relations Campaigns (JT 310, JT 351)</td>
<td>3</td>
<td>4A, 4C</td>
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<td></td>
<td>Journalism elective</td>
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**PROGRAM TOTAL = 120 credits**

### SPECIALIZED COMMUNICATION CONCENTRATION

**Major in Technical Journalism**

**Specialized Communication Concentration**

In addition to the technical journalism core courses, the following must be completed:

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<th>Course</th>
<th>Title (Prerequisite)</th>
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<td>JUNIOR</td>
<td>Select one of the following:</td>
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<tr>
<td>JT 235</td>
<td>Photojournalism</td>
<td>3</td>
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</tr>
<tr>
<td>JT 326</td>
<td>Online Journalism (JT 310 with a grade of C or better or JT 340 with a grade of C or better)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>JT 342</td>
<td>Writing for Specialized Electronic Media (JT 210)</td>
<td>3</td>
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</tr>
<tr>
<td>JT 350</td>
<td>Public Relations</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>JT 372</td>
<td>Web Design and Management (JT 211)</td>
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<td>JT 460</td>
<td>Publication Management</td>
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<tr>
<td>JT 487</td>
<td>Internship</td>
<td>3</td>
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<tr>
<td>JT 310</td>
<td>Copy Editing and Production (JT 210)</td>
<td>4</td>
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<td>JT 361</td>
<td>Writing for Specialized Magazines (JT 210)</td>
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<td></td>
<td>Electives</td>
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**SENIOR**

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<th>AUCC Category</th>
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<tr>
<td>JT 461</td>
<td>Writing about Science, Health, and Environment (JT 210, one upper-division writing course; or written consent of instructor)</td>
<td>3</td>
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<tr>
<td>JT 464</td>
<td>Technical Writing (JT 310, JT 361)</td>
<td>3</td>
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<tr>
<td>JT 465</td>
<td>Technical/Specialized Editing (JT 310, JT 361, and JT 461 or JT 464)</td>
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<td>4A, 4C</td>
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<td></td>
<td>Journalism electives</td>
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**PROGRAM TOTAL = 120 credits**
### TELEVISION NEWS AND VIDEO COMMUNICATION CONCENTRATION

**Major in Technical Journalism**

**Television News and Video Communication Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td><strong>JUNIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JT 326</td>
<td><strong>Select one of the following:</strong>&lt;br&gt;Online Journalism (JT 310 with grade of C or better or JT 340 with grade of C or better)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>JT 341</td>
<td>Broadcast News (JT 210)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>JT 342</td>
<td>Writing for Specialized Electronic Media (JT 210)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>JT 340</td>
<td>Videotape Editing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>JT 345</td>
<td>Electronic Field Production (JT 340)</td>
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<tr>
<td>Electives</td>
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<td>13-14</td>
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<thead>
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<tbody>
<tr>
<td><strong>SENIOR</strong></td>
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<td></td>
</tr>
<tr>
<td>JT 372</td>
<td>Web Design and Management (JT 211)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>OR</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>JT 435</td>
<td>Documentary Video Production (JT 345)</td>
<td>3</td>
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<tr>
<td>JT 440</td>
<td>Advanced Electronic Reporting (JT 341, JT 345)</td>
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<td>4A, 4C</td>
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<td>Journalism elective</td>
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<td>3</td>
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<td><strong>TOTAL</strong></td>
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</tr>
</tbody>
</table>

**PROGRAM TOTAL =120 credits**

### DEPARTMENT OF MUSIC, THEATRE, AND DANCE

*Office in Music Building, Room 102*

*Professor Eric Prince, Chair*

**Program in Music**

Program goals encourage, develop, and offer high standards of teaching, scholarship, research, and performance in music; provide a stimulating musical environment for campus and community; and prepare and educate music teachers, music therapists, and performers.

Undergraduate curricula lead to the bachelor of arts degree in music, and the bachelor of music degree in music with concentrations in music education, music therapy, or performance (applied music).

Nonmusic majors with musical skills and aptitudes may participate in a chorus, band, or orchestra, and enroll in selected music classes. Individual lesson time, however, for nonmusic majors is limited. See applied music instruction courses in the separate publication, *Courses of Instruction*.

Music majors are expected to pass comprehensive examinations in music history and theory upon completion of course sequences in those areas. Students are expected to recognize music literature of all periods through aural and score analysis. Performance skills are tested at the end of the sophomore year and in a graduation recital if required by the degree option. Some programs require satisfactory completion of supervised student teaching, an internship, or a senior project. In addition, all students must pass a piano proficiency examination.

**Program Requirements**

**Performance Auditions**

An audition is required of all freshmen and transfer students before admission to the bachelor of music or bachelor of arts in music programs. In cases where a personal audition is not feasible, a tape demonstrating performance ability may allow provisional acceptance. Students who have been admitted to the University and have expressed an interest in one of the music programs but have yet to audition will be considered pre-music majors by the University. For further information contact the Department of Music, Theatre, and Dance or consult the current Music Student Handbook.
Applied Study, Ensembles, and Recitals

Every music major must declare a performing instrument/voice, with faculty determining the proficiency needed; they must register for applied instruction each semester until program requirements (for applied study) are met. In addition, all music majors must register for a minimum of one ensemble every semester until program requirements (for applied study) are met.

A performance exam must be passed during the fourth semester of upper-division applied study to receive permission to register for upper-division applied study. All degree programs, except the B.A. degree in music, require at least one semester of upper-division applied study for graduation.

To perform any recital required for a degree, a student must be registered for applied study. Music majors concentrating in performance must present a junior and senior solo recital. Music majors concentrating in music education present a joint solo recital; recitals may not be given during the semester of student teaching.

Piano Proficiency

All music majors must fulfill a piano proficiency requirement. Most music majors develop the skills to meet this requirement with class piano courses. If development is not adequate, study continues until satisfactory. Music majors in the B.M.-music education concentration must pass the examination prior to the semester of student teaching. Students in the B.M.-music therapy concentration must pass the examination before being eligible to enroll in senior music therapy practicum courses. Students in either the B.A. in music program or the B.M.-performance concentration must fulfill the requirement at least one semester prior to graduation. For specific requirements, consult the current Music Student Handbook.

Concert/Recital Attendance Requirement

All undergraduate music majors must attend 105 performances sponsored by the department in order to graduate. For further information, consult the current Music Student Handbook.

Review of Student Progress

During the freshman and sophomore years, the faculty annually examines each student’s progress.

Scholastic Standards

A minimum grade of C is required in all music courses used to satisfy the requirements of the major programs (B.A. and B.M.) in music. Music majors concentrating in music education must also complete all required education courses with a minimum grade of C.

Second Major

While students may complete concurrently the requirements for a second major in any college, they may also wish to consider the combination of any two majors offered within the music program. For example, the combination of both music education and music therapy will better prepare a student to teach handicapped children in the public schools. For general information, see Second Major Requirements in the Graduation Requirements section of this catalog. For specific information, see program advisers in the Department of Music, Theatre, and Dance.

Music Therapy-Music Education Certificate

As a part of the music therapy curriculum, the program in music offers specialized training for music teachers who work with children and youth enrolled in programs which have been mandated by the Education of All Handicapped Children Act (PL 94-142). The curriculum consists of 14 semester credits beyond the bachelor's degree in music education. The program is approved by the National Association for Music Therapy, which awards a certificate upon completion of the following courses: MU 153, MU 241, MU 440, MU 486A-B, and PY 460.

Major in Music (B.M.)

MUSIC EDUCATION CONCENTRATION

Do you love music? Would you like to achieve greater depth and skill in your musical understanding and performance? Do you enjoy being with children? Would you enjoy teaching vocal, instrumental and general music in elementary or secondary schools? Colorado State's accredited Music Education program may be the thing for you.

Auditions are required for entry into the Music Education program. Majors take a variety of music courses including music theory, music history, and performance along with a specified sequence of applied music instruction and general education classes. In addition, core courses provide a broad background in communication, natural and social sciences, and arts and humanities.

Rehearsals, individual lessons and practice, and attendance at concerts, recitals, and special events such as the Rocky Mountain Contemporary Music Festival are required. There are also numerous opportunities to participate in ensembles, bands, orchestras, and choir.
Each semester, students perform in jury exams before selected music faculty. Seniors present a brief public recital and pass a piano proficiency exam. At the end of the music education curriculum, a semester of student teaching in both elementary and secondary schools provides valuable classroom experience. The total requirement for the music degree and teaching certification is 127 credits.

**Characteristics and Skills**

- a good understanding of music theory and music history
- broad background in communications, natural sciences, social sciences, and arts and humanities
- good performance ability on two or more musical instruments
- excellent applied music instruction skills
- mastery of elementary and secondary school instrumental teaching methods and classroom techniques
- qualification for teacher certification in music education

**Potential Occupations**

There are thousands of school music teachers in the United States. Many music educators work for public school districts and private schools. Others conduct private lessons and classes. Overall, demand and placement of graduates is good. Flexibility in location may increase your employment options. Some teachers travel to several schools in a district to conduct classes. The work is demanding, and for many it is satisfying and rewarding. The Department of Music, Theatre, and Dance is the best source of career information. Contact a department adviser for help.

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**MUSIC EDUCATION CONCENTRATION**

**Major in Music (B.M.)**

**Music Education Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td><strong>FRESHMAN</strong></td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>MU 117</td>
<td>Music Theory I (MU/MUCC 111 or satisfactory completion of placement exam)</td>
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<td>MU 118</td>
<td>Music Theory II (MU 117)</td>
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<td>MUCC 192</td>
<td>Introduction to Music History and Literature</td>
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<tr>
<td>MU 252A</td>
<td>Instrumental Techniques-Low Brass</td>
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<tr>
<td>MU 252D</td>
<td>Instrumental Techniques-Double Reeds and Flute</td>
<td>1</td>
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<tr>
<td>MU 252F</td>
<td>Instrumental Techniques-High Strings</td>
<td>1</td>
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<td>MU 252G</td>
<td>Instrumental Techniques-Percussion</td>
<td>1</td>
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<tr>
<td>MU 272A-V</td>
<td>Applied Music Instruction (concurrent reg. in any music ensemble)</td>
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<td>MU</td>
<td>Ensembles</td>
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<td></td>
<td>Historical perspectives¹</td>
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<td>3D</td>
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<td>Logical/critical thinking²</td>
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<td>Mathematics³</td>
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<td>Schooling in the United States (consent of Teacher Licensure Office)</td>
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<td>MU 217</td>
<td>Music Theory III (MU 118)</td>
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<td>MU 218</td>
<td>Music Theory IV (MU 217)</td>
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<td>MU 252B</td>
<td>Instrumental Techniques-High Brass</td>
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<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<tr>
<td>MU 252C</td>
<td>Instrumental Techniques-Clarinet and Saxophone</td>
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<td>MU 252E</td>
<td>Instrumental Techniques-Low Strings</td>
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<td>MU 265A</td>
<td>Singers Diction-German/English</td>
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<tr>
<td>MU 265B</td>
<td>Singers Diction-French/Italian (MU 265A)</td>
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<td>OR</td>
<td>Marching Band Techniques (MU 204, MU 356)</td>
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<td>MU 272A-V</td>
<td>Applied Music Instruction (concurrent reg. in any music ensemble)</td>
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<td>MU 286</td>
<td>Practicum-Music Education</td>
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<td>MU 496H</td>
<td>Group Study-Pedagogy</td>
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<td>MU</td>
<td>Ensembles</td>
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<td>General Psychology</td>
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<td>Arts/humanities</td>
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<td>3B</td>
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<td>Biological/physical sciences</td>
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**JUNIOR**

| ED 331  | Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office) | 1       |               |
| ED 340  | Literacy and the Learner (completion of 30 credits of course work; consent of Teacher Licensure Office) | 3       |               |
| ED 350  | Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program) | 3       |               |
| ED 386  | Practicum (ED 320 or concurrent reg., admission to Teacher Licensure Program)       | 1       |               |
| ED 475  | Elementary School Music Methods (ED 320, MU 217, admission to Teacher Licensure Program) | 4       |               |
| MU 334  | Music History I (MU 118; MU/MUCC 100 or MU 131)                                      | 3       | 4A, 4B        |
| MU 335  | Music History II (MU 118; MU/MUCC 100 or MU 131)                                     | 3       | 4A, 4B        |
| MU 355  | Choral Conducting and Literature                                                     | 2       |               |
| OR     | Instrumental Conducting and Literature                                              | 2       |               |
| MU 411  | Orchestration (MU 218)                                                              | 3       |               |
| MU 416  | Stylistic Analysis (MU 218)                                                          | 3       |               |
| MU 472A-V| Applied Music Instruction (MU 272A-V; concurrent reg. in any music ensemble; successful completion of upper-division qualifying exam) | 2       |               |
| MU     | Ensembles                                                                           | 2       |               |
|        | Health and wellness                                                                 | 2       | 3G            |
| TOTAL  |                                                                                     | 32      |               |

**SENIOR**

<p>| ED 450  | Instruction II-Standards and Assessment (ED 350; ED 386; concurrent reg. in ED 486J) | 4       |               |</p>
<table>
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<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>ED 476</td>
<td>Choral Methods for Secondary Schools (ED 320, MU 217, admission to Teacher Licensure Program)</td>
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OR

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<tr>
<th>ED 477</th>
<th>Instrumental Methods for Secondary Schools (ED 320, MU 217, admission to Teacher Licensure Program)</th>
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<tr>
<td>ED 485A</td>
<td>Student Teaching - Elementary (ED 450, ED 475)</td>
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<tr>
<td>ED 485B</td>
<td>Student Teaching - Secondary (ED 450 and ED 476 or ED 477)</td>
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<tr>
<td>ED 486J</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
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<tr>
<td>ED 493A</td>
<td>Seminar-Professional Relations, (concurrent reg. in ED 485A or B or VE 485)</td>
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<tr>
<td>MU 471</td>
<td>Recital (written consent of instructor)</td>
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<td>4C</td>
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<tr>
<td>MU 472A-V</td>
<td>Applied Music Instruction (MU 272A-V; concurrent reg. in any music ensemble; successful completion of upper-division qualifying exam)</td>
<td>1</td>
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<tr>
<td>MU</td>
<td>Ensemble</td>
<td>1</td>
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<tr>
<td></td>
<td>Biological/physical sciences</td>
<td>4</td>
<td>3A</td>
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<tr>
<td></td>
<td>Global and cultural awareness</td>
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<td>3E</td>
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<td></td>
<td>TOTAL</td>
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</table>

PROGRAM TOTAL = 127 credits

1 Select from list of courses in category 3D in the All-University Core Curriculum (AUCC).
2 Select from list of courses in category 2D in the AUCC.
3 Select from list of courses in category 2C in the AUCC.
4 Select from list of courses in category 3B in the AUCC.
5 Select from list of courses in category 3A in the AUCC. One course must have a laboratory component.
6 Select from list of courses in category 3G in the AUCC.

*The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.

MUSIC THERAPY CONCENTRATION

Are you looking for a practical application of your music skills? Does helping people to use music to control chronic pain, ease childbirth, employ relaxation techniques, or stimulate infant children appeal to you? Would you enjoy using music in preventative health care or as a means to mainstream handicapped individuals? How would you use music as therapy in a special education program to help children succeed? Do you like working with the elderly or infirm to help improve their quality of life? If your answer to any of these questions is “yes” then major in Music Therapy may be for you.

Music therapy is the therapeutic use of music in the restoration, maintenance, and improvement of mental and physical health. Music of all kinds is used as a tool to help people maintain or improve communication, academic performance, motor development, emotional growth, and social skills. Music is applied in a therapeutic environment to bring about desirable changes in behavior. Such changes enable individuals to understand themselves and the world differently. As a member of a therapeutic team, the professional music therapist participates in the analysis of individual problems, in the determination of general treatment aims, and in the evaluation of results.

Music therapy majors take a wide variety of courses in music theory, music history, performance, and conducting. In addition, the program requires courses in psychology, sociology, philosophy, arts, biology,
anatomy, physiology plus a clinical core emphasizing the research aspects of music therapy. A total of 120 credits are required for the degree. Successful completion of all curricular requirements, plus a six-month clinical internship, qualifies a graduate to sit for the National Certification Examination and for eligibility for admission to the National Registry, maintained by the National Association for Music Therapy (NAMT). Students are not qualified to work as professional music therapists until they have become registered by the NAMT.

Characteristics and Skills
- A desire to help improve people's quality of life
- A broad understanding of music theory and history
- Performance ability on two or more musical instruments
- A basic grasp of human anatomy, the human brain and its disorders
- Familiarity with abnormal, cognitive, and physiological psychology
- A desire to understand human development
- A desire to understand theories on death and dying
- Knowledge of research methods
- A desire to learn the therapeutic application of music to improve health

Potential Occupations

Employment opportunities are good and there is a high demand for Registered Music Therapists. Music therapists are employed in a variety of health care and educational settings, including hospitals, clinics, group homes, schools and centers for the developmentally delayed. Some music therapists maintain private practices or serve as consultants. Both jobs and salaries fluctuate with regional and institutional practices and some degree of flexibility in location can be helpful.

Paid or voluntary work, practicums, internships, and cooperative education opportunities will help to qualify you for NAMT certification and enhance your chances for employment. Contact an adviser in the department for more information about potential careers.

MUSIC THERAPY CONCENTRATION

Major in Music (B.M.)
Music Therapy Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>C CC 103</td>
<td>Chemistry in Context</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>MU 117</td>
<td>Music Theory I (MU/MUCC 111 or satisfactory completion of placement exam)</td>
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<td>Music Theory II (MU 117)</td>
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<td>Introduction to Music History and Literature</td>
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<td>MU 155</td>
<td>Guitar Class I</td>
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<td>MU 241</td>
<td>Introduction to Music Therapy</td>
<td>3</td>
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<td>MU 272A-V</td>
<td>Applied Music Instruction1 (Corequisite: any music ensemble)</td>
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<td>PYCC 100</td>
<td>General Psychology</td>
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SOPHOMORE

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<td>Principles of Animal Biology</td>
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<td>MU 217</td>
<td>Music Theory III (MU 118)</td>
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<td>Music Therapy Practice</td>
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<td>MU 252G</td>
<td>Instrumental Techniques-Percussion</td>
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<td>Applied Music Instruction(^1) (Corequisite: any music ensemble)</td>
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<td>OT 215</td>
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<td>PLCC 100</td>
<td>Appreciation of Philosophy</td>
<td>3</td>
<td>3B</td>
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<td>SPCC 200</td>
<td>Public Speaking</td>
<td>3</td>
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<tr>
<td></td>
<td>Ensemble(^2)</td>
<td>2</td>
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<tr>
<td></td>
<td>Health and wellness(^4)</td>
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<td>3G</td>
</tr>
<tr>
<td></td>
<td>Historical perspectives(^5)</td>
<td>3</td>
<td>3D, 3F</td>
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**JUNIOR**

| AY 300 | Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY 102/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110) | 4       |               |
| PS 300 | Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY 102/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110) | 4       |               |
| AY 345 | Functional Neuroanatomy (AY 300/PS 300)                                             | 4       |               |
| MU 157 | Voice Class I                                                                        | 2       |               |
| MU 335 | Music History II (MU 118; MU/MUCC 100 or MU/MUCC 131)                                | 3       | 4A, 4B        |
| MU 342 | Psychology of Music (PY/PYCC 100)                                                   | 3       |               |
| MU 440 | Music Therapy Methods I (MU 241, AY 300/PS 300)                                      | 3       |               |
| MU 443 | Music Therapy Methods II (admission to professional curriculum)                     | 3       |               |
| MU 472 | Applied Instruction (MU 272A-V; concurrent reg. in any music ensemble; successful completion of upper-division qualifying exam) | 1       |               |
| MU 486A| Practicum-Music Therapy (piano proficiency)                                         | 1       |               |
| PY 320 | Abnormal Psychology (PY/PYCC 100)                                                   | 3       |               |
|        | Ensemble\(^6\)                                                                       | 1       |               |
|        | TOTAL                                                                               | 28      |               |

**SENIOR**

| MU 343 | Research Methods-Music Therapy (ST/STCC 201)                                       | 3       |               |
| MU 355 | Choral Conducting and Literature                                                    | 2       |               |
| MU 444 | Music Therapy Methods III (admission to professional curriculum)                   | 3       |               |
| MU 445 | Improvisational Techniques in Music Therapy (admission to professional curriculum) | 2       |               |
| MU 486A| Practicum-Music Therapy\(^2\) (piano proficiency)                                   | 5       | 4C            |
| MU 487 | Internship (completion of all course work in the music therapy curriculum)         | 1       |               |
| PY 452 | Cognitive Psychology (PY/PYCC 100 or written consent of instructor)                 | 3       |               |
| PY 454A| Physiological Psychology (PY/PYCC 100 or written consent of instructor)            | 3       |               |
| STCC 201 | General Statistics (M/M CC 120A-B)                                                  | 3       | 2D            |
|        | Global and cultural awareness\(^7\)                                                 | 3       | 3E            |
|        | Music electives                                                                     | 2       |               |
|        | TOTAL                                                                               | 27      |               |
PERFORMANCE CONCENTRATION

Would you like to pursue a professional career as a music performer or private music teacher? Do you have a desire to create or express yourself through music? Do you wish to develop and expand your musical talents? Do you aim to achieve a high degree of proficiency in your musical understanding and performance? Would you benefit from private lessons or opportunities to participate in a variety of musical performance venues such as orchestras, choirs, ensembles, bands, and vocal groups? If so, perhaps a major in Music Performance is what you are looking for.

Great personal satisfaction and fulfillment can be achieved through an arts career. Because work is often an expression of the artist's innermost feelings and ideas, an artist's personal identity may be more closely bound to that work than in other fields. It is particularly important to explore whether a music career is realistic given an individual's interest, talent, and temperament. Making an intelligent career choice involves weighing the realities of the music field against the desire to create.

Auditions are required for entry into the music program. Options include voice, composition, orchestral instrument, organ, piano, piano pedagogy, and string pedagogy. Majors take a variety of music courses including music theory, music history, composition, and performance along with applied music instruction. In addition, students complete a core of course work to provide a broad background in communication, natural and social sciences, arts and humanities. Voice majors must learn a foreign language. Rehearsals, individual lessons, practice, and attendance at concerts, recitals, and special events such as the Rocky Mountain Contemporary Music Festival also are a part of music major's education. Students have numerous opportunities to participate in ensembles, bands, orchestras, and choir. Each semester, students perform in jury exams before selected music faculty as well as participate in ensembles and recitals.

Characteristics and Skills

- Strong interest in and aptitude for music theory and performance
- Desire to develop proficiency in instrumental or voice performance, composition, or pedagogy
- Basic understanding of music theory and music history
- Commitment to excellence in performance
- Patience and self discipline in development of talents and abilities
- A desire for broad knowledge in communications, natural sciences, social sciences, and arts and humanities
- Ability to work with people and independently

Potential Occupations

Breaking into the field of music is not easy. Music is competitive and requires talent, contacts, luck, timing, persistence, hard work, and ability to get along with people to succeed. Most artists also depend upon other arts-related jobs or second careers to earn a living wage. Young musicians almost always start at the bottom and work up. Another way to get a foot in the door is to do an internship in the music business. For careers in the recording industry one must go to where the companies are: New York, Nashville, and Los Angeles. Many cities support professional orchestras, although funding in some locations has diminished. Contact the Department of Music, Theatre, and Dance for more career information. The following is a partial list of potential careers:

- Accompanist
- Arranger/composer
- Instrumentalist (orchestra or popular band)
- Lyricist
- Conductor, choral or instrumental band leader or member
- Ethnomusicologist
- Critic
- Music producer/retailer
- Music video producer
- Musicologist
- Organist
- Orchestrator
- Studio singer/vocalist

PROGRAM TOTAL = 120 credits

1 Major instrument or voice (2 semesters).
2 Ensemble (2 semesters).
3 Select from the list of courses in category 2C in the All-University Core Curriculum (AUCC).
4 Select from the list of courses in category 3G in the AUCC.
5 Select a course from the list of courses in category 3D that is also on the list of courses in category 3F -OR- select from AUCC 201, HYCC 150, HYCC 151, or NRCC 320.
6 Ensemble (1 semester).
7 Select from the list of courses in category 3E in the AUCC.
- Writer for music magazine  
- Theatre company member  
- Music agent  
- Music supervisor, (public education)  
- Music advisor to professional organization  
- Disc jockey  
- Music consultant

- Copyist  
- Music video producer  
- Program coordinator, TV or radio  
- Studio teacher (private lessons)  
- Studio manager  
- Recording engineer  
- Sheet music clerk

---

**PERFORMANCE CONCENTRATION**

**Major in Music (B.M.)**

**Performance Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
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<tr>
<td>MU 117</td>
<td>Music Theory I (MU/MUCC 111 or placement exam)</td>
<td>4</td>
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<tr>
<td>MU 118</td>
<td>Music Theory II (MU 117)</td>
<td>4</td>
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<tr>
<td>MUCC 192</td>
<td>Introduction to Music History and Literature</td>
<td>3</td>
<td>1</td>
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<tr>
<td>MU</td>
<td>Ensemble(^1)</td>
<td>2</td>
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<tr>
<td>SPCC 200</td>
<td>Public Speaking(^2)</td>
<td>3</td>
<td>2B1</td>
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<td></td>
<td>Health and wellness(^3)</td>
<td>2</td>
<td>3G</td>
</tr>
<tr>
<td></td>
<td>Mathematics (Math Placement Exam)(^4)</td>
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<td>2C</td>
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<td><strong>TOTAL</strong></td>
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<td><strong>SOPHOMORE</strong></td>
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<td>MU 217</td>
<td>Music Theory III (MU 118)</td>
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<td>MU 218</td>
<td>Music Theory IV (MU 217)</td>
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<td>MU</td>
<td>Ensemble(^1)</td>
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<tr>
<td>PYCC 100</td>
<td>General Psychology</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td></td>
<td>Historical perspectives/U.S. public values and institutions(^5)</td>
<td>3</td>
<td>3D, 3F</td>
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<tr>
<td></td>
<td>Logical/critical thinking(^6)</td>
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<td>2D</td>
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<tr>
<td>MU 311</td>
<td>Counterpoint I(^7) (MU 217)</td>
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<td>MU 312</td>
<td>Counterpoint II(^8) (MU 217)</td>
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<td><strong>OR</strong></td>
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<tr>
<td>MU 334</td>
<td>Music History I (MU/MUCC 100 or MU 131/MUCC 192; MU 118)</td>
<td>3</td>
<td>4A, 4B</td>
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<tr>
<td>MU 335</td>
<td>Music History II (MU/MUCC 100 or MU 131/MUCC 192; MU 118)</td>
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<td>4A, 4B</td>
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<tr>
<td>MU 355</td>
<td>Choral Conducting and Literature(^9)</td>
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<td><strong>OR</strong></td>
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<tr>
<td>MU 356</td>
<td>Instrumental Conducting and Literature(^10)</td>
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<td>MU 416</td>
<td>Stylistic Analysis (MU 218)</td>
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<td>MU 471</td>
<td>Recital(^11) (written consent of instructor)</td>
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<td>MU 472A-V</td>
<td>Applied Music Instruction(^12) (MU 272A-V; successful completion of upper-division qualifying exam; concurrent reg. in any music ensemble)</td>
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<td>Credits</td>
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<td><strong>Arts/humanities</strong></td>
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**SENIOR**

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<thead>
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<th>Credits</th>
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<td>MU 411</td>
<td>Orchestration (MU 218)</td>
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<td>MU 471</td>
<td>Recital (written consent of instructor)</td>
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<td><strong>4C</strong></td>
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<td><strong>Music electives</strong></td>
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<td>24-28</td>
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**CORE TOTAL = 90-94 credits**

1. Two semesters.
2. Not required for the voice option.
3. Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).
4. Select from the list of courses in category 2C in the AUCC.
5. Select a course from the list in category 3D (Historical Perspectives) of the AUCC that is also on the list for category 3F (U.S. Public Values and Institutions).
6. MU 311 and MU 312 are required for the composition option in the third and fourth years.
7. MU 312 is required for the organ and string pedagogy options.
8. MU 355 is required for the organ and voice options. Neither MU 355 nor MU 356 is required for the piano pedagogy option.
9. MU 356 is required for the orchestral instrument and string pedagogy options.
10. Junior recital not required for the piano pedagogy and string pedagogy options.
11. MU 355 is required for the organ and voice options. Neither MU 355 nor MU 356 is required for the piano pedagogy option.
12. MU 356 is required for the orchestral instrument and string pedagogy options.
13. Junior recital not required for the piano pedagogy and string pedagogy options.
14. Not required for the piano pedagogy or voice options.
15. Not required for the piano and piano pedagogy options.
16. For the piano and piano pedagogy options only.
17. Select two courses (one of which must have a laboratory component) from the list in category 3A of the AUCC.
18. Select from the list of courses in category 3E of the AUCC.
19. In order to complete the performance concentration, students must select from one of the following options: composition, orchestral instrument, organ, piano, piano pedagogy, string pedagogy, or voice. The complete program is 120 credits, 42 of which are to be upper division (300-400 level).

**Composition Option**

In addition to the music performance concentration core courses, the following must be completed:

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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>MU 272A-V</td>
<td>Applied Music Instruction (concurrent reg. in any music ensemble)</td>
<td>2</td>
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<td>Electives</td>
<td>4</td>
<td></td>
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<tr>
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**SOPHOMORE**

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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>MU 252A-G</td>
<td>Instrumental Techniques</td>
<td>4</td>
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</tr>
</tbody>
</table>
### Course | Title (Prerequisite) | Credits | AUCC Category
--- | --- | --- | ---
**FRESHMAN**
MU 272A-V | Applied Music Instruction\(^1\) (concurrent reg. in any music ensemble) | 2-4 |  
Electives | 2-4 |  
TOTAL | 6 |
**SOPHOMORE**
MU 272A-V | Applied Music Instruction\(^1\) (concurrent reg. in any music ensemble) | 4 |  
Electives | 7 |  
TOTAL | 11 |
**JUNIOR**
Electives | 4 |
**SENIOR**
Electives | 7 |
**PROGRAM TOTAL = 120 credits**

\(^1\)Two semesters; major instrument or voice; MU 272F not allowed.

---

**Orchestral Instrument Option**

In addition to the music performance core courses, the following must be completed:

### Course | Title (Prerequisite) | Credits | AUCC Category
--- | --- | --- | ---
**FRESHMAN**
MU 272A-V | Applied Music Instruction\(^1\) (concurrent reg. in any music ensemble) | 2-4 |  
Electives | 2-4 |  
TOTAL | 6 |
**SOPHOMORE**
MU 272A-V | Applied Music Instruction\(^1\) (concurrent reg. in any music ensemble) | 4 |  
Electives | 7 |  
TOTAL | 11 |
**JUNIOR**
Electives | 4 |
**SENIOR**
Electives | 7 |
**PROGRAM TOTAL = 120 credits**

\(^1\)Two semesters; major instrument.

---

**Organ Option**

In addition to the music performance core courses, the following must be completed:
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 272H</td>
<td>Applied Music Instruction-Organ(^1) (concurrent reg. in any music ensemble)</td>
<td>2-4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>2-4</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>SOPHOMORE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 272H</td>
<td>Applied Music Instruction-Organ(^1) (concurrent reg. in any music ensemble)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foreign language(^1)</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td>14</td>
<td></td>
</tr>
<tr>
<td><strong>JUNIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>SENIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 437</td>
<td>History and Structure of the Organ (MU 472H)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MU 468</td>
<td>Organ Literature</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>PROGRAM TOTAL = 120 credits</strong></td>
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</table>

\(^1\)Two semesters.

**Piano Option**

In addition to the music performance core courses, the following must be completed:

<table>
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<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
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<tr>
<td>MU 272I</td>
<td>Applied Music Instruction-Piano(^1) (concurrent reg. in any music ensemble)</td>
<td>2-4</td>
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<tr>
<td></td>
<td>Electives</td>
<td>2-4</td>
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</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
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</tr>
<tr>
<td><strong>SOPHOMORE</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>MU 272I</td>
<td>Applied Music Instruction-Piano(^1) (concurrent reg. in any music ensemble)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foreign language(^1)</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td>14</td>
<td></td>
</tr>
<tr>
<td><strong>JUNIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>SENIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 465</td>
<td>Keyboard Literature</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>3</td>
<td></td>
</tr>
<tr>
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<td>5</td>
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<td><strong>PROGRAM TOTAL = 120 credits</strong></td>
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\(^1\)Two semesters.
### Piano Pedagogy Option

In addition to the music performance core courses, the following must be completed:

<table>
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<td></td>
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</tr>
<tr>
<td>MU 272I</td>
<td>Applied Music Instruction-Piano(^1) (concurrent reg. in any music ensemble)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>6</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SOPHOMORE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 272I</td>
<td>Applied Music Instruction-Piano(^1) (concurrent reg. in any music ensemble)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foreign language(^1)</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>14</strong></td>
<td></td>
</tr>
<tr>
<td><strong>JUNIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 495G</td>
<td>Independent Study-Pedagogy</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PY 260</td>
<td>Child Psychology (PY/PYCC 100)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PY 465</td>
<td>Adolescent Psychology (PY/PYCC 100)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>6</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SENIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 465</td>
<td>Keyboard Literature</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MU 495G</td>
<td>Independent Study-Pedagogy</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>3</td>
<td></td>
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<tr>
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<td><strong>8</strong></td>
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<td><strong>PROGRAM TOTAL = 120 credits</strong></td>
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</table>

\(^1\)Two semesters.

### String Pedagogy Option

In addition to the music performance core courses, the following must be completed:

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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
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<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 272K-P</td>
<td>Applied Music Instruction(^1) (concurrent reg. in any music ensemble)</td>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td>Electives</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
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</tr>
<tr>
<td><strong>SOPHOMORE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 272K-P</td>
<td>Applied Music Instruction(^1) (concurrent reg. in any music ensemble)</td>
<td>2-4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>7-9</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>11</strong></td>
<td></td>
</tr>
<tr>
<td><strong>JUNIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 272K-P</td>
<td>Applied Music Instruction(^2) (concurrent reg. in any music ensemble)</td>
<td>1</td>
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</tr>
<tr>
<td>MU 495G</td>
<td>Independent Study-Pedagogy</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>PY 260</td>
<td>Child Psychology (PY/PYCC 100)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PY 465</td>
<td>Adolescent Psychology (PY/PYCC 100)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>SENIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 495E</td>
<td>Independent Study-Music Literature</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
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<td>6</td>
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</tr>
</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

1Two semesters.

2 Complementary instrument.

**Voice Option**

In addition to the music performance core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
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<tr>
<td>MU 272Q</td>
<td>Applied Music Instruction-Voice¹ (concurrent reg. in any music ensemble)</td>
<td>2-4</td>
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<tr>
<td>Foreign language (German)²</td>
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<td>10</td>
<td>2B3</td>
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<td></td>
<td>12-14</td>
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</tr>
<tr>
<td><strong>SOPHOMORE</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>MU 272Q</td>
<td>Applied Music Instruction-Voice¹ (concurrent reg. in any music ensemble)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Foreign language (French or Italian)²</td>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>14</td>
<td></td>
</tr>
<tr>
<td><strong>JUNIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 265A</td>
<td>Singers Diction-German/English</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>SENIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 265B</td>
<td>Singers Diction-French/Italian</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>MU 272I</td>
<td>Applied Music Instruction-Piano¹ (concurrent reg. in any music ensemble)</td>
<td>2</td>
<td></td>
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<tr>
<td>MU 466</td>
<td>Song Literature</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>0-2</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>5-7</td>
<td></td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

1Two semesters.
Major in Music (B.A.)

Do you have a desire to create or express yourself through music? Do you want to develop and expand your musical talents? Would you like to combine your musical talents with another career area? If you answered “yes” to any of these questions, you may want to consider a B.A. in Music.

This major allows students to study music within the larger context of a liberal education. In comparison to majors leading to the bachelor of music degree, less emphasis is placed on studies specifically in music. An outside concentration or option area is required instead, and may be used to enhance opportunities for employment after graduation. The curriculum specific to music consists of courses in music theory, applied music instruction in voice or major instrument, music history, participation in ensemble, and your option area. Option programs and advisers are established in many fields, such as business, journalism, theatre, or dance, to mention a few. At least 15 credits are required in the option area, with at least 12 of those being upper-(300 or 400) level classes. In addition, students complete a core of course work to provide a broad background in communication, natural and social sciences, arts, and humanities. A year of foreign language is also required. A major paper, a lecture/recital, or a full recital is required of seniors in the program.

Characteristics and Skills

- Strong interest in and aptitude for music theory and performance
- Strong motivation
- Patience and self discipline in development of talents and abilities
- Versatility
- Creative abilities
- Strong oral and written communication skills
- Interpersonal relations
- Ability to work independently and with others

Potential Occupations

Combining your musical talent and desire to work in the music industry with other fields can open up many opportunities for graduates of this program. Incorporate business with music and start your own music retail business. Couple journalism with music and write for a music magazine. Link communication with your musical background and be a disc jockey or radio announcer. Or, attend law school and use your music background to become a music copyright lawyer. Use your creativity and consider your other talents as well.

Participation in internships and cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. The following is a partial list of potential careers for music graduates:

- Accompanist
- Lyricist
- Radio and television announcer
- Music critic
- Instrumentalist (orchestra or popular band)
- Sound and audio technician
- Music store owner or manager
- Instrument repair specialist
- Music publisher
- Concert manager/promoter
- Music agent
- Club manager
- Program coordinator, TV or radio
- Fundraiser/institutional solicitor
- Music producer/retailer
- Music video producer
- Music writer/journalist
- Music adviser to professional organization
- Music consultant
- Studio teacher (private lessons)
- Studio manager
- Recording engineer
- Sheet music clerk

Major in Music (B.A.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>COCC</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
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<tr>
<td>MU</td>
<td>Music Theory I (MU/MUCC 111 or satisfactory completion of placement exam)</td>
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<tr>
<td>MU</td>
<td>Music Theory II (MU 117)</td>
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<td>MUCC</td>
<td>Introduction to Music History and Literature</td>
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<td>1</td>
</tr>
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<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
</tr>
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<td>--------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>---------</td>
<td>---------------</td>
</tr>
<tr>
<td>MU 272A-V</td>
<td>Applied Music Instruction(^1) (concurrent reg. in any music ensemble)</td>
<td>2</td>
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</tr>
<tr>
<td></td>
<td>Ensemble(^2)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health and wellness(^3)</td>
<td>2</td>
<td>3G</td>
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<td>Logical/critical thinking(^4)</td>
<td>3</td>
<td>2D</td>
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<td>Mathematics(^5)</td>
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<td></td>
<td>Electives</td>
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**SOPHOMORE**

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<th>AUCC Category</th>
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<tr>
<td>MU 217</td>
<td>Music Theory III (MU 118)</td>
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<td>MU 218</td>
<td>Music Theory IV (MU 217)</td>
<td>4</td>
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<td>MU 272A-V</td>
<td>Applied Music Instruction(^1) (concurrent reg. in any music ensemble)</td>
<td>2</td>
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<tr>
<td>SPCC 200</td>
<td>Public Speaking</td>
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<td>2B1</td>
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<td>Ensemble(^2)</td>
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<tr>
<td></td>
<td>Foreign language(^3)</td>
<td>6</td>
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</tr>
<tr>
<td></td>
<td>Option(^6)</td>
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<tr>
<td></td>
<td>Electives</td>
<td>3</td>
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**JUNIOR**

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<th>AUCC Category</th>
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<tr>
<td>MU 334</td>
<td>Music History I (MU 118; MU/MUCC 100 or MU 131/MUCC 192)</td>
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<td>4A, 4B</td>
</tr>
<tr>
<td>MU 335</td>
<td>Music History II (MU 118; MU/MUCC 100 or MU 131/MUCC 192)</td>
<td>3</td>
<td>4A, 4B</td>
</tr>
<tr>
<td></td>
<td>Arts/humanities(^7)</td>
<td>3</td>
<td>3B</td>
</tr>
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<td></td>
<td>Biological/physical sciences(^8)</td>
<td>3</td>
<td>3A</td>
</tr>
<tr>
<td></td>
<td>Historical perspectives(^9)</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td></td>
<td>Option(^6)</td>
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<tr>
<td></td>
<td>Music theory, upper-division</td>
<td>2</td>
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<tr>
<td></td>
<td>U.S. public values and institutions(^10)</td>
<td>3</td>
<td>3F</td>
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<tr>
<td></td>
<td>Music electives(^11)</td>
<td>3</td>
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<tr>
<td></td>
<td>Electives(^12)</td>
<td>3-6</td>
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**SENIOR**

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<tbody>
<tr>
<td>MU 471</td>
<td>Recital (written consent of instructor)</td>
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<td>4C</td>
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<td>MU 499</td>
<td>Thesis (Music major only)</td>
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<td>4C</td>
</tr>
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<td></td>
<td>Biological/physical sciences(^13)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td></td>
<td>Global and cultural awareness(^14)</td>
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<td>3E</td>
</tr>
<tr>
<td></td>
<td>Option(^6)</td>
<td>9</td>
<td></td>
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<tr>
<td></td>
<td>Social/behavioral sciences(^15)</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td></td>
<td>Music electives(^11)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>3</td>
<td></td>
</tr>
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</table>

**PROGRAM TOTAL = 120 credits**
Major in Performing Arts

DANCE CONCENTRATION

Do you have the talent and a desire to perform? Do the grace and beauty of the human form inspire you? Does the challenge and satisfaction of dance motivate you? Have you ever wanted to be part of a live dance production as a producer, director, designer, choreographer, performer or a member of a stage production crew? Do you aspire to write, produce, and perform your own style of dance? Have you ever wanted to become a member of a touring dance troupe? Then a major in the Dance may be the right choice for you.

Creative involvement in all forms of dance characterizes the dance program at Colorado State. Students are placed in the technique level where they may best be challenged toward developing expertise in many forms and styles of dance. Graduates will have a solid knowledge and appreciation of the history and philosophy of dance from many cultures and time periods. They will also achieve an intermediate/advanced level of proficiency in modern, jazz, and ballet in order to prepare for a professional career in performance, teaching, dance therapy, choreography or television. Close supervision and personal evaluations help monitor students’ progress.

Many performance opportunities are available. Students and faculty collaborate to produce works that incorporate many styles of dance, including the Winter and Spring Dance Concerts and the informal Studio Night. Dance students are encouraged to audition for departmental musical and opera productions of which all three areas in the Department—music, theater, and dance—collaborate. There are also performing and teaching opportunities through the local public schools, and professional dance companies in the Fort Collins area provide opportunities for extracurricular performance. Creative and Performing Arts Awards are available for talented students of dance, with auditions held three times yearly.

The dance curriculum includes courses in ballet, modern, and jazz technique, choreography, repertory, history, dance appreciation, production and a dance practicum. Students will have a theoretical foundation complete with practical experience in the area of dance education and a basic working knowledge of anatomy, kinesiology, and various movement theories relating to dance techniques. Visiting guest artists teach master classes, workshops, and choreograph for students on a regular basis.

Characteristics and Skills

- A broad liberal arts education
- An understanding of the history of dance
- Competence in several dance techniques including: ballet, modern, and jazz and tap
- Practical experience in choreography
- Mastery of the theory and practice of dance composition including elements of space, time, dynamics, and form
- Experience in various aspects of dance production, designs and techniques of costuming, sound and lighting, publicity, and makeup

Potential Occupations

Dance careers are rigorous and demanding, requiring years of training and discipline. Earning a living solely by working in the performing arts is difficult. Most artists also depend upon other arts-related jobs or second careers. For many, success is based on creative work rather than on money and status. Dance majors often select a second major such as music, theatre, business,
occupational therapy, technical journalism, or exercise and sport science to enhance their job prospects. Experience acquired through extracurricular performances or internships is highly recommended to enhance your practical training and development. Students who go on for advanced study at the graduate level can obtain more responsible positions. Listed below are some of the career opportunities for graduates in dance:

- Professional dancer
- Choreographer
- Arts manager
- Chorus performer
- Costume designer
- Dance critic/teacher
- Dance therapist
- Mime artist
- Grip
- Wardrobe manager
- Theatre technician
- Stunt performer
- Stage/props manager
- Producer
- Scene designer
- Set designer
- Fashion coordinator
- Follow spot operator
- Librettist
- Light designer
- Composer
- Musician
- Makeup artist
- Musical director
- Sound designer

Students selecting a concentration or a minor in dance should contact Jane Slusarski-Harris, Director of the Program in Dance, 347B General Services Building, for additional information.

DANCE CONCENTRATION

Major in Performing Arts
Dance Concentration

<table>
<thead>
<tr>
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SOPHOMORE

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<td>D 226</td>
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<td>SPCC</td>
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<td>Dance techniques-jazz or modern ᵃ</td>
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<td>Historical perspectives ᵃ</td>
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### JUNIOR

| AY    | Principles of Human Anatomy and Physiology            | 4       |      |          |
|       | (C/C CC 103 or C/C CC 107 or C/C CC 111; BY 102/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110). |         |      |          |
|       | OR                                                     |         |      |          |
| PS    | Principles of Human Anatomy and Physiology            | 4       |      |          |
|       | (C/C CC 103 or C/C CC 107 or C/C CC 111; BY 102/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110). |         |      |          |
| AY    | Human Gross Anatomy (AY 300/PS 300)                   | 5       |      |          |
| D     | Dance Production (TH 161)                             | 3       |      |          |
| D     | Dance History I                                       | 3       | 4A   |          |
| D     | Group Study ᵁ                                          | 2       |      |          |
| PLCC  | Logic and Critical Thinking                            | 3       | 2D   |          |
| SPCC  | Rhetoric and Argumentation                            | 3       | 2D   |          |
|       | Dance techniques-ballet ᵃ                               | 4       |      |          |
|       | Dance techniques-jazz or modern ᵃ                       | 4       |      |          |
|       | TOTAL                                                  |         |      | 28       |

### SENIOR

| D     | Dance History II                                      | 3       |      | 4B       |
| D     | Dance Concert (D 321A-C, D 330, D 325, D 326, written consent of faculty) | 3       | 4C   |          |
| D     | Practicum ᵁ                                           | 6       |      |          |
| D     | Group Study ᵁ                                          | 2       |      |          |
| TH    | Costume and Makeup I (TH 160)                         | 3       |      |          |
|       | Dance techniques-ballet ᵃ                               | 4       |      |          |
|       | Dance techniques-jazz or modern ᵃ                       | 4       |      |          |
|       | Global and cultural awareness ᵄ                        | 3       | 3E   |          |
|       | TOTAL                                                  |         |      | 28       |

**PROGRAM TOTAL = 120 credits**

---

³ One course each semester.
² Select appropriate level course (one each semester).
³ Select from the list of courses in category 3D in the All-University Core Curriculum (AUCC).
⁴ Select from the list of courses in category 3E in the AUCC.
THEATRE CONCENTRATION

Are you a natural performer? Does the challenge of acting in a live production motivate and excite you? Have you ever wanted to be a producer, director, performer, set designer, or a member of a stage production crew? Do you aspire to write, produce, or perform your own play? Then a major in Theatre may be the right choice for you.

The theatre concentration consists of classroom and laboratory study as well as practical experience with productions of the experimental and main stages. Consistent with the program's generalist philosophy, students are required to take courses in all of the basic theatrical disciplines. Core courses are required in acting, graphic expression and design, technical theatre, directing, costume and makeup, and history of theatre. Courses in art, music, or dance are required, depending on your interests. Senior students are required to do a special project in an area of personal interest. Projects include directing a full-length play, designing or lighting a main stage production, presenting an acting recital, or writing a major research paper.

Among the practical experience opportunities for students is the unique Summer Outdoor Cafe Theatre. It offers an intense and extended theatrical experience to qualified students. The Program also produces a six show academic season, and a variety of student produced projects. Creative and Performing Arts Awards are available for talented students of theatre, with auditions held three times yearly.

Theatre also offers minors in Acting/Directing and Design/Technical Theatre in order to give students in related majors the opportunity to formalize their interest in theatre. These minors offer an opportunity for concentrated study in at least one of the basic theatre crafts as well as a background in general theatre practice and history.

Characteristics and Skills
- A broad liberal arts education
- An understanding of theater history
- Competence in the theatrical disciplines including production, directing, acting, costume design, and lighting
- Mastery of the theory and practice of scenic techniques
- Understanding of set design and construction
- Experience in all aspects of stage production

Potential Occupations

Talent and training are the main factors for success in acting. A pleasing voice, good diction, physical attractiveness, imagination, charm and ability to understand people are also valued. Earning a living solely by working in the performing arts is rare. Most artists also depend upon other arts-related jobs or second careers. For many, success is based on creative work rather than on money and status. Theatre and dance majors often select a second major such as business or education to enhance their job prospects.

Experience acquired through extracurricular performances or internships is highly recommended to enhance your practical training and development. Students who go on for advanced study at the graduate level can obtain more responsible positions. Some of the career opportunities are listed below:

Performing
- Film actor/actress
- Announcer
- Choral performer
- Comedian
- Commercial actor
- Magician
- Musician
- Mime
- Dramatic reader
- Stunt performer
- Impersonator

Designing
- Costume designer
- Makeup artist
- Sound designer
- Choreographer
- Playwright
- Librettist
- Light designer
- Lyricist
- Composer
- Scene/set designer

Technical support
- Grip
- Wardrobe manager
- Wig dresser
- Voice over
- Theatre technician
- Set carpenter
- Fashion coordinator
- Follow spot operator
- House electrician

Managing
- Stage manager
- Props manager
- Producer
- Musical director

Students selecting a concentration in theatre should contact the Director of the Program in Theatre, 220 Johnson Hall, for additional information.
# THEATRE CONCENTRATION

**Major in Performing Arts**  
**Theatre Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
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<tr>
<td>THCC 141</td>
<td>Introduction to Theatre(^1) OR From Page to Stage: Freshman Theatre Seminar(^2)</td>
<td>3</td>
<td>3B</td>
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<tr>
<td>TH 151</td>
<td>Acting I</td>
<td>3</td>
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<tr>
<td>TH 160</td>
<td>Graphic Expression for the Theatre</td>
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<tr>
<td>TH 161</td>
<td>Technical Theatre I (TH 160)</td>
<td>3</td>
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<td>TH 286</td>
<td>Practicum</td>
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<td></td>
<td>Allied arts(^3)</td>
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<tr>
<td></td>
<td>Biological/physical science(^4)</td>
<td>3</td>
<td>3A</td>
</tr>
<tr>
<td></td>
<td>Health and wellness(^5)</td>
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<td></td>
<td>U.S. public values and institutions(^2)</td>
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<td>3F</td>
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<td><strong>TOTAL</strong></td>
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<td><strong>SOPHOMORE</strong></td>
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<tr>
<td>TH 255</td>
<td>Directing I (TH 151)</td>
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<td>TH 263</td>
<td>Costume and Makeup I (TH 160)</td>
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<td>TH 265</td>
<td>Design I (TH 161)</td>
<td>3</td>
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<td>TH 286</td>
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<tr>
<td></td>
<td>Allied arts(^3)</td>
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<td>Biological/physical sciences(^4)</td>
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<td></td>
<td>Global and cultural awareness(^8)</td>
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<td>Historical perspectives(^9)</td>
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<td>Logical/critical thinking(^10)</td>
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<td>Social/behavioral sciences(^11)</td>
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<td>TH 341</td>
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<td>TH 342</td>
<td>Theatre History II</td>
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<td>TH 486</td>
<td>Practicum (TH 286)</td>
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<td></td>
<td>Additional communication(^7)</td>
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<td><strong>SENIOR</strong></td>
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<tr>
<td>TH 486</td>
<td>Practicum (TH 286)</td>
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</table>
**DEPARTMENT OF PHILOSOPHY**

*Office in Eddy Hall, Room 243*

*Professor Ronald G. Williams, Chair*

**Major in Philosophy**

Are you interested in the study of the truths underlying knowledge, morality, and reality? Are you looking for a system of principles for guidance in practical affairs? Would you like to study a particular branch of knowledge such as metaphysics, ethics, or social philosophy? Would you like to enhance your abilities to reason clearly, to distinguish between good and bad arguments, to think through complicated questions, and to use logic in situations that are influenced by emotions? Then a major in Philosophy may be what you are looking for.

Philosophy is the oldest form of systematic, scholarly inquiry. It is the study of the most basic moral, legal, aesthetic, religious, and metaphysical ideas by which we understand the universe and ourselves. Philosophers pursue fundamental truths, quest for understanding, and study principles of conduct. Philosophers seek to establish standards of evidence, provide rational methods of resolving conflicts, establish criteria for a just social order, and create techniques for evaluating ideas and arguments.

The study of philosophy broadens and intensifies liberal education while enhancing interpretive abilities in many fields. The curriculum provides a broad liberal arts background, including courses in foreign languages and a generous choice of elective courses. While some students plan for graduate school and teaching careers in philosophy, the broad relevance of philosophy to other fields permits most students to work toward goals such as professional training in law, medicine, or theology. There are three concentrations available to philosophy majors: **General Philosophy**, **Philosophy and Religion**, and **Philosophy, Science, and Technology**. It is not unusual for philosophy majors to also major in other disciplines, and these concentrations combine easily with other majors in the University.

**Characteristics and Skills**

- Critical analysis
- Problem-solving skills
- Organizational skills
- Interpretation skills
- Decision-making skills
- Articulation
- Persuasion
- Logical reasoning
- Mediation skills
- Diagnosis
- Conflict resolution
- Value identification
- Observation
- Evaluation
- Argumentation
- Excellent communication skills
- Interviewing
- Ability to listen critically
- Journalistic writing skills
- Interpersonal relations
- Debating skills
- Grant proposal development
- Advertising skills
- Public relations skills

Potential Occupations

A major in philosophy prepares students for a wide variety of professional and life goals including graduate school in philosophy as well as other disciplines, professional and paraprofessional training in law, social work, health care, the ministry, business, and general intellectual flexibility in a changing world. Participating in internships and cooperative education opportunities is highly recommended to enhance practical training and development. The high level of skill philosophy majors acquire in communication, analytical and critical thinking, and working with people enable them to secure jobs requiring complex thinking in a variety of private and public sector professions. Graduates who go on for advanced studies in Philosophy or can attain advanced positions with the possibility of rising to top professional levels. Depending on your concentration, available career choices include but are not limited to:

- Public policy analyst
- Business manager
- Public administrator
- Intelligence officer
- Foreign service agent
- Legislator
- Education professional
- Foreign diplomacy representative
- Teacher
- Higher education administrator
- Social worker
- Community developer
- Philanthropic organizer
- Anthropologist
- Biographer
- Curator
- Lawyer
- Researcher
- Writer
- Theologian
- Pastoral counselor
- Human resource manager
- Publisher
- Market research specialist

Students are required to receive at least a C- (1.67) in each philosophy course required for the major or minor in philosophy. The minimum scholastic average acceptable for graduation is 2.00 computed only for courses attempted at Colorado State.

Major in Philosophy (Core)

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<td>Conceptions of the Good Life</td>
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**SENIOR**

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**CORE TOTAL = 81 credits**

1. Select from the list of courses in category 3B in the ALL-University Core Curriculum (AUCC).
2. Select from the list of courses in category 3A in the AUCC. One must have a laboratory component.
3. Select from the list of courses in category 3G in the AUCC.
4. Select from the list of courses in category 3D in the AUCC.
5. Select from the list of courses in category 2D in the AUCC.
6. Select from the list of courses in category 3C in the AUCC.
7. Select from the list of courses in category 2B in the AUCC.
8. Select from the list of courses in category 3E in the AUCC.
9. Select from the list of courses in category 2C in the AUCC.
10. Select from the list of courses in Category 3F in the AUCC.
11. Take appropriate number of electives to bring total credits for the core to 81. Each concentration is 39 credits. Total credits required for graduate is 120, of which 42 must be upper-division.
12. In order to complete the major, each student must complete one of the following concentrations: general philosophy; philosophy and religion; or philosophy, science, and technology.

**GENERAL PHILOSOPHY CONCENTRATION**

**Major in Philosophy**

**General Philosophy Concentration**

In addition to the philosophy core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
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<tr>
<td>PLCC 100</td>
<td>Appreciation of Philosophy</td>
<td>3</td>
<td>3B</td>
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<tr>
<td>PLCC 103</td>
<td>Moral and Social Problems</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td>PL 105</td>
<td>Introduction to Philosophy</td>
<td>3</td>
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<tr>
<td>PLCC 120</td>
<td>History and Philosophy of Scientific Thought</td>
<td>3</td>
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<tr>
<td>OR</td>
<td></td>
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</tr>
<tr>
<td>PLCC 170</td>
<td>World Philosophies</td>
<td>3</td>
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**SOPHOMORE**

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<tbody>
<tr>
<td>PL 205</td>
<td>Introduction to Ethics (Sophomore standing or higher or written consent of instructor)</td>
<td>3</td>
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<tr>
<td>PL 206</td>
<td>Knowledge and Existence-An Introduction (Sophomore standing or higher or written consent of instructor)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PL 210</td>
<td>Introduction to Formal Logic (Sophomore standing or higher or written consent of instructor)</td>
<td>3</td>
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### Junior

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<tr>
<td>PL 300</td>
<td>Ancient Greek Philosophy (PL 205 or PL 206 or PL 210)</td>
<td>3</td>
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<tr>
<td>PL 301</td>
<td>17th and 18th Century European Philosophy (PL 206 or PL 210 or PL 300)</td>
<td>3</td>
<td>4A</td>
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<tr>
<td>PL 302</td>
<td>19th-Century Philosophy (PL 301)</td>
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**OR**

<table>
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<th>Title (Prerequisite)</th>
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<tr>
<td>PL 409</td>
<td>20th-Century Philosophy (PL 301)</td>
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**Upper-division philosophy**

**TOTAL**

| Credits | 12 |

### Senior

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<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>PL 425</td>
<td>Epistemology (PL 210 or PL 300 or PL 301)</td>
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<tr>
<td>PL 435</td>
<td>Metaphysics (PL 210 or PL 300 or PL 301)</td>
<td>3</td>
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<tr>
<td>PL 447</td>
<td>Ethical Theory (PL 205 or PL 300 or PL 301)</td>
<td>3</td>
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<tr>
<td>PL 462</td>
<td>Capstone Seminar (Senior standing and any two of the following courses: PL 300, PL 301, PL 302, PL 409)</td>
<td>3</td>
<td>4B, 4C</td>
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**TOTAL**

| Credits | 12 |

**PROGRAM TOTAL = 120 credits**

### Philosophy and Religion Concentration

**Major in Philosophy**

**Philosophy and Religion Concentration**

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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#### Freshman

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<td>PL 106</td>
<td>Wisdom of the East-Oriental Philosophy</td>
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**OR**

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<td>Religions of the East</td>
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<td>PLCC 170</td>
<td>World Philosophies</td>
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<td>3E</td>
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<tr>
<td>PL 171</td>
<td>Religions of the West</td>
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**TOTAL**

| Credits | 9 |

#### Sophomore

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<tr>
<td>PL 205</td>
<td>Introduction to Ethics (Sophomore standing or higher or written consent of instructor)</td>
<td>3</td>
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**OR**

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<th>AUCC</th>
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<tbody>
<tr>
<td>PL 206</td>
<td>Knowledge and Existence-An Introduction (Sophomore standing or higher or written consent of instructor)</td>
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<tr>
<td>PL 210</td>
<td>Introduction to Formal Logic (Sophomore standing or higher or written consent of instructor)</td>
<td>3</td>
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<tr>
<td>PL 270</td>
<td>Issues in the Study of Religion (Sophomore standing or higher or written consent of instructor)</td>
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**TOTAL**

| Credits | 9 |

#### Junior

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<th>Title (Prerequisite)</th>
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<tr>
<td>PL 300</td>
<td>Ancient Greek Philosophy (PL 205 or PL 206 or PL 210)</td>
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<td>4A</td>
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<tr>
<td>PL 301</td>
<td>17th and 18th Century European Philosophy (PL 206 or PL 210 or PL 300)</td>
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<td>4A</td>
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<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<td><strong>Select one of the following:</strong></td>
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<td>PL 355</td>
<td>Philosophy of Religion (PL 106 or PL 171 PL 172 or PL 270)</td>
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<tr>
<td>PL 370</td>
<td>Contemporary Western Religious Thought (PL 106 or PL 171 or PL 172 or PL 270)</td>
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<tr>
<td>PL 372</td>
<td>Meaning and Truth in Religion (PL 106 or PL 171 or PL 172 or PL 270)</td>
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<tr>
<td>PL 375</td>
<td>Science and Religion (PL 106 or PL 171 or PL 172 or PL 270)</td>
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<td><strong>Select one of the following:</strong></td>
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<tr>
<td>PL 349</td>
<td>Philosophy of Tao and Zen</td>
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<tr>
<td>PL 360</td>
<td>Topics in Oriental Philosophy (Sophomore standing or higher or written consent of instructor)</td>
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<td>PL 369</td>
<td>Mind and Body in Eastern Thought (Sophomore standing or higher or written consent of instructor)</td>
<td>3</td>
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<tr>
<td>PL 371</td>
<td>Contemporary Eastern Religious Thought</td>
<td>3</td>
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<td>PL 379</td>
<td>Mysticism East and West (PL 106 or PL 171 or PL 172 or PL 270)</td>
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**SENIOR**

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<th>AUCC Category</th>
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<tr>
<td>PL 425</td>
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<td>OR</td>
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<tr>
<td>PL 435</td>
<td>Metaphysics (PL 210 or 300 or PL 301)</td>
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<td>OR</td>
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<tr>
<td>PL 447</td>
<td>Ethical Theory (PL 205 or PL 300 or PL 301)</td>
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<td>OR</td>
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<tr>
<td>PL 463</td>
<td>Seminar in Religious Studies</td>
<td>3</td>
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<td>OR</td>
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<tr>
<td>PL 462</td>
<td>Capstone Seminar (Senior standing and any two of the following courses: PL 300, PL 301, PL 302, PL 409)</td>
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**PROGRAM TOTAL = 120 credits**

**PHILOSOPHY, SCIENCE, AND TECHNOLOGY CONCENTRATION**

**Major in Philosophy**
**Philosophy, Science and Technology Concentration**

<table>
<thead>
<tr>
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<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
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<td></td>
<td><strong>FRESHMAN</strong></td>
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<tr>
<td>PL 120</td>
<td>History and Philosophy of Scientific Thought</td>
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<tr>
<td></td>
<td><strong>SOPHOMORE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PL 205</td>
<td>Introduction to Ethics (Sophomore standing or higher or written consent of instructor)</td>
<td>3</td>
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<tr>
<td>PL 206</td>
<td>Knowledge and Existence-An Introduction (Sophomore standing or higher or written consent of instructor)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PL 210</td>
<td>Introduction to Formal Logic (Sophomore standing or higher or written consent of instructor)</td>
<td>3</td>
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<tr>
<td>Science and technology elective¹</td>
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<td>Ancient Greek Philosophy (PL 205 or PL 206 or PL 210)</td>
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<tr>
<td>OR</td>
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<tr>
<td>PL 301</td>
<td>17th and 18th Century European Philosophy (PL 206 or PL 210 or PL 300)</td>
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<td>4A</td>
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<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
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</tr>
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<tr>
<td>PL 302</td>
<td>19th-Century Philosophy (PL 301)</td>
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<td>20th-Century Philosophy (PL 301)</td>
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<td>PL 325</td>
<td>Philosophy of Natural Science (PL 210, one course in natural sciences)</td>
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<tr>
<td>PL 327</td>
<td>Philosophy of Behavioral Sciences (PL 105 or PL/PLCC 120 or PL 205 or PL 206 or PL 210 or any upper-division course in philosophy)</td>
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<td>PL 345</td>
<td>Environmental Ethics (Sophomore standing or higher or written consent of instructor)</td>
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<td>PL 375</td>
<td>Science and Religion (PL 106 or PL 171 or PL 172 or PL 270)</td>
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**SENIOR**

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<td>Formal Logic (PL 210 or CS 270)</td>
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<td>PL 415</td>
<td>Logic and Scientific Method</td>
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<td>PL 425</td>
<td>Epistemology (PL 210 or PL 300 or PL 301)</td>
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<tr>
<td>PL 435</td>
<td>Metaphysics (PL 210 or PL 300 or PL 301)</td>
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<td>PL 462</td>
<td>Capstone Seminar (Senior standing and any two of the following: PL 300, PL 301, PL 302, PL 409)</td>
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<td>4B, 4C</td>
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<tr>
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</table>

**PROGRAM TOTAL = 120 credits**

1 Three credits in addition to the AUCC science requirement. Course must be in the College of Natural Sciences or the College of Engineering.

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**DEPARTMENT OF POLITICAL SCIENCE**

*Office in Clark Building, Room C 346*

*Associate Professor G. Wayne Peak, Chair*

**Major in Political Science**

Are you fascinated by the fast moving political events shaping our lives? Would you like to understand how government works and how people and events influence it? Would you like to influence public policy? Do you wonder how public policies shape human behavior and influence the course of history? Does becoming involved in international relations intrigue you? Are you interested in comparing the U.S. political system to others around the world? Are you concerned about individual rights and how to protect them? If your answers are "yes," then Political Science may be the right major for you.

Political science is the study of political power, how it is developed, used, and controlled. Political science majors develop an understanding of political life in the United States, and in other nations. They investigate the origins and effects of political behavior, analyze political process, and interpret the political and social consequences of law. Political science majors receive a broad liberal arts education, learn to exhibit valid information about political processes, become informed about approaches to and theories of politics, and are stimulated to clarify their own political perspectives. Students study the values that give rise to a rich variety of behaviors, institutional forms, and public policies that influence our world. Courses in political science are complimented by courses in history, communication, economics, philosophy and statistics. There is plenty of room to explore other interests with elective credits. Students are also required to select an “option” or minor. These include: Foreign Language Support Option, Methods Option, a minor in a different department, or a program proposed by the student and approved by their adviser.

**Characteristics and Skills**

- Intellectual curiosity
- Excellent communications skills, including writing clear and concise reports
- Ability to analyze critically and think objectively
- Ability to process data systematically
- Ability to work alone and in groups
- Problem solving skills
Commitment to public service
- Tact and diplomacy
- Patience and persistence
- Flexibility
- Familiarity with computers and computer technology
- Dealing effectively with individuals or groups to obtain information
- Using surveys and interview techniques for research
- Creative and versatile thinking
- Understanding of human institutions and values
- Independent thinking
- Multicultural awareness

Potential Occupations

Political science, like many liberal arts majors, provides students with a broad academic background suitable for a variety of jobs in the public and private sectors. Political science majors are trained to think independently and critically, communicate effectively, and function in a multicultural world. Many employers appreciate liberal arts majors for their multiple skills and their ability to adapt to a variety of tasks and work environments. Participating in internships and cooperative education opportunities is highly recommended to provide training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Political science provides a solid preparation for further study in political science, public administration, business, public policy, international affairs, and law. Students who are interested in teaching political science in junior high or high schools must complete teaching endorsement area requirements in social studies through the School of Education. The following are some of the career opportunities available to political science graduates:

Advocacy
- Community organizer
- Consumer advocate
- Community relations/ombudsman

Legal careers
- Judicial clerk
- Paralegal or legal assistant
- Legal researcher
- Law librarian
- Attorney

Government
- Public policy administrator
- Civil rights enforcement officer
- Labor relations specialist
- Foreign relations specialist
- Legislative assistant
- Probation officer
- Foreign service officer
- Government intelligence analyst
- Congressional aide
- Diplomatic officer
- Cultural affairs officer
- Demographer
- Foreign correspondent
- International relations specialist
- Legislative advocate
- Criminal investigator

Politics
- Interest group coordinator
- Campaign worker
- Politician
- Lobbyist
- Consultant

Business
- Public relations specialist
- Financier
- Advertising representative
- Correspondent
- Columnist/critic
- Urban/regional planner
- International trade specialist
- Personnel administrator
- Market research analyst
## Major in Political Science

<table>
<thead>
<tr>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td><strong>FRESHMAN</strong></td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>ETCC 250</td>
<td>African-American History 1619-1865</td>
<td>3</td>
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<td>ETCC 251</td>
<td>African-American History Since 1865</td>
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<td>HYCC 100</td>
<td>Western Civilization, Pre-Modern</td>
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<tr>
<td>HYCC 101</td>
<td>Western Civilization, Modern</td>
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<td>U.S. History to 1876</td>
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<td>3D, 3F</td>
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<td>HYCC 151</td>
<td>U.S. History Since 1876</td>
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<td>3D, 3F</td>
</tr>
<tr>
<td>HYCC 170</td>
<td>World Civilizations, Ancient-1500</td>
<td>3</td>
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<tr>
<td>HYCC 171</td>
<td>World Civilizations, 1500-Present</td>
<td>3</td>
<td>3D</td>
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<td>HYCC 250</td>
<td>African-American History, 1619-1865</td>
<td>3</td>
<td>3D</td>
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<tr>
<td>HYCC 251</td>
<td>African-American History Since 1865</td>
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<td>3D</td>
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<td>HYCC 270</td>
<td>Colonial Latin America</td>
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<td>HYCC 271</td>
<td>Latin America Since Independence</td>
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<td>HYCC 273</td>
<td>Asian Civilizations I</td>
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<td>HYCC 274</td>
<td>Asian Civilizations II</td>
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<td>American Government and Politics</td>
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<td>POCC 103</td>
<td>State and Local Government and Politics</td>
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<td>Arts/humanities$^1$</td>
<td>3</td>
<td>3B</td>
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<tr>
<td></td>
<td>Biological/physical sciences$^2$</td>
<td>4</td>
<td>3A</td>
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<tr>
<td></td>
<td>First-year seminar$^4$</td>
<td>2-3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Health and wellness$^4$</td>
<td>2</td>
<td>3G</td>
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<tr>
<td></td>
<td>Mathematics$^5$</td>
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<td>2C</td>
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| **SOPHOMORE** | | | |
| ECCC 101 | Economics of Social Issues | 3 | 3C |
| ECCC 202 | Principles of Microeconomics$^6$ (M/M CC 118 or M/M CC 120A-B) | 3 | 3C |
| ECCC 204 | Principles of Macroeconomics$^6$ (EC/ECCC 202 or EA/EACC 202) | 3 | 3F |
| POCC 232 | International Relations | 3 | 3D |
| POCC 241 | Comparative Government and Politics | 3 | 3E |
| | Additional communications$^2$ | 3 | 2B |
| | Arts/humanities$^8$ | 3 |
| | Biological/physical sciences$^9$ | 3 | 3A |
| | Logical/critical thinking$^{10}$ | 3 | 2D |
| | Social science$^{11}$ | 3 |
| | Electives | 6 |
| **TOTAL** | | 30-33 |

| **JUNIOR** | | | |

---

$^1$ Arts/humanities

$^2$ Biological/physical sciences

$^3$ First-year seminar

$^4$ Health and wellness

$^5$ Mathematics

$^6$ Microeconomics

$^7$ Macroeconomics

$^8$ Arts/humanities

$^9$ Biological/physical sciences

$^{10}$ Logical/critical thinking

$^{11}$ Social science
### DEPARTMENT OF SOCIOLOGY

**Office in Clark Building, Room B 258**  
*Professor Louis E. Swanson, Jr., Chair*

### Major in Sociology

Would you like to know how organizations such as business corporations, religious communities, and governments function and evolve? Have you ever wondered how the roles of families, communities, and cultures have changed over time or differed from place to place? Would you like to know how other societies work and what we can learn from their successes and failures? Do you wonder why humans practice religion, engage in crime, and play at sport? Would you like to know how you could contribute to the solution of a pressing social problem? If your answers to these questions are "yes" then a major in Sociology may be right for you.

Sociology is the study of social life, focusing on the mutual interaction between human groups and
institutions. Human beings, through patterned social interaction, construct and reconstruct the social webs within which they live. The nature and type of social relationships are central to their lives. Sociologists study relationships within family units from the most primitive cultures to interactions of large, bureaucratic institutions in major industrialized nations. Social issues are studied in a variety of ways: 1) direct observation of groups; 2) surveying or interviewing individuals; 3) analyzing historical research; and a variety of other methods. Few fields of study have such broad scope and relevance.

Sociology majors have many opportunities to pursue broad and diverse ranges of interest. Students gain a sense of social perspective, an understanding of human affairs, an ability to think critically, and a capacity to write well. The curriculum includes general courses in the arts and humanities and the social sciences along with sociology coursework. A generous selection of electives allows students to major or minor in a complementary discipline.

One concentration is **General Sociology**. A sociology major also may attain certification in one of the interdisciplinary study programs such as Criminal Justice, Asian Studies, Latin American Studies, Religious Studies, Russian and East Central European Studies. The second concentration, in **Criminal Justice**, supplements general sociological training with coursework focused on the social aspects of crime and criminal justice. Sociology majors who opt for the criminal justice concentration will supplement their general sociological training with coursework focused on social aspects of crime and criminal justice. Such students will find the concentration helpful in enhancing their ability to think critically about issues of crime and justice, and in preparing for various careers within the criminal justice system.

Majors in other disciplines may also undertake systematic study in criminal justice by completing the Criminal Justice Interdisciplinary Studies Program listed in the University-Wide Instructional Programs section of the 1999-2000 General Catalog.

**Potential Occupations**

Careers are exceptionally varied. Participating in internships and cooperative education opportunities is highly recommended to enhance your practical training and development. Sociology graduates apply their education to a large variety of occupations in the nonprofit, private and public sectors. Because sociology graduates possess a number of transferable skills and their ability to adapt to a variety of tasks and environments, they find positions in government, industry, and academia. Many employers appreciate liberal arts majors for their multiple skills and their ability to adapt to a variety of tasks and work environments. Graduates who go on for advanced studies can pursue careers in Sociology or attain advanced positions with the possibility of rising to top professional levels. Depending on your interests, the electives you take or the concentration you select, available career choices include but are not limited to:

- Business manager
- Personnel director
- City manager
- Clinical social worker
- College/university instructor
- Human relations director
- Demographer
- Government aide
- Labor relations specialist
- Market analyst
- Researcher
- Medical administrator
- Police officer
- Politician
- Probation/parole officer
- Program director/manager
- Public administrator
- Publisher
- Sociologist-specialist
- Consultant
- Criminologist
- Industrial sociologist
- Lawyer
- Librarian

**Characteristics and Skills**

- Ability to analyze the influence of group activities on individual members
- Ability to study human behavior
- Ability to examine groups and social institutions
- Excellent writing skills
- An understanding of social bonds
- Disciplined study of social interaction, groups, organizations, institutions, whole societies, and interacting sets of societies
- Research and data collection skills
- Following and tracking the components of arguments
- Ability to test ideas by summoning supportive and contrary evidence
- Ability to draw conclusions disciplined by reasoned evidence
- Ability to detect false inferences
- An understanding of population dynamics, social classes, informal and formal organizations, and institutions
- Understanding of the processes of change
# CRIMINAL JUSTICE CONCENTRATION

**Major in Sociology**  
Criminal Justice Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
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<td></td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>2A</td>
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<tr>
<td>S CC 100</td>
<td>General Sociology</td>
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<td>3C, 3F</td>
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<tr>
<td>S CC 105</td>
<td>Social Problems</td>
<td>3</td>
<td>3C, 3F</td>
</tr>
<tr>
<td>S 253</td>
<td>Introduction to Criminal Justice (S/S CC 100 or S/S CC 105)</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>Arts/humanities&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>Biological/physical sciences&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3-4</td>
<td>3A</td>
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<td></td>
<td>First-year seminar&lt;sup&gt;3&lt;/sup&gt;</td>
<td>2-3</td>
<td>1</td>
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<tr>
<td></td>
<td>Health and wellness&lt;sup&gt;4&lt;/sup&gt;</td>
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<td>Social/behavioral sciences&lt;sup&gt;6&lt;/sup&gt;</td>
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<td>Writing Arguments (CO/COCC 150)</td>
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<td>CSCC 153</td>
<td>Java Programming (M/M CC 118 or M/M CC 121)</td>
<td>4</td>
<td>2D</td>
</tr>
<tr>
<td>PLCC 110</td>
<td>Logic and Critical Thinking</td>
<td>3</td>
<td>2D</td>
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<tr>
<td>SPCC 207</td>
<td>Rhetoric and Argumentation</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td></td>
<td>Additional communication&lt;sup&gt;7&lt;/sup&gt;</td>
<td>3</td>
<td>2B</td>
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<td>Biological/physical sciences&lt;sup&gt;8&lt;/sup&gt;</td>
<td>3-4</td>
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<tr>
<td></td>
<td>Global and cultural awareness&lt;sup&gt;9&lt;/sup&gt;</td>
<td>3</td>
<td>3E</td>
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<td></td>
<td>Historical perspectives&lt;sup&gt;10&lt;/sup&gt;</td>
<td>3</td>
<td>3D</td>
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<td></td>
<td>Social/behavioral sciences&lt;sup&gt;6&lt;/sup&gt;</td>
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<td><strong>30-32</strong></td>
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<td><strong>JUNIOR</strong></td>
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<tr>
<td>S 301</td>
<td>Development of Sociological Thought (S/S CC 100 or S/S CC 105)</td>
<td>3</td>
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<tr>
<td>S 302</td>
<td>Contemporary Sociological Theory (S/S CC 100 or S/S CC 105)</td>
<td>3</td>
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<tr>
<td>S 310</td>
<td>Quantitative Sociological Analysis (3 credits of math)</td>
<td>3</td>
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<td>S 311</td>
<td>Methods of Sociological Inquiry (S/S CC 100 or S/S CC 105)</td>
<td>3</td>
<td>4A, 4B</td>
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<td>S 313</td>
<td>Computer Methods in Sociology (S 310 or written consent of instructor)</td>
<td>1</td>
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<td>S 352</td>
<td>Criminology (S/S CC 100 or S/S CC 105)</td>
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<td>S 372</td>
<td>Sociology of Deviance (S/S CC 100 or S/S CC 105)</td>
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<td>S 354</td>
<td>Law Enforcement and Society (S 253)</td>
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<td>Social/behavioral sciences</td>
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<td></td>
<td>Electives</td>
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<td><strong>TOTAL</strong></td>
<td><strong>31</strong></td>
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**SENIOR**

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<th>Category</th>
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<td><strong>25-30</strong></td>
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</table>

**PROGRAM TOTAL = 120 credits**

1. Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 3A in the AUCC.
3. Select from the list of courses in category 1 in the AUCC.
4. Select from the list of courses in category 3G in the AUCC.
5. Select from the list of courses in category 2C in the AUCC.
6. Select from a department list of approved courses.
7. Select from the list of courses in category 2B in the AUCC.
8. Select a minimum of 7 credits from the list of courses in category 3A in the AUCC. One course must have a laboratory component.
9. Select from the list of courses in category 3E in the AUCC.
10. Select from the list of courses in category 3D in the AUCC.
11. Select enough elective credits to bring program total to 120 credits. A minimum of 42 upper-division credits is required as well.

**GENERAL SOCIOLOGY CONCENTRATION**

**Major in Sociology**

**General Sociology Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC</th>
<th>Category</th>
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<td>3C, 3F</td>
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<td>S CC</td>
<td>105</td>
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<td>3C</td>
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<td>Biological/physical sciences²</td>
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</tr>
<tr>
<td></td>
<td>First-year seminar³</td>
<td>2-3</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Health and wellness⁴</td>
<td>2-3</td>
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<td>3G</td>
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<td></td>
<td>Mathematics³</td>
<td>3</td>
<td></td>
<td>2-C</td>
</tr>
<tr>
<td></td>
<td>Social/behavioral sciences⁶</td>
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</table>

¹ Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).
² Select from the list of courses in category 3A in the AUCC.
³ Select from the list of courses in category 1 in the AUCC.
⁴ Select from the list of courses in category 3G in the AUCC.
⁵ Select from a department list of approved courses.
⁶ Select from the list of courses in category 2B in the AUCC.
⁷ Select a minimum of 7 credits from the list of courses in category 3A in the AUCC. One course must have a laboratory component.
⁸ Select from the list of courses in category 3E in the AUCC.
⁹ Select from the list of courses in category 3D in the AUCC.
¹⁰ Select enough elective credits to bring program total to 120 credits. A minimum of 42 upper-division credits is required as well.
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
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**SOPHOMORE**

Select one of the following:

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<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
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<td>COCC 300</td>
<td>Writing Arguments (COCC 150)</td>
<td>3</td>
<td>2B, 2D</td>
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<tr>
<td>CSCC 153</td>
<td>Java Programming (MC 118 or MC 121)</td>
<td>4</td>
<td>2D</td>
</tr>
<tr>
<td>PLCC 110</td>
<td>Logic and Critical Thinking</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>SPCC 207</td>
<td>Rhetoric and Argumentation</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td></td>
<td>Additional communication(^6)</td>
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<td>2B</td>
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<tr>
<td></td>
<td>Biological/physical sciences(^2)</td>
<td>3-4</td>
<td>3A</td>
</tr>
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<td></td>
<td>Global and cultural awareness(^8)</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td>Historical perspectives(^10)</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td></td>
<td>Social/behavioral sciences(^1)</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Sociology electives(^7)</td>
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<td>Electives</td>
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**JUNIOR**

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<th>AUCC Category</th>
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<tr>
<td>S 301</td>
<td>Development of Sociological Thought (SS/CC 100 or SS/CC 105)</td>
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OR

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<th>Credits</th>
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<td>S 302</td>
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<tr>
<td>S 310</td>
<td>Quantitative Sociological Analysis (3 credits of math)</td>
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<tr>
<td>S 311</td>
<td>Methods of Sociological Inquiry (SS/CC 100 or SS/CC 105)</td>
<td>3</td>
<td>4A, 4B</td>
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<tr>
<td>S 313</td>
<td>Computer Methods in Sociology (S 310 or written consent of instructor)</td>
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<td>Social/behavioral sciences(^1)</td>
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<td>Upper division sociology</td>
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**SENIOR**

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<th>Credits</th>
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<td>S 403</td>
<td>Capstone Seminar (S 310, S 311; S 301 or S 302; S 313)</td>
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<td><strong>TOTAL</strong></td>
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**PROGRAM TOTAL = 120 credits**

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1 Select from list of courses in category 3B of the All-University Core Curriculum (AUCC).
2 Select from list of courses in category 3A of the AUCC.
3 Select from list of courses in category 1 of the AUCC.
4 Select from list of courses in category 3G of the AUCC.
5 Select from list of courses in category 2C of the AUCC.
6 Select from a department list of approved courses.
7 Select courses representing the major areas of sociology.
8 Select from list of courses in category 2B of the AUCC.
9 Select from list of courses in category 3E of the AUCC.
10 Select from list of courses in category 3D of the AUCC.
11 Select from a department list of approved courses.
12 Select enough elective credits to bring program total to 120 credits.
DEPARTMENT OF SPEECH COMMUNICATION

Office in Eddy Hall, Room 202
Professor Ann M. Gill, Chair

Major in Speech Communication

Are you a good communicator? Do you like to write and speak your mind effectively and with a creative flare? Would you enjoy working with a variety of communications media to inform people about events, products, and ideas? Would you like to be prepared for a variety of jobs in mass media, business, and government? If your answers are “yes” then a major in Speech Communication may be the one for you.

Majors in speech communication are prepared for a wide array of careers that involve communication. The major encompasses many facets of oral and electronic communication and is a valuable second major for students in other disciplines. Majors find employment in public relations, politics, sales, advertising, video production, radio, television, cable, government, sports information, business management, promotions, and education. Some students move on to graduate work in speech communication and broadcasting; for teaching at various levels; and for post-graduate study in law and theology.

Speech communication majors receive a broad-based liberal arts education, designed to equip them in the 21st Century, including the likelihood of more than one career and the need to adapt to a rapidly changing workplace. Along with courses in speech communication, the major requires courses in history, English, literature, and philosophy. Students are encouraged to pursue a minor, a second major, or fluency in a second language.

The Department's goals for undergraduate majors also include development of outstanding oral and written communications skills; knowledge of the history, theory, and criticism of all forms of pragmatic human communication; commitment to the values and ethical obligations of free speech in a diverse, democratic society. Concentrations are offered Communication in Media, Communication Theory, Rhetoric, or Teacher Licensure.

Characteristics and Skills

- Outstanding oral and written communication skills
- Presenting viewpoints clearly and forcefully in a variety of media
- Expressing complex subject matter in easily understood language
- Writing copy that triggers a response
- Writing effective promotional materials
- Speaking clearly and persuasively
- Operating cameras, recorder, and other audio, visual and audiovisual equipment
- Using communication techniques, including listening, to deal different kinds of people, both in groups and individually.
- Effectively using design elements, such as such as paper, color, computer graphics, and photos to arrange layouts that capture attention and convey a lasting impression.
- Using sight, sound, motion, and words to create powerful and exciting images.

Potential Occupations

The speech communication major, like many liberal arts majors, provides students with a broad academic background suitable for a variety of jobs in the public and private sectors. Speech communication majors are trained to think independently and critically, communicate effectively, and function in a multicultural world. Many employers appreciate liberal arts majors for their multiple skills and their ability to adapt to a variety of tasks and work environments. Careers for graduates are available in education, business and government. Internships are available to speech communication majors and highly recommended to enhance practical training and development. Graduates who seek advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:

- Program assistant, production assistant
- Associate director, television schedule coordinator
- Photographer, camera operator
- Sound controller
- Sound effects technician
- Audio operator
- Audiovisual production specialist
- Contact representative
- Employee relations specialist
- Employment or guidance counselor
- Human resource advisor
- Industrial relations representative
- Public relations specialist
- Labor relations consultant
- Training representative
- Vocational rehabilitation counselor
- Newscaster, sportscaster, weathercaster, editor, commentator,
- Program director
- Medical and scientific illustrator
- Advance agent
- Business communicator
- Equal opportunity representative
- Foreign service officer
- Cooperative extension service worker
- Politician, lobbyist, speechwriter
- Press agent
- Educator
- Literary agent

- Interviewer
- Advertising sales representative
- Communications equipment sales representative
- Radio and television time sales representative
- Lyricist, playwright, screenwriter, scriptwriter

---

**Major in Speech Communication (Core)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
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<tr>
<td><strong>FRESHMAN</strong></td>
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<td>COCC 150</td>
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<td>POCC 101</td>
<td>American Government and Politics</td>
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<td>SPCC 100</td>
<td>Communications and Popular Culture</td>
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<td>Biological/physical sciences(^1)</td>
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<td>First-year seminar(^2)</td>
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<td>Historical perspectives(^4)</td>
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<td>SPCC 201</td>
<td>Rhetoric in Western Thought</td>
<td>3</td>
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<td>SPCC 207</td>
<td>Rhetoric in Argumentation</td>
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<td>Global and cultural awareness(^6)</td>
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<td>3E</td>
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<td>Historical perspectives(^7)</td>
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<td>Social/behavioral sciences(^8)</td>
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<td>Written communication(^9)</td>
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<td>Speech electives(^11)</td>
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<td>SP 311</td>
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<td>SP 341</td>
<td>Evaluating Contemporary Television</td>
<td>3</td>
<td>4A, 4B</td>
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<tr>
<td>SP 342</td>
<td>Critical Media Studies</td>
<td>3</td>
<td>4A, 4B</td>
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<td>SP 355</td>
<td>Evaluating Contemporary Film (SP 354)</td>
<td>3</td>
<td>4A, 4B</td>
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<td>SP 411</td>
<td>Contemporary Speeches on American Issues</td>
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<td>4A, 4B</td>
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<td>SP 412</td>
<td>Evaluating Contemporary Rhetoric</td>
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<td>4A, 4B</td>
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<td>Capstone Seminar</td>
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<td>4C</td>
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<td>Speech electives(^11)</td>
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<td>Electives(^12)</td>
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**COMMUNICATION IN MEDIA CONCENTRATION**

Major in Speech Communication

Communication in Media Concentration

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<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>SP 341</td>
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<td>SP 342</td>
<td>Critical Media Studies</td>
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<td>SP 346</td>
<td>Virtual Culture and Communication (SP/SPCC 100 or SP 241)</td>
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<td>SP 347</td>
<td>Video Communication (SP/SPCC 100 or SP 241)</td>
<td>3</td>
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<td>SP 349</td>
<td>Freedom of Speech</td>
<td>3</td>
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<td>SP 354</td>
<td>History and Appreciation of Film</td>
<td>3</td>
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<td>SP 355</td>
<td>Evaluating Contemporary Film (SP 354)</td>
<td>3</td>
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<td>SP 356</td>
<td>Rhetoric of Documentary Film (SP 354)</td>
<td>3</td>
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<tr>
<td>SP 447</td>
<td>Television-Radio Programming and Management (SP 241)</td>
<td>3</td>
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<tr>
<td>SP 449</td>
<td>Law and Policy of Communication Technologies</td>
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<tr>
<td>SP 454</td>
<td>Chicano/a Film and Video</td>
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Select twelve credits from the following:

B.A. Core requirements 108

**TOTAL** 120

**PROGRAM TOTAL = 120 credits**

1 All requirements for the Speech Communication (Core) are retained for this concentration with the following exception: Speech electives are reduced to twelve credits, and the preceding choice is added as a requirement.
COMMUNICATION THEORY CONCENTRATION

Major in Speech Communication
Communication Theory Concentration

<table>
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<td>SPCC</td>
<td>192 Introduction to Intercultural Communication</td>
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<td>SP</td>
<td>205 Group Communication (SP 200)</td>
<td>3</td>
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<td>SP</td>
<td>217 Nonverbal Communication</td>
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<td>SP</td>
<td>305 Intercultural Communication</td>
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<td>SP</td>
<td>306 Co-Cultural Communication</td>
<td>3</td>
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<td>SP</td>
<td>309 Conflict Management and Communication</td>
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<td>SP</td>
<td>310 Interpersonal Communication Skills</td>
<td>3</td>
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<td>SP</td>
<td>317 Women and Communication</td>
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<td></td>
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<tr>
<td>SP</td>
<td>409 Studies of Persuasion</td>
<td>3</td>
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<tr>
<td>SP</td>
<td>417 Communication, Language, and Thought</td>
<td>3</td>
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<td>SP</td>
<td>505 Ethnography of Communication</td>
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<td>SP</td>
<td>510 Theories of Interpersonal Communication</td>
<td>3</td>
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<td>SP</td>
<td>527 Communication in Organizations</td>
<td>3</td>
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<td>SP</td>
<td>530 Communication in Research Methods</td>
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<td>SP</td>
<td>311 Historical Speeches on American Issues</td>
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<tr>
<td>SP</td>
<td>317 Women and Communication</td>
<td>3</td>
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<tr>
<td>SP</td>
<td>401 Rhetoric in Contemporary Social Movements</td>
<td>3</td>
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<td>SP</td>
<td>409 Studies in Persuasion</td>
<td>3</td>
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<td>SP</td>
<td>411 Contemporary Speeches on American Issues</td>
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<tr>
<td>SP</td>
<td>412 Evaluation Contemporary Rhetoric</td>
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<tr>
<td>SP</td>
<td>417 Communication, Language, and Thought</td>
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<tr>
<td>SP</td>
<td>503 Transformations in Rhetorical Theory (SP 201 or graduate status)</td>
<td>3</td>
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<tr>
<td>SP</td>
<td>512 Rhetorical Criticism (fifteen 300-400 level credits in speech and/or English)</td>
<td>3</td>
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<tr>
<td>SP</td>
<td>514 British Origins of American Discourse</td>
<td>3</td>
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<td>SP</td>
<td>523 Feminist Theories of Discourse</td>
<td>3</td>
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<td></td>
<td>B.A. Core requirements</td>
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PROGRAM TOTAL = 120 credits

---

All requirements for the Speech Communication (Core) are retained for this concentration with the following exception: Speech electives are reduced to twelve credits, and the preceding choice is added.

RHETORIC CONCENTRATION

Major in Speech Communication
Rhetoric Concentration

<table>
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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
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<td>Select twelve credits from the following:</td>
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<tr>
<td>SP</td>
<td>311 Historical Speeches on American Issues</td>
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<tr>
<td>SP</td>
<td>317 Women and Communication</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SP</td>
<td>401 Rhetoric in Contemporary Social Movements</td>
<td>3</td>
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<tr>
<td>SP</td>
<td>409 Studies in Persuasion</td>
<td>3</td>
<td></td>
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<tr>
<td>SP</td>
<td>411 Contemporary Speeches on American Issues</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SP</td>
<td>412 Evaluation Contemporary Rhetoric</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SP</td>
<td>417 Communication, Language, and Thought</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SP</td>
<td>503 Transformations in Rhetorical Theory (SP 201 or graduate status)</td>
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<td>SP</td>
<td>512 Rhetorical Criticism (fifteen 300-400 level credits in speech and/or English)</td>
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<td>523 Feminist Theories of Discourse</td>
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<td>B.A. Core requirements</td>
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PROGRAM TOTAL = 120 credits

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All requirements for the Speech Communications (Core) are retained for this concentration with the following exception: Speech electives are reduced to twelve credits, and the preceding choice is added.
# TEACHER LICENSURE CONCENTRATION

## Major in Speech Communication

### Teacher Licensure Concentration*

<table>
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<th>Credits</th>
<th>AUCC Category</th>
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<td>COCC  150</td>
<td>College Composition (Composition Placement Exam)</td>
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<tr>
<td>POCC  101</td>
<td>American Government and Politics</td>
<td>3</td>
<td>3C, 3F</td>
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<td>SPCC  100</td>
<td>Communication and Popular Culture</td>
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<td>SPCC  200</td>
<td>Public Speaking</td>
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<td>THCC  141</td>
<td>Introduction to Theatre</td>
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<td>Biological/physical sciences¹</td>
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<tr>
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<td>First-year seminar²</td>
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<td>Health and wellness³</td>
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<td>Mathematics⁴</td>
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| **SOPHOMORE** | | | |
| ECC   270 | Introduction to American Literature | 3 | 3B |
| ECC   275 | Introduction to British Literature | 3 | 3B |
| EDCCC 275 | Schooling in the United States (consent of Teacher Licensure Office) | 3 | 3F |
| **Select one of the following courses:** | | | |
| ETCC  250 | African American History, 1619-1865 | 3 | 3D |
| ETCC  251 | African American History Since 1865 | 3 | 3D |
| ETCC  252 | Asian American History | 3 | 3D |
| ETCC  255 | Native American History | 3 | 3D |
| HYCC  100 | Western Civilization, Pre-Modern | 3 | 3D |
| HYCC  101 | Western Civilization, Modern | 3 | 3D |
| HYCC  150 | U.S. History to 1876 | 3 | 3D, 3F |
| HYCC  151 | U.S. History Since 1876 | 3 | 3D, 3F |
| HYCC  170 | World Civilizations, Ancient-1500 | 3 | 3D |
| HYCC  171 | World Civilizations, 1500-Present | 3 | 3D |
| HYCC  216 | The Islamic World | 3 | 3D, 3E |
| HYCC  230 | Medieval Europe | 3 | 3D, 3E |
| HYCC  250 | African American History, 1619-1865 | 3 | 3D |
| HYCC  251 | African American History Since 1865 | 3 | 3D |
| HYCC  252 | Asian American History | 3 | 3D |
| HYCC  255 | Native American History | 3 | 3D |
| SPCC  201 | Rhetoric in Western Thought | 3 | 3B |
| SPCC  207 | Rhetoric and Argumentation | 3 | 2D |
| | Global and cultural awareness⁵ | 3 | 3E |
| **TOTAL** | | | 21 |

<p>| <strong>JUNIOR</strong> | | | |
| COCC  301A-D | Writing in the Disciplines (CO/COC 150) | 3 | 2B2 |
| E    402 | Teaching Composition (CO/COC 301A-D) | 3 | |
| E    405 | Adolescents’ Literature | 3 | |
| ED   331 | Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office) | 3 | |</p>
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<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
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<td>ED 386</td>
<td>Practicum (ED 320 or concurrent reg.; admission to Teacher Licensure Program)</td>
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<td>ED 340</td>
<td>Literacy and the Learner (completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<td>ED 463</td>
<td>Methods in Teaching Language Arts (ED 320; admission to Teacher Licensure Program)</td>
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<td>English elective⁵</td>
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**SENIOR**

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<td>ED 450</td>
<td>Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
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<td>ED 485B</td>
<td>Student Teaching-Secondary (ED 450, ED 463)</td>
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<td>ED 486J</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
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<td>ED 493A</td>
<td>Seminar-Professional Relations (concurrent reg. in ED 485A or B or VE 485)</td>
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<td>ED 493B</td>
<td>Seminar-Assessment of Learning (concurrent reg. in ED 485A or B or VE 485)</td>
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<td>4C</td>
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**CORE TOTAL = 95 credits⁷**

1. Select from the list of courses in category 3A in the All-University Core Curriculum (AUCC). One course must have a laboratory component.
2. Select from the list of courses in category 1 in the AUCC.
3. Select from the list of courses in category 3G in the AUCC.
4. Select from the list of courses in category 2C in the AUCC.
5. Select from the list of courses in category 3E in the AUCC. Can be double-counted as a major requirement, but not as another AUCC requirement.
6. Three credit elective with E prefix.
7. In order to fulfill the 120 credit graduation requirement, one of the following options, speech or theatre, must also be completed.

*The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.*

**Major in Speech Communication**

**Teacher Licensure Concentration**

**Speech Option**

In addition to the speech communication teacher licensure concentration courses, the following must be completed:
<table>
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<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>SP 205</td>
<td>Group Communication (SP/SPCC 200)</td>
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<tr>
<td>SP 310</td>
<td>Interpersonal Communication Skills</td>
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<td>SP 215</td>
<td>Intercollegiate Forensics</td>
<td>1</td>
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<tr>
<td>SP 315</td>
<td>Public Discussion and Debate (SP 215)</td>
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<td></td>
<td>Speech electives¹</td>
<td>6</td>
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<td></td>
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<td>10</td>
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<tr>
<td>SPCC 192</td>
<td>Introduction to Intercultural Communications²</td>
<td>3</td>
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<tr>
<td>SP 305</td>
<td>Intercultural Communication</td>
<td>3</td>
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<td>SP 306</td>
<td>Co-Cultural Communication</td>
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<tr>
<td>SP 300</td>
<td>Advanced Public Speaking (SP/SPCC 200)</td>
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<td>Business and Professional Speaking (SP/SPCC 200)</td>
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<tr>
<td>SP 311</td>
<td>Historical Speeches on American Issues</td>
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<tr>
<td>SP 411</td>
<td>Contemporary Speeches on American Issues</td>
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<tr>
<td>PROGRAM TOTAL = 120 credits</td>
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</table>

¹ Any two 3-credit courses with SP prefix.
² If this course is selected, it fulfills the first-year seminar and category 3E requirement. An additional elective may be required to bring total number of credits to 120.

Major in Speech Communication
Teacher Licensure Concentration
Theatre Option

In addition to the speech communication teacher licensure concentration courses, the following must be completed:

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<th>Course</th>
<th>Title (Prerequisite)</th>
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<tr>
<td>TH 151</td>
<td>Acting I</td>
<td>3</td>
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<tr>
<td>TH 160</td>
<td>Graphic Expression for Theatre</td>
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<td>TH 255</td>
<td>Directing I (TH 151)</td>
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<td>TOTAL</td>
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<td>JUNIOR</td>
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<tr>
<td>TH 286</td>
<td>Practicum</td>
<td>2</td>
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<tr>
<td>TH 341</td>
<td>History of Theatre I</td>
<td>3</td>
<td>4A, 4B</td>
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<tr>
<td>TH 342</td>
<td>History of Theatre II</td>
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<td>Course</td>
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<tr>
<td>SENIOR</td>
<td>Theatre electives¹</td>
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<td>PROGRAM TOTAL</td>
<td>= 120 credits</td>
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</table>

¹ Any course with TH prefix.
College of Natural Resources

Office in Natural Resources Building, Room 101
Professor A. Al Dyer, Dean
Professor Diana Wall, Associate Dean/Director
Assistant Professor Joyce Berry, Assistant Dean

UNDERGRADUATE MAJORS

Fishery Biology
Forestry
Geology
Natural Resource Recreation and Tourism
Natural Resources Management
Rangeland Ecology
Watershed Science
Wildlife Biology

The college offers studies and professional training in the management, administration, and scientific investigation of renewable and nonrenewable natural resources. Programs include the study of every component of natural systems with particular emphasis on fish, forests, minerals, range, watershed, wildlife, and outdoor recreation areas.

The Natural Resource Ecology Laboratory, housed in the college, is devoted to research and training in ecosystem science and management.

COLLEGE PROGRAMS

Undergraduate Majors

The scope of the college's programs is more broadly based than most natural resources schools. There are eight undergraduate curricula, some with specialized concentrations or designated areas of further study. Undergraduate majors in all five departments lead to the bachelor of science degree, which requires a minimum of 120 credits. A minimum of 42 credits in upper-division courses is required for all majors.

Freshman Open Option

Office in Natural Resources Building, Room 101

Students who have a strong interest and aptitude in the broad area of natural resources, but who have not decided on a specific major, may enroll in the Natural Resources Open Option. This option extends through the two semesters of the freshman year. Selection of a major must be made prior to the beginning of the sophomore year.

Field Training Programs

Most undergraduate majors require the completion of a four-week summer field training program (five credits) before their junior year. Summer field instruction is given at the Pingree Park campus, 55 miles west of Fort Collins. Permanent quarters and meals are provided. Information concerning the summer program is available in February from the Dean's Office of the College of Natural Resources.

During interim or summer periods, some majors devote several weeks to advanced field training programs off campus. Students taking advanced ROTC should arrange their schedules with their advisers in their junior year to avoid conflicts during senior spring semester. It is recommended for all majors, and required for some, that students have a minimum of one summer of field experience before graduation.

International Education

International resources management is an increasingly important concern of the College of Natural Resources. It is desirable that students in the college have opportunities to study abroad, just as students from abroad are encouraged to study here. The University has agreements covering study abroad opportunities with institutions throughout the world. Students may complete one or two semesters of resources management education abroad. Students interested in study abroad should contact the Office of International Programs, 315 Aylesworth Hall.

Graduate Programs

Master of science and doctor of philosophy degree programs are offered in each department. Programs leading to the professional degree, master of forestry, are offered in the Department of Forest Sciences. A description of these programs may be found in the Graduate and Professional Bulletin.
ADMISSION INFORMATION

For High School Graduates

High school students are advised to take all the English, science, and mathematics courses possible to prepare for college-level work in natural resources.

Limitation on Transfer of Credits

Students planning to attend another college or junior college prior to enrolling at Colorado State University should follow the freshman program for their chosen major as closely as possible. To assure that they have the opportunity to complete all degree requirements in four years, they should plan to transfer to Colorado State no later than the beginning of their junior year. Students whose majors include the summer field training program should transfer for the summer session prior to their junior year. Credits which transfer but are not equivalent to specific curriculum requirements may be used as elective credits.

Transfer Students

Students are required to choose a major when enrolling. Transfer students, therefore, should follow the departmental curriculum closely. Check the individual major and concentration for specific courses.

DEPARTMENT OF EARTH RESOURCES

Office in Natural Resources Building, Room 322
Professor Judith Hannah, Head

Major in Geology

Do the processes of the earth’s formation and change fascinate you? Are you intrigued by the wealth of natural history embedded within the earth’s crust? Does mapping of geologic structures interest you? Would you like to work for a natural resource company exploring for valuable mineral resources and analyzing their quantity and quality? Would you like to do seismic surveys for power plants, buildings, or highways? Would a career in geology teaching or research in schools, colleges, and private or national laboratories inspire you? If your answer to any of these questions is “yes,” and if you have a strong aptitude for mathematics, chemistry, and/or geology, you should consider a major in geology where you can use all of your skills to help solve resource evaluation and environmental problems.

The geology major is broad-based, allowing students to obtain a sound academic and practical basis for professional careers in private sector resource industries, federal and state natural resource management and regulatory agencies, education, or graduate training in specialized areas of geology or related fields, such as oceanography and geophysical sciences.

The geology curriculum provides a technical background within the broader framework of a liberal arts program. Emphasis is placed on integrating field studies in the Rocky Mountains with on-campus work in both the classroom and the laboratory. In addition to a solid core in earth resources students complete coursework in math, the physical and biological sciences, communications, and the liberal arts. Two concentrations are offered. Environmental Geology prepares students to address the environmental implications of geologic processes and human effects on the earth. Graduates find careers in environmental, engineering and groundwater firms, and in government agencies. The Geology concentration covers general geology using a practical, field-oriented approach suited to employment opportunities in the petroleum and mining industries and other traditional geologic fields. By obtaining a teaching certificate graduates can teach geology and related subjects in primary and secondary schools.

Characteristics And Skills

- A strong interest in geology
- Aptitude for natural sciences
- Interest in physical sciences
- Strong analytical ability
- Likes working with physical things and in nature
- Organizational and decision making skills
- Prefers hands on work
- Prefers working outdoors-in the field
- Well organized/attention to detail
- Adaptable to changing conditions and environments
- Able to work in a team and alone
- Able to write and speak accurately and clearly
- Interest in data and policy analysis
- Physical stamina

Potential Occupations

A variety of opportunities exist for geology graduates in the private and public sectors and in education. Petroleum companies, mining companies, railroad companies, and entrepreneurs hire geologists for exploration, development, mining, production and research. Federal government resource agencies use geologists for field mapping, oil-gas-coal-groundwater resource evaluation, geochemical water studies, leasing and conservation studies, resource restoration and rehabilitation programs, and research. State and local governments hire geologists for geologic and soils
mapping, resource evaluation, public information, consulting, and writing. Environmental, engineering and groundwater firms use geologists for field mapping, restoration and rehabilitation planning, monitoring and evaluation of geologic hazards, and site evaluations for feasibility and implementation of construction projects, water reuse evaluation, groundwater pollution assessment, groundwater cleanup, and pollution prevention. Schools, colleges, universities, national laboratories, and private research firms employ geologists in a variety of teaching, research, and administrative positions.

Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can continue in one of a number of geological disciplines or can opt for related fields of study, such as seismology, hydrology, meteorology, oceanography, and the space sciences. Those with advanced degrees can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:
- Educator
- Environmental consultant
- Exploration geologist
- Environmental geologist
- Geologist
- Geophysicist
- Hydrologist
- Mining geologist
- Oceanographer
- Production geologist
- Researcher
- Resource evaluator
- Seismologist

M CC 120A-B and M CC 121 are considered review courses; credits may not be used toward a degree in geology.

ENVIRONMENTAL GEOLOGY CONCENTRATION

Major in Geology
Environmental Geology Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>FRESHMAN</td>
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<td></td>
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<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111, M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>C 114</td>
<td>General Chemistry Laboratory II (C/C CC 112, C 113 or concurrent reg.)</td>
<td>1</td>
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<td>Select one of the following :</td>
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<td>COCC 300</td>
<td>Writing Arguments (CO/COCC 150)</td>
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<td>JTCC 300</td>
<td>Professional and Technical Communication (CO/COCC 150)</td>
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<td>2B2</td>
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<td>SPC 200</td>
<td>Public Speaking</td>
<td>3</td>
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<tr>
<td>CSCC 151</td>
<td>C++ for Scientists and Engineers (M/M CC 124, M/M CC 126)</td>
<td>4</td>
<td>2D</td>
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<tr>
<td>ER 154</td>
<td>Historical and Analytical Geology (ER/ERCC 130 or ER/ERCC 140 or ER 150/ERCC 192A)</td>
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<tr>
<td>ERCC 192A</td>
<td>Physical Geology and First Year Seminar(^1)</td>
<td>4</td>
<td>1</td>
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<tr>
<td>M CC 125</td>
<td>Numerical Trigonometry (M/M CC 118 or M/M CC 121 or placement)</td>
<td>1</td>
<td>2C</td>
</tr>
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<td>M CC 126</td>
<td>Analytic Trigonometry (M/M CC 125 or placement)</td>
<td>1</td>
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<td>Health and wellness(^2)</td>
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SOPHOMORE
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<td>ER 364</td>
<td>Igneous and Metamorphic Petrology (ER 232)</td>
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<td>M CC 155</td>
<td>Calculus for Biological Scientists I(^1) (M/M CC 124, M/M CC 125)</td>
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<td>M CC 255</td>
<td>Calculus for Biological Scientists II (M/M CC 155; concurrent reg. in M/M CC 126)</td>
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<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
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<td>Global and cultural awareness(^4)</td>
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<td>Historical perspectives(^3)</td>
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**JUNIOR**

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<td>ER 372</td>
<td>Structural Geology (ER 154, M/M CC 125, concurrent reg. PH/PHCC 141)</td>
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<td>ER 376</td>
<td>Geologic Field Methods (ER 344, ER 372 or concurrent reg.)</td>
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<td>ER 454</td>
<td>Geomorphology (ER/ERCC 140 or ER 150/ERCC 192A or GR 210; M/M CC 155 or M/M CC 160)</td>
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<td>Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255)</td>
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<td>Soil Physics (SC 240)</td>
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<td>Introductory Soil Science (C/C CC 107 or C/C CC 111)</td>
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<td>Introduction to Statistical Methods (M/M CC 121)</td>
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<td>Arts/humanities(^8)</td>
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**SUMMER SESSION**

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<tr>
<td>ER 436</td>
<td>Geology Summer Field Course(^9) (ER 364, ER 376)</td>
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<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
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<td>Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)</td>
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<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
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<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
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<td>ER 366</td>
<td>Sedimentary Petrology and Geochemistry (ER 154, ER 364)</td>
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<td>ER 446</td>
<td>Environmental Geology (ER 454 or concurrent reg.)</td>
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<td>ER 452</td>
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<td>Technical elective(^10)</td>
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<td><strong>FRESHMAN</strong></td>
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<td>C CC 112</td>
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<tr>
<td>C 113</td>
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<td>C 114</td>
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<td>COCC 150</td>
<td>College Composition (Comp Placement Exam)</td>
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<td>C++ for Scientists and Engineers (M/M CC 124, M/M CC 126)</td>
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<tr>
<td>ERCC 192A</td>
<td>Physical Geology and First Year Seminar</td>
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<tr>
<td>M CC 125</td>
<td>Numerical Trigonometry (M/M CC 118 or M/M CC 121 or placement)</td>
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<tr>
<td>M CC 126</td>
<td>Analytic Trigonometry (M/M CC 125 or placement)</td>
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<tr>
<td>SPCC 200</td>
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<td>Principles of Plant Biology</td>
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**PROGRAM TOTAL = 120 credits**

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1 ER/ERCC 140 and a first-year seminar may be substituted for ERCC 192A.
2 Select from list of courses in category 3G in the All-University Core Curriculum (AUCC).
3 M CC 160, M CC 161, and M 261 may be substituted for M CC 155 and M CC 255.
4 Select from list of courses in category 3E in the AUCC.
5 Select from list of courses in category 3D in the AUCC. Course selected to satisfy either category 3C or category 3D should also satisfy category 3F.
6 Select from list of courses in category 3C in the AUCC. Course selected to satisfy either category 3C or category 3D should also satisfy category 3F.
7 Select from list of courses in category 3F that also satisfies either category 3C or category 3D.
8 Select from list of courses in category 3B in the AUCC.
9 Select upper-division geology course with upper-division prerequisite and/or ER 342. Written adviser approval required.
10 Select upper-division science or engineering course, excluding geology, from departmental advising list.
Major in Watershed Science

Do the natural processes involving water and its contribution to natural and human systems interest you? Do the global spread of ground water pollution and the decreasing availability of clean ground water supplies concern you? Would you like to contribute your expertise to programs or policies that aim to preserve local or regional water quality, track the migration or intensification of ground water pollution, or prevent or mitigate ground water contamination? Are you interested in the sustainable management of land and water resources? Do you wish to study the interactions among land, land uses, and water? If you answer “yes” to any of these questions, then a major in Watershed Science may be right for you.

In Colorado, and many other locations around the world, the management and allocation of fresh water resources rank among the most important political and development issues. All civilizations throughout history, including our own, have always been vitally dependent upon the availability of uncontaminated ground water. Watershed science is the interdisciplinary study of the natural processes of human activities that affect water resources on a basin or catchment scale. The program requires a solid grounding in the physical and natural sciences in preparation for the upper division courses in topics such as land use hydrology, land use and water quality, eolian and fluvial transport processes, and watershed analysis.

Characteristics And Skills

- A strong interest in geologic and hydrologic processes.
- Aptitude for natural sciences
- Interest in the physical and biological sciences
- A desire to understand water management principles
- Strong analytical ability
- Enjoys working with physical things and in nature
- Organizational and decision making skills
- Prefers hands on work
- Enjoys working outdoors-in the field
- Well organized and able to pay attention to detail
- Adaptable to changing conditions and environments
- Interest in policy formation and implementation
- Able to work in a team and alone
- Able to write and speak accurately and clearly
- Physical stamina
- Interest in data and policy analysis

Potential Occupations

Completion of the undergraduate degree qualifies students for a wide variety of careers in hydrology, watershed and water resources management. Employment opportunities include consulting firms; governmental bodies at the local, regional, and national levels; international development and resource management agencies; and private industry. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:

- Watershed scientist
- Hydrologist
- Environmental consultant
- Water quality analyst
- Watershed manager
- Watershed analyst
- Land use specialist
- Water conservation specialist

### Major in Watershed Science

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<td>M CC 160</td>
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Health and wellness\(^2\) 2 3G
Social/behavioral sciences\(^3\) 3 3C

TOTAL 30-31

**SOPHOMORE**

Select one of the following courses:

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<td>BY 320</td>
<td>Ecology (one course in biology, M/M CC 155)</td>
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<td>NR 220</td>
<td>Natural Resources Ecology and Measurements (BY 103 or BZ/BZCC 120; M/M CC 121)</td>
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<td>Professional and Technical Communication (COCC 150)</td>
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<td>Introductory Soil Science (C/C CC 107 or C/C CC 111)</td>
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<td>Public Speaking</td>
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<td>Introduction to Statistical Methods (M/M CC 121)</td>
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Global and cultural awareness\(^4\) 3 3E
Historical perspectives\(^5\) 3 3D
U.S. public values and institutions\(^6\) (3) 3F

TOTAL 31-33

**JUNIOR**

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<td>EV 322</td>
<td>Basic Hydrology (CE 300 or ER 416 or CB 331, ST/STCC 301 or ST/STCC 309 or CE 308; or written consent of instructor)(^7)</td>
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### DEPARTMENT OF FISHERY AND WILDLIFE BIOLOGY

**Office in Wagar Building, Room 135**  
**Professor H. Randall Robinette, Head**

Two majors are offered for careers in fish or wildlife biology, management, administration, or research. Fish and wildlife are interpreted broadly to include all wild vertebrate animals. Emphasis is given to fish and wildlife in integrated resource management, to applications of technology, and to socioeconomic considerations.

#### Major in Fishery Biology

**Professor Kurt D. Fausch, in charge**

Do you love to be outdoors and fishing? Do fish biology, fish behavior, and aquatic ecology fascinate you? Would you like to work in a fishery? Are you looking for a way to apply your interest in biology to practical natural resource and environmental management problems? Would you like to work with professionals from a variety of disciplines to help protect fisheries and restore aquatic habitats? Do you wish to work in a program to rehabilitate endangered fish species? Would you like to be involved in ecological research and the implementation of ecosystem restoration policies and programs? These are some of the things fishery biologists do.

A fishery biology degree prepares students for careers in
fish biology, fishery management, aquaculture, or aquatic ecology, fishery research, or graduate studies. The fishery biology program at Colorado State University is a nationally ranked program located in an ideal setting for the study of wildlife and resource management issues. The faculty is wide ranging in expertise, and innovative in teaching and research methods. A variety of specializations are possible including aquaculture, fisheries management, aquatic ecology, and fish biology. Students also have access to a wide array of facilities, research and internship opportunities, and professional associations to further their studies, practical experience, and career potential.

The fishery biology curriculum provides a solid foundation in the natural sciences, plus specific requirements in organismal and suborganismal biology, aquatic ecology, fishery biology, and ecosystem management. Additionally, up to 25 credits of electives can be used to develop expertise in several specialties. Aquaculture, the propagation of fish, emphasizes fish culture, nutrition, microbiology, water quality, food science and technology, and business. Fisheries management should include electives in aquatic ecology, watershed science, computer modeling, natural resources policy, public relations, and advanced courses in fisheries management. Those interested in aquatic ecology or fish biology should select electives to obtain a broad background in math, chemistry, physics, and upper-division biology courses. A summer field-training program at the Pingree Park mountain campus gives students an onsite, hands-on look at resource ecology and the measurement of its components. Students are also required to complete at least one summer of employment related to fishery biology.

**Characteristics And Skills**

- A strong interest in fish and fisheries
- Strong interest in biological sciences
- A desire to understand fishery management principles
- Aptitude for natural sciences
- Strong analytical ability
- Likes working with physical things and in nature
- Organizational and decision making skills
- Prefers hands on work
- Prefers working outdoors-in the field
- Well organized and able to pay attention to detail
- Adaptable to changing conditions and environments
- Interest in policy formation and implementation
- Able to work in a team and independently
- Able to write and speak accurately and clearly
- Interest in data and policy analysis
- Able to integrate knowledge of a variety of concepts to obtain an holistic perspective

**Potential Occupations**

Federal and state agencies that manage natural resources offer most of the employment opportunities in fishery biology. These agencies include the U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, U.S. Environmental Protection Agency, U.S. Bureau of Reclamation, National Marine Fisheries Service and state departments of wildlife, fish and game, and natural resources. Along with a strong technical foundation, cooperation, speaking and writing skills are necessary to resolve difficult issues which natural resource personnel may face in the following areas: conservation education and interpretation, harvest management, administration, research, law enforcement, habitat enhancement, fishery census, statistical analyses, and resolution of human-wildlife problems. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:

- Fishery biologist
- Fishery manager
- Fishery management specialist
- Aquaculturist
- Aquatic ecologist
- Consultant
- Researcher
- Educator

Students are required to attend the four-week summer camp at Pingree Park campus, with a total cost of about $1,050 for Colorado residents or $2,400 for nonresidents, and to complete at least one summer of employment related to fishery biology.
M CC 120A-B and M CC 121 are considered review courses by the Department of Fishery and Wildlife Biology. Credits in these courses, either by examination or completion, may not be used toward a degree in this department.

## Major in Fishery Biology

<table>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td><strong>BY</strong> 103</td>
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<td>Attributes of Living Systems (high school chemistry)</td>
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| **SOPHOMORE** | | | |
| **BY** 220 | Fundamentals of Ecology (one course in biology, M/M CC 124 or M/M CC 141 or M/M CC 155) | 3 | |
| **BY** 320 | Ecology (one course in biology, M/M CC 155) | 3 | |
| **C** 245 | Fundamentals of Organic Chemistry (C/C CC 107 or C 113) | 4 | |
| **C** 246 | Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent reg.) | 1 | |
| **FW** 204 | Introduction to Fishery Biology (FW 100) | 3 | |
| **NR** 220 | Natural Resources Ecology and Measurements (BY 103 or BZ/BZCC 120; M/M CC 121) | 5 | |
| **PHCC** 110 | Descriptive Physics | 3 | 3A |
| **SPCC** 200 | Public Speaking | 3 | 2B1 |
| **Arts/humanities³** | 3 | 3B |
| **Global and cultural awareness⁴** | 3 | 3E |
| **Social/behavioral sciences⁵** | 3 | 3C |
| **TOTAL** | | 31 | |

| **JUNIOR** | | | |

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<td>STCC 307</td>
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**SENIOR**

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<td>Aquatic Insects (BY 103 or BZ/BZCC 111)</td>
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<td>Design of Wildlife Projects (EH/EHCC 307 or ST/STCC 301 or ST/STCC 307)</td>
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<td>FW 400</td>
<td>Fish Ecology (BY 220, FW 300, FW 370)</td>
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**PROGRAM TOTAL = 120 credits**

1 First year students must take FW 100 and FWCC 192. Students who have already received credit for a first-year seminar should take FW 200.
2 Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).
3 Select from the list of courses in category 3B in the AUCC.
4 Select from the list of courses in category 3E in the AUCC.
5 Select from the list of courses in category 3C in the AUCC.
6 Choose 3 courses from the following list: BY 310, BY 311, SC 330 or BZ 346, MB 300, BZ 405 or BZ 401.
7 Choose 1 course from List A and 1 course from List B. List A: EA/EACC 240 or EC/ECCC 240 or NR 400 or RR 330; List B: ER 304 or F 311 or RS 331.
Major in Wildlife Biology

Do you love to be outdoors in natural settings? Are you fascinated by wildlife? Do you wish to learn how wildlife conservation and restoration can be accomplished? Are you looking for a way to apply your interest in biology to practical natural resource and environmental management problems? Would you like to work with professionals from a variety of disciplines to help protect wildlife and restore habitat? Do you wish to work in a program to rehabilitate endangered wildlife species? Would you like to be involved in ecological research and the implementation of ecosystem restoration policies and programs? These are some of the things wildlife biologists do.

A wildlife biology degree prepares students for careers in conservation, ecology, management, research, or graduate studies. The Colorado State wildlife biology program is a nationally ranked program located in an ideal setting for the study of wildlife and resource management issues. The faculty is wide ranging in expertise, and innovative in teaching and research methods. A variety of specializations are possible including conservation biology, management of game or nongame wildlife, biometrics, ecology, nutrition, international wildlife, public relations, administration, and human wildlife interactions. Students also have access to a wide array of facilities, research and internship opportunities, and professional associations to further their studies, practical experience, and career potential.

The wildlife biology curriculum includes integrated management of all resources, public relations in natural resources, computer applications, and wildlife ecology and management. Required natural sciences include general biology, vertebrate biology, botany, calculus, and statistics. A summer field-training program at the Pingree Park mountain campus gives students an onsite, hands-on look at resource ecology and the measurement of its components. Electives may be used to prepare for one or more of many wildlife specialties; education, law, veterinary medicine, or graduate school. Seniors participate in a nine-day field trip with faculty to visit wildlife habitats and to discuss management issues with professionals in the field.

Characteristics And Skills

- A strong interest in wildlife
- Interest in biological sciences
- A desire to understand wildlife management principles
- Aptitude for natural sciences
- Physical stamina
- Strong analytical ability
- Likes working with physical things and in nature
- Organizational and decision making skills
- Prefers hands on work
- Prefers working outdoors-in the field
- Well organized and able to pay attention to detail
- Adaptable to changing conditions and environments
- Interest in policy formation and implementation
- Able to work in a team or independently
- Able to write and speak accurately and clearly
- Interest in data and policy analysis
- Able to integrate knowledge of a variety of concepts to obtain an holistic perspective

Potential Occupations

Federal and state agencies that manage natural resources offer most of the employment opportunities in wildlife. These agencies include the U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, U.S. Environmental Protection Agency, U.S. Bureau of Reclamation, National Marine Fisheries Service and state departments of wildlife and natural resources. Along with a strong technical foundation, cooperation, speaking and writing skills are necessary to resolve difficult issues which natural resource personnel may face, including: conservation education and interpretation, harvest management, administration, research, law enforcement, habitat enhancement, wildlife census, statistical analyses, and resolution of human-wildlife problems. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Wildlife biology is also excellent preparation for veterinary school. Career occupations include but are not limited to:

- Wildlife biologist
- Conservation biologist
- Wildlife rehabilitation specialist
- Wildlife manager
- Research scientist/associate
M CC 120A-B and M CC 121 are considered review courses by the Department of Fishery and Wildlife Biology. Credits in these courses, either by examination or completion, may not be used toward a degree in this department.

### Major in Wildlife Biology

<table>
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<td>BY 103</td>
<td>Biology of Organisms (BY/LSCC 102)</td>
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<td>BY 220</td>
<td>Fundamentals of Ecology (one course in biology; M/M CC 124 or M/M CC 141 or M/M CC 155)</td>
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<td>BY 320</td>
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<td>Wildlife Fundamentals (Corequisite: FWCC 192)</td>
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<td>Wildlife Inquiries (FW 100 or concurrent reg.)</td>
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<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
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<td>M CC 124</td>
<td>Logarithmic and Exponential Functions (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>Analytic Trigonometry (M/M CC 125 or placement)</td>
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<td>M CC 155</td>
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<td>3B</td>
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<td>Health and wellness&lt;sup&gt;3&lt;/sup&gt;</td>
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<p>| <strong>SOPHOMORE</strong> | | | |
| BZ 223 | Plant Identification (BY 103 or BZ/BZCC 120) | 3 | |
| C CC 107 | Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher) | 4 | 3A |
| C CC 108 | Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.) | 1 | 3A |
| C 245 | Fundamentals of Organic Chemistry (C/C CC 107 or C 113) | 4 | |
| EHCC 307 | Introduction to Biostatistics (M/M CC 121) | 3 | 2D |
| STCC 301 | Introduction to Statistical Methods (M/M CC 121) | 3 | 2D |
| STCC 307 | Introduction to Biostatistics (M/M CC 121) | 3 | 2D |
| FW 360 | Principles of Vertebrate Management (BY 220; M/M CC 141 or M/M CC 155 or M/M CC 160) | 3 | |
| NR 220 | Natural Resource Ecology and Measurements (BY 103 or BZ/BZCC 120 and M/M CC 121) | 5 | |
| NR 260 | Introduction to Natural Resource Analysis | 2 | |
| PHCC 121 | General Physics I (Corequisite: M/M CC 125) | 5 | 3A |
| SC 240 | Introductory Soil Science (C/C CC 107 or C/C CC 111) | 4 | |
| | Social/behavioral sciences&lt;sup&gt;4&lt;/sup&gt; | 3 | 3C |</p>
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<td>OR JTCC 300</td>
<td>Professional and Technical Communication (CO/COC 150)</td>
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<td>EACC 202</td>
<td>Agricultural and Resource Economics</td>
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<td>EACC 240</td>
<td>Issues in Environmental Economics</td>
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<td>Principles or Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
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PROGRAM TOTAL = 120 credits

1 First year students must take FW 100 and FWCC 192. Students who have already received credit for a first-year seminar should take FW 200.
2 Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).
3 Select from the list of courses in category 3G in the AUCC.
4 Select from the list of courses in category 3C in the AUCC.
5 Choose one course from the following list: F 210, F 311, RS 331 or any 200- 300- or 400- level botany course.
6 Select five credits from the following list of courses: AY 230/PS 230, BY 310 and BY 311, BZ 212, BZ 300, BZ 301, BZ 346, BZ 350, BZ 310 or PS 310, BZ 329, BZ 401, BZ 405, BZ 471 and BZ 472, EN 302 and EN 303, FW 400, FW 467, MB 300, SC 330.
7 Select from the list of courses in category 3E in the AUCC.
8 Select one course from the following list: FW 377, FW 420, FW 468, FW 469, FW 555, FW 565, NR 300.
DEPARTMENT OF FOREST SCIENCES

Office in Forestry Building, Room 131
Professor Susan G. Stafford, Head

Major in Forestry

Professor David R. Betters, in charge

Do you like to spend time in the woods, feeling at home among the trees? Are you concerned how the health of our forests affects your own life? Would like to help preserve and maintain forests for future generations' use and enjoyment? Have you ever wondered how valuable forest products can be harvested in a beneficial and sustainable manner? Would you like to manage a forest to preserve or restore its long-term viability, save wildlife habitat, or maintain regional air and water quality? Do you wish to know how fire might be employed as a forest management tool? Are you interested in the ecology of forests and the biology of trees? Would you like to have a hand in dealing with today's most critical natural resource and environmental problems? If your answer to any of these questions is "yes," then a major in Forestry may be right for you.

In the modern world, forests need professional management to ensure that these valuable resources are available for the benefit of present and future generations. With this objective in mind the Department of Forest Sciences provides forestry education that spans the entire range of experiences necessary to build skills for the forestry profession. Curricula include a broad background in the biological, physical, and management sciences, followed by professional forestry courses. Sophomores or juniors spend a month or more at the Pingree Park mountain campus for field studies in forest ecology, plant and animal identification, wildland fire measurements, forest mapping, and forest measurements.

Four concentrations are available in the forestry major. Forestry-Biology is intended for students interested in forest ecology and tree biology. This major prepares students for graduate studies in forest biological sciences and eventual careers in college teaching or research. The core curriculum focuses on forest biology, forest ecology, natural resource management, and the physical sciences.

Forest Fire Science is the study of fire as an ecological process and its application as a forest management tool. Students learn how prescribed fires can enhance habitat, prepare seedbeds, control forest insects and disease, and reduce fuel hazards. This program is the largest of its kind in the United States. The curriculum combines courses in fire science, forest biology, natural resource management, and the physical sciences to build skills for a career or graduate study in fire science.

Forest Management is a traditional forestry concentration designed to instill an understanding of the basic principles of forestry. Although many students go on to graduate studies, the program is primarily intended for students interested in managing forestlands. State and federal land management agencies, private forestland owners, consultants, and conservation organizations employ graduates. The curriculum includes a balanced mix of courses in forest biology, forest management and the physical sciences. Students learn about forest productivity, economics, conservation, and the latest in computer-based management tools.

The Forestry-Business concentration is for students who wish to study forestry with an emphasis in business. The concentration prepares students for careers in the public sector or private enterprise. Students learn business applications as these relate to forestry. The curriculum includes a mix of forest management, and business administration courses. Graduates may also be eligible for graduate studies in forestry and MBA programs.

Characteristics And Skills

- Strong interest in forest biology or forest management.
- Aptitude for natural sciences
- Strong analytical ability
- Likes working with physical things and in nature
- Organizational and decision making skills
- Prefers hands on work
- Prefers working outdoors in the field
- Able to combine diverse concepts and facts into an holistic understanding of issues and possible solutions
- Able to work in a team and alone
- Well organized and able to pay attention to detail
- Adaptable to changing conditions and environments
- Interest in policy formation and implementation

Potential Occupations

Careers in forestry and natural resources are exceptionally varied, challenging, and personally satisfying. Opportunities are available in rural and urban settings worldwide. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Positions are available in industry, education, public service, and government agencies. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but
are not limited to:
- Forest manager
- Forest/park ranger
- Environmental policy and conservation consultant
- Fire fighter/manager
- Natural resource journalist

- Naturalist
- Nature film producer
- Land use planner
- Spatial Information Systems specialist
- Forest products business person
- Researcher/professor

With the exception of the natural resources management major, M CC 120A-B, M CC 121, M CC 124, M CC 125, and M CC 126 are considered review courses, and may not be used toward a degree in the forestry major.

### Major in Forestry (Core)

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<td><strong>FRESHMAN</strong></td>
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<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
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<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120 A-B or placement in M/M CC 121 or higher)</td>
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<tr>
<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
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<td>Forestry Inquiries</td>
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| **SOPHOMORE** | | | |
| BY 220 | Fundamentals of Ecology (one course in biology; M/M CC 124 or M/M CC 141 or M/M CC 155) | 3 | |
| ECCC 202 | Principles of Microeconomics (M/M CC 118 or M/M CC120A-B) | 3 | 3C |
| SC 240 | Introductory Soil Science (C/C CC 107 or C/C CC 111) | 4 | |
| TOTAL | | | 10 |

| **JUNIOR** | | | |
| F 311 | Forestry Ecology (BY 220) | 3 | |
| F 321 | Forestry Biometry (ST/STCC 201 or ST/STCC 301; NR 220) | 3 | |
| F 322 | Economics of the Forest Environment (EC/ECCC 202 or EA/EACC 202 or EC/ECCC 240 or EA/EACC 240) | 3 | |
| F 325 | Silviculture (F 210; F 311; NR 220) | 3 | |
| NRCC 320 | Natural Resources History and Policy | 3 | 3D, 3F |
| TOTAL | | | 15 |

| **SENIOR** | | | |
| NR 420 | Integrated Ecosystem Management | 4 | 4C |

**CORE TOTAL = 51 credits\(^2\)**

\(^1\) Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).

\(^2\) Students must select one of the following concentrations: Forest Biology, Forest Fire Science, Forest Management, or Forestry-Business to complete the major.
FOREST BIOLOGY CONCENTRATION

Major in Forestry
Forest Biology Concentration

In addition to the forestry core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M CC 155</td>
<td>Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td></td>
<td>Arts/humanities¹</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td><strong>SOPHOMORE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 245</td>
<td>Fundamentals of Organic Chemistry (C/C CC 107 or C/C CC 113)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>F 230</td>
<td>Forestry Field Measurements</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>NR 220</td>
<td>Natural Resources Ecology and Measurements (BY 103 or BZ/BZCC 120; M/M CC 121)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>PHCC 121</td>
<td>General Physics I (Corequisite: M/M CC 125)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Global and cultural awareness²</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
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<tr>
<td><strong>JUNIOR</strong></td>
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<td></td>
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<tr>
<td>BZ 440</td>
<td>Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.)</td>
<td>3</td>
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<tr>
<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
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<tr>
<td></td>
<td>Electives</td>
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<td><strong>TOTAL</strong></td>
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<td>23</td>
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<tr>
<td><strong>SENIOR</strong></td>
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<td></td>
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</tr>
<tr>
<td>F 493</td>
<td>Seminar in Forestry</td>
<td>1</td>
<td>4B</td>
</tr>
<tr>
<td>JTCC 300</td>
<td>Professional and Technical Communication (CO/COC 150)</td>
<td>3</td>
<td>2B2</td>
</tr>
<tr>
<td>EN 365</td>
<td>Integrated Tree Health Management (BY/LSCC 102 or BZ/BZCC 120)</td>
<td>4</td>
<td>4A</td>
</tr>
<tr>
<td>PD 365</td>
<td>Integrated Tree Health Management (BY/LSCC 102 or BZ/BZCC 120)</td>
<td>4</td>
<td>4A</td>
</tr>
<tr>
<td></td>
<td>Biology electives⁴</td>
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<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

¹ Select from list of courses in category 3B in the All-University Core Curriculum (AUCC).
² Select from list of courses in category 3E in the AUCC.
³ Student must complete one semester of acceptable field experience.
⁴ Select from departmental list of approved courses in consultation with adviser.
FOREST FIRE SCIENCE CONCENTRATION

Major in Forestry
Forest Fire Science Concentration

In addition to the forestry core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCC 141</td>
<td>Calculus in Management Sciences¹ (M/M CC 118 or M/M CC 121)</td>
<td>3</td>
<td>2C</td>
</tr>
<tr>
<td>STCC 201</td>
<td>General Statistics (M/M CC 120A-B)</td>
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<td>Elective</td>
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<td></td>
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<tr>
<td><strong>SOPHOMORE</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>F 224</td>
<td>Wildland Fire Measurements (F/F CC 100)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>F 230</td>
<td>Forestry Field Measurements</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>F 331</td>
<td>Wood Anatomy and Properties</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>NR 220</td>
<td>Natural Resources Ecology and Measurements (BY 103 or BZ/BZCC 120; M/M CC 121)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>PHCC 110</td>
<td>Descriptive Physics</td>
<td>3</td>
<td>3A</td>
</tr>
<tr>
<td>PHCC 121</td>
<td>General Physics I (Corequisite: M/M CC 125)</td>
<td>5</td>
<td>3A</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHCC 110</td>
<td>Descriptive Physics</td>
<td>3</td>
<td>3A</td>
</tr>
<tr>
<td>PHCC 121</td>
<td>General Physics I (Corequisite: M/M CC 125)</td>
<td>5</td>
<td>3A</td>
</tr>
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<td>TOTAL</td>
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<td></td>
<td>17-19</td>
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<tr>
<td><strong>JUNIOR</strong></td>
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<td></td>
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<tr>
<td>AT 350</td>
<td>Introduction to Weather and Climate</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>COCC 300</td>
<td>Writing Arguments (CO/COCC 150)</td>
<td>3</td>
<td>2B2</td>
</tr>
<tr>
<td>F 330</td>
<td>Timber Harvesting and Environment (F 230 or F 321)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>F 425</td>
<td>Forest Fire Behavior (fire experience)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Field experience¹</td>
<td></td>
<td></td>
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<tr>
<td>Electives</td>
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<td>TOTAL</td>
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<td>16</td>
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<td><strong>SENIOR</strong></td>
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<td></td>
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</tr>
<tr>
<td>F 421</td>
<td>Timber Management (F 230, F 321, F 322, F 325)</td>
<td>4</td>
<td>4A</td>
</tr>
<tr>
<td>F 422</td>
<td>Quantitative Methods in Forest Management (F 321, F 322)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>F 424</td>
<td>Forest Fire Management (F 224 or written consent of instructor)</td>
<td>3</td>
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<tr>
<td>F 493</td>
<td>Seminar in Forestry (senior standing)</td>
<td>1</td>
<td>4B</td>
</tr>
<tr>
<td>NR 425</td>
<td>Sustainability of Renewable Resources (F 325 or written consent of instructor)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EN 365</td>
<td>Integrated Tree Health Management (BY/LSCC 102 or BZ/BZCC 120)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PD 365</td>
<td>Integrated Tree Health Management (BY/LSCC 102 or BZ/BZCC 120)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Global and cultural awareness⁴</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
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<td></td>
<td>4-6</td>
</tr>
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<td>TOTAL</td>
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<td>25-27</td>
</tr>
</tbody>
</table>

PROGRAM TOTAL = 120 credits
Students considering graduate study in forest fire science should substitute M/M CC 155-M/M CC 255 or M/M CC 160-M/M CC 161 for M/M CC 141.

2 Select from list of courses in category 3B in the All-University Core Curriculum (AUCC).
3 Students must complete one summer of acceptable field experience.
4 Select from list of courses in category 3E in the AUCC.

## FOREST MANAGEMENT CONCENTRATION

### Major in Forestry

**Forest Management Concentration**

In addition to the forestry core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M CC 125</td>
<td>Numerical Trigonometry (M/M CC 118 or M/M CC 121 or placement)</td>
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<td></td>
</tr>
<tr>
<td>M CC 141</td>
<td>Calculus in Management Sciences (M/M CC 118 or M/M CC 121)</td>
<td>3</td>
<td>2C</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>SOPHOMORE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F 230</td>
<td>Forestry Field Measurements</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>F 331</td>
<td>Wood Anatomy and Properties</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>NR 220</td>
<td>Natural Resources Ecology and Measurements (BY 103 or BZ/BZCC 120; M/M CC 121)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>STCC 201</td>
<td>General Statistics (M/M CC 120 A-B)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>Arts/humanities(^1)</td>
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<td>3</td>
<td>3B</td>
</tr>
<tr>
<td>Global and cultural awareness(^2)</td>
<td></td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>19</td>
<td></td>
</tr>
<tr>
<td><strong>JUNIOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F 330</td>
<td>Timber Harvesting and Environment (F 230 or F 321)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>JTCC 300</td>
<td>Professional and Technical Communication (COCC 150)</td>
<td>3</td>
<td>2B2</td>
</tr>
<tr>
<td>NR 323</td>
<td>Remote Sensing-Natural Resources</td>
<td>3</td>
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<tr>
<td>Field experience(^3)</td>
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<tr>
<td>Electives</td>
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<td>6</td>
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<td><strong>SENIOR</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>F 421</td>
<td>Timber Management (F 230, F 321, F 322, F 325)</td>
<td>4</td>
<td>4A</td>
</tr>
<tr>
<td>F 422</td>
<td>Quantitative Methods in Forest Management (F 321, F 322)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>F 424</td>
<td>Forest Fire Management (F 224 or written consent of instructor)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>F 493</td>
<td>Seminar in Forestry (senior standing)</td>
<td>1</td>
<td>4B</td>
</tr>
<tr>
<td>NR 425</td>
<td>Sustainability of Renewable Resources (F 325 or written consent of instructor)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EN 365</td>
<td>Integrated Tree Health Management (BY 102/LSCC 102 or BZ/BZCC 120)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PD 365</td>
<td>Integrated Tree Health Management (BY 102/LSCC 102 or BZ/BZCC 120)</td>
<td>4</td>
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</tr>
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<td>TOTAL</td>
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</table>
### FORESTRY-BUSINESS CONCENTRATION

**Major in Forestry**  
**Forestry-Business Concentration**

In addition to the forestry core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>M CC 141</td>
<td>Calculus in Management Science (M/M CC 118 or M/M CC 121)</td>
<td>3</td>
<td>2C</td>
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<tr>
<td>STCC 204</td>
<td>Statistics for Business Students (M/M CC 120 A-B)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td></td>
<td>Arts/humanities&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>3B</td>
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</tr>
<tr>
<td>BA 205</td>
<td>Fundamentals of Accounting</td>
<td>3</td>
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<tr>
<td>BK 305</td>
<td>Fundamentals of Marketing (EC/ECCC 101 or EC/ECCC 202 or EA/EACC 202)</td>
<td>3</td>
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</tr>
<tr>
<td>F 330</td>
<td>Timber Harvesting and the Environment (F 230 or F 321)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>F 331</td>
<td>Wood Anatomy and Properties</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>JTCC 300</td>
<td>Professional and Technical Communication (CO/COCC 150)</td>
<td>3</td>
<td>2B2</td>
</tr>
<tr>
<td></td>
<td>Global and cultural awareness&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td>Field experience&lt;sup&gt;3&lt;/sup&gt;</td>
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</tr>
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<td></td>
<td>Electives</td>
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<tr>
<td>BF 305</td>
<td>Fundamentals of Finance (BA 205, EC/ECCC 204)</td>
<td>3</td>
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<tr>
<td>BGCC 205</td>
<td>Fundamental of Business Law</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td>BL 300</td>
<td>Production Fundamentals (ST/STCC 204 or ST/STCC 301)</td>
<td>3</td>
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</tr>
<tr>
<td>BN 305</td>
<td>Fundamentals of Management&lt;sup&gt;4&lt;/sup&gt;</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>F 421</td>
<td>Timber Management (F, 230 F 321, F 322, F 325)</td>
<td>4</td>
<td>4A</td>
</tr>
<tr>
<td>F 422</td>
<td>Quantitative Methods in Forest Management (F 321, F 322)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>F 424</td>
<td>Forest Fire Management (F 224 or written consent of instructor)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>F 493</td>
<td>Seminar in Forestry (Senior standing)</td>
<td>1</td>
<td>4B</td>
</tr>
<tr>
<td>NR 425</td>
<td>Sustainability of Renewable Resources (F 325 or written consent of instructor)</td>
<td>3</td>
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</tr>
<tr>
<td>PD 365</td>
<td>Integrated Tree Health Management (BY 102/LSCC 102 or BZ/BZCC 120)</td>
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<tr>
<td></td>
<td>TOTAL</td>
<td>30</td>
<td></td>
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</tbody>
</table>

<sup>1</sup> Select from list of courses in category 3B in the All-University Core Curriculum (AUCC).  
<sup>2</sup> Select from list of courses in category 3E in the AUCC  
<sup>3</sup> Students must complete one summer of acceptable field experience.
Major in Natural Resources Management

Professor Richard D. Laven, in charge

How will the nation's forests be managed in the future? Can water quality and wildlife habitat be protected as use of public lands increases? What is ecosystem management? How can computers be used to map and manage natural resources? How can economic and ecological tradeoffs among different resource uses be balanced? These are just some of the questions natural resource managers might think about.

Students in Natural Resources Management obtain broad exposure to natural resource topics and issues. Graduates can qualify as professional foresters and work with traditional national and international resource organizations. The major's broad curriculum is ideal for pursuing fields in land use planning, computer technology, real estate management, youth agency administration, natural resource communications, mining reclamation, business and law. Students can, with their adviser’s assistance, tailor course work to specific interests. Courses in forest biology, forest and natural resource management, wildlife management, watershed management, and recreation resources provide the broad overview that is unique to this major. Students also choose a minor in a related topic or an interdisciplinary study program from among the dozens offered at Colorado State, including Spatial Information Systems, Conservation Biology, Water Resources, or Criminal Justice. The choice of minor or interdisciplinary study allows the student to gain greater depth of understanding in an area of particular interest, and may greatly influence employment opportunities. As sophomores or juniors, students attend a four-week summer field course in ecological investigation and resource management at Colorado State’s Pingree Park mountain campus. The Forest Sciences Department promotes student internships with private and public organizations to enhance students' learning experiences.

Characteristics And Skills

- A desire to know forest tree characteristics and their significance
- A desire to understand wildlife, range and water management principles
- Interest in policy formation and implementation
- Able to work in a team and independently
- Able to write and speak accurately and clearly
- Able to deal with the public
- Organizational and decision making skills
- A desire to learn computer-based applications
- Interest in data and policy analysis
- Able to integrate knowledge of a variety of concepts to obtain an holistic perspective
- Well organized and able to pay attention to detail
- Adaptable to changing conditions and environments
- Prefers hands on work

Potential Occupations

Opportunities are available worldwide. Graduates apply their education in science, technology, and the social sciences to solve today’s critical natural resource and environmental problems. Positions are found in federal, state, and local government, industry, and education. Some natural resource professionals are employed in environmental consulting firms and corporate environmental departments. The nonprofit sector provides a variety of environmentally related jobs. In general, competition is quite intense while some positions require a graduate degree. Participating in seasonal and voluntary work, internships, and cooperative education opportunities will enhance your chances for permanent full time employment. Depending on your interests and minor, available career choices include but are not limited to:

- Public natural resource manager
- Private sector resources manager
- Professional forester
- Land use planner
- Geographic Information System (GIS) remote sensing specialist
- Fishery/wildlife manager
- Environmental policy analyst
- Environmental advocate
- Resource database manager

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM TOTAL = 120 credits</td>
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<td></td>
<td></td>
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</tbody>
</table>

1 Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).
2 Select from the list of courses in category 3E in the AUCC.
3 Students must complete one semester of acceptable field experience.
4 Students wishing to continue in an MBA program should consider substituting BN 320.
- Environmental consultant
- Fire management specialist
- Resources/environmental lawyer
- Real estate manager
- Mining reclamation specialist
- Youth agency administrator
- Natural resource communications specialist
- Law enforcement officer
- Natural resources researcher
- Natural resources/environmental educator
- Restoration specialist
- Multiple resource use planner
- Resources management consultant
- Resource development proposal evaluator
- Regulatory compliance enforcement officer

### Major in Natural Resources Management

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
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<tr>
<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
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<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
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<tr>
<td>CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher.)</td>
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<td>CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
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<tr>
<td>M CC 120A-B</td>
<td>College Algebra I (Math Placement Exam)</td>
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<td>College Algebra II (M/M CC 120A-B or placement)</td>
<td>1</td>
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<tr>
<td>M CC 125</td>
<td>Numerical Trigonometry (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>M CC 141</td>
<td>Calculus in Management Science (M/M CC 118 or M/M CC 121)</td>
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<tr>
<td>NRCC 192</td>
<td>Natural Resources Freshman Seminar</td>
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<td>Public Speaking</td>
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<td>Arts/humanities^1</td>
<td>3</td>
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<td></td>
<td>Global and cultural awareness^2</td>
<td>3</td>
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<td>Health and wellness^3</td>
<td>2</td>
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<td><strong>TOTAL</strong></td>
<td><strong>31</strong></td>
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<td><strong>SOPHOMORE</strong></td>
<td></td>
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<tr>
<td>BY 220</td>
<td>Fundamentals of Ecology (one course in biology; M/M CC 124 or M/M CC 141 or M/M CC 155)</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>ECC 202</td>
<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
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<tr>
<td>ERCC 140</td>
<td>Physical Geology</td>
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<tr>
<td>F 210</td>
<td>Dendrology (BZ/BZCC 120)</td>
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<td>NR 220</td>
<td>Natural Resources Ecology and Measurements (BY 103 or BZ/BZCC 120; M/M CC 121)</td>
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<td>SC 240</td>
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<td>General Statistics (M/M CC 120A-B)</td>
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<tr>
<td>COCC 300</td>
<td>Writing Arguments (CO/COCC 150)</td>
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<tr>
<td><strong>OR</strong></td>
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<tr>
<td>JTCC 300</td>
<td>Professional and Technical Communication (CO/COCC 150)</td>
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### Course Selection

#### Select three of the following courses:
- ERCC 304 Principles of Watershed Management
- FW 360 Principles of Vertebrate Management (BY 220; M/M CC 141 or M/M CC 155 or M/M CC 160)
- NR 330 Human Dimensions in Natural Resources (NR 120A or B or written consent of instructor)
- RS 300 Principles of Range Management (BY 103 or BZ/BZCC 120)

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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC</th>
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<td>NR</td>
<td>Human Dimensions in Natural Resources (NR 120A or B or written consent of instructor)</td>
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<td>F</td>
<td>Forest Ecology (BY 220)</td>
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<td>F</td>
<td>Economics of the Forest Environment (EC/ECCC 202 or EA/EACC 202 or EC/ECCC 240 or EA/EACC 240)</td>
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<tr>
<td>F</td>
<td>Silviculture (F 210, F 311, NR 220)</td>
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<tr>
<td>NRCC</td>
<td>Natural Resources History and Policy</td>
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<td>3D, 3F</td>
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<td></td>
<td>Electives</td>
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#### Total Credits: 30

### Senior Year

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<tr>
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<td>NR</td>
<td>Integrated Ecosystem Management</td>
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<tr>
<td>NR</td>
<td>Natural Resources Sampling (ST/STCC 201 or ST/STCC 301; NR 220)</td>
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<tr>
<td>Minor</td>
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<td>Minor</td>
<td>Summer field experience</td>
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#### Total Credits: 31

**PROGRAM TOTAL = 120 credits**

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### DEPARTMENT OF NATURAL RESOURCE RECREATION AND TOURISM

*Office in Forestry Building, Room 233*

*Professor Michael Manfredo, Chairman*

**Major in Natural Resource Recreation and Tourism**

Do you want to run a tourism or outdoor recreation business? Would you enjoy educating the public about natural or cultural history, the environment, or outdoor recreational opportunities? Would you like to manage public lands and waters to provide people with quality outdoor recreation experiences? Would you like to introduce people to wilderness recreation and preservation opportunities? Does a career in the growing field of ecotourism intrigue you? If your answer to any of these questions is “yes,” then a major in Natural Resources Recreation and Tourism may be the ticket for you.

The Department of Natural Resource Recreation and Tourism offers a high quality program accredited by the National Recreation and Parks Association. Graduates possess technical skills in problem solving, systems planning, integrative team decision making, quantitative analysis, oral and verbal communications, and computer operations. Additionally, graduates are familiar with the historic evolution of environmental conservation and develop an appreciation for how their discipline contributes to environmental stewardship. Three concentrations are offered:

**Interpretation** develops expertise in communicating to the public and managing educational programs related to natural environments. This concentration is oriented to public agencies and private enterprises that aim to increase public awareness and education on...
environmental/natural resource management issues, and to enhance the quality of people’s recreational experiences. The curriculum includes a mixture of natural resource, recreation, natural science, social science, economics, education, and communications courses to provide balanced knowledge and skills appropriate for careers in interpretation.

**Natural Resource Tourism** prepares students for careers operating private commercial natural resource-related recreation and tourism enterprises. Students develop an ability to provide quality recreation experiences to customers. The concentration is oriented to private sector employment in the recreation and tourism industry. The curriculum emphasizes courses in natural resources, outdoor recreation, business, and social science to develop appropriate skills for work in commercial recreation and tourism enterprises.

**Parks and Protected Area Management** graduates develop expertise in managing and planning public lands and waters, and providing quality outdoor recreational experiences to their visitors. The concentration is oriented to employment with government agencies from the federal to local levels, including local open space and natural area programs. The department works closely with Federal and Colorado resource management agencies and non-profit land management organizations. The department works with such countries as Belize, Costa Rica, Malaysia, Canada, Australia, New Zealand, and Vietnam, as establishment of parks and outdoor recreation programs has become a worldwide trend. Students can emphasize park/resource management, international resource management, or park administration. The curriculum emphasizes natural resource management and recreation with supporting courses in the social sciences and communications.

**Characteristics and Skills**
- Love for working outdoors with people and natural resources
- Values natural resource conservation and stewardship
- Ability to be creative and resourceful
- Good written and oral communications skills
- Analytical ability
- Enjoy working with people

**Potential Occupations**
Graduates work in a variety of federal, state, and local resource management agencies, nonprofit environmental conservation and education organizations, and private commercial recreation enterprises. Competition is intense for full time/permanent positions, although ample opportunities exist to gain experience through seasonal/temporary and volunteer work. Participation in internships and cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. The following are some of the career opportunities available to natural resource recreation and tourism majors:

### Interpretation
- Interpretive writer, planner, consultant
- Outdoor education specialist
- Nature photographer
- Exhibit developer/evaluator
- Environmental/conservation education/visitor information specialist
- Interpretive ranger
- Naturalist
- Nature center manager
- Public affairs specialist
- Park Ranger

### Natural Resource Tourism
- Activities director
- Trip counselor
- Recreation/tourism business owner/manager
- Tourism Planner
- Concession Specialist
- Marketing/sales manager
- Conference/meeting planner
- Resort services director
- Camp and nature center director
- Tourist information center manager

### Parks and Protected Area Management
- Park/backcountry/wilderness ranger
- Parks director/superintendent/manager
- Conservation officer
- Natural resource/wilderness specialist
- Open space/lands planner
- Camp counselor/administrator/manager
- Recreation manager
- Forest recreation technician
## Major in Natural Resource Recreation and Tourism (Core)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>2A</td>
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<tr>
<td>NRCC 192</td>
<td>Natural Resources Freshman Seminar</td>
<td>2</td>
<td>1</td>
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<tr>
<td>RR 100</td>
<td>Foundations of Recreation and Tourism</td>
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<td></td>
<td>Health and wellness(^1)</td>
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<td><strong>TOTAL</strong></td>
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<td><strong>SOPHOMORE</strong></td>
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<tr>
<td>RR 231</td>
<td>Principles Parks/Protected Area Management</td>
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<tr>
<td>RR 261</td>
<td>Principles of Interpretation (RR 100)</td>
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<td>RR 270</td>
<td>Principles of Natural Resource Tourism (RR 100)</td>
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<td>NR 387</td>
<td>Internship I</td>
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<td>RR 376</td>
<td>Recreation Measurements (RR 100, ST/STCC 201)</td>
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<td><strong>SENIOR</strong></td>
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<tr>
<td>RR 487</td>
<td>Internship (NR 387)</td>
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<td><strong>CORE TOTAL = 31 credits(^2)</strong></td>
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\(^1\) Select from list of courses in category 3G in the All-University Core Curriculum (AUCC).

\(^2\) In order to fulfill the 120 credit graduation requirement, one of the following concentrations–interpretation, natural resource tourism, or parks and protected area management–must also be completed.

## INTERPRETATION CONCENTRATION

**Major in Natural Resource Recreation and Tourism Interpretation Concentration**

In addition to the natural resource recreation and tourism core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td><strong>FRESHMAN</strong></td>
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<td><strong>Select one of the following courses:</strong></td>
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<tr>
<td>APCC 100</td>
<td>Introductory Cultural Anthropology</td>
<td>3</td>
<td>3C</td>
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<tr>
<td>PYCC 100</td>
<td>General Psychology</td>
<td>3</td>
<td>3C</td>
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<tr>
<td>SC 100</td>
<td>General Sociology</td>
<td>3</td>
<td>3C, 3F</td>
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<tr>
<td>E CC 140</td>
<td>The Study of Literature</td>
<td>3</td>
<td>3B</td>
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<td>OR</td>
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<tr>
<td>THCC 141</td>
<td>Introduction to Theatre</td>
<td>3</td>
<td>3B</td>
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<tr>
<td>M CC 120A-B</td>
<td>College Algebra I (Math Placement Exam)</td>
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<td>M CC 121</td>
<td>College Algebra II (M/M CC 120A-B or placement)</td>
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<td>2C</td>
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<tr>
<td>M CC 124</td>
<td>Logarithmic and Exponential Function (M/M CC 118 or M/M CC 121 or placement)</td>
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<td>Course</td>
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<tr>
<td>Biological/physical sciences</td>
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**TOTAL 16**

**SOPHOMORE**

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<tbody>
<tr>
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<td>Fundamentals of Ecology (one course in biology; M/M CC 124 or M/M CC 141 or M/M CC 155)</td>
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<tr>
<td>NR 220</td>
<td>Natural Resources Ecology and Measurements (BY 103 or BZ/BZCC 120; M/M CC 121)</td>
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<td>SPCC 200</td>
<td>Public Speaking</td>
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<td>STCC 201</td>
<td>General Statistics (M/M CC 120A-B)</td>
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<td><strong>OR</strong></td>
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<td>STCC 204</td>
<td>Statistics for Business Students (M/M CC 120A-B)</td>
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**Guided science elective**

**History elective**

**Natural science elective**

**Social science elective**

**TOTAL 25**

**JUNIOR**

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>NR 365</td>
<td>Environmental Education (BY 220)</td>
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<td>RR 330</td>
<td>Social Aspects of Natural Resource Management</td>
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<td>RR 363</td>
<td>Outdoor Recreation Programming (RR 100)</td>
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<td>RR 371</td>
<td>Techniques in Interpretation (RR 261)</td>
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<td>RR 375</td>
<td>Budgeting and Revenue Resources (RR 100)</td>
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<td><strong>Global and cultural awareness</strong></td>
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<td><strong>Writing elective</strong></td>
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**TOTAL 25**

**SENIOR**

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<td>NR 400</td>
<td>Public Relations in Natural Resources (NR/NRCC 320)</td>
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<td>Wilderness Management (BY 220, NR 300, RR 438 or written consent of instructor)</td>
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<td>RR 439</td>
<td>Open Space and Natural Area Management (NR 440 or RR 441)</td>
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<td>RR 461</td>
<td>Interpretation Techniques (RR 361)</td>
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<td>RR 471</td>
<td>Starting and Managing Tourism Enterprise (RR 100)</td>
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<td><strong>Design/art elective</strong></td>
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<td><strong>Psychology elective</strong></td>
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<tr>
<td><strong>Specialization electives</strong></td>
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**TOTAL 24**

**PROGRAM TOTAL = 120 credits**

1 Select from the list of courses in category 3A in the All-University Core Curriculum (AUCC). One course must have a laboratory component.

2 Select from departmental list of approved courses.

3 Select from the list of courses in category 3E in the AUCC.
NATURAL RESOURCE TOURISM CONCENTRATION

Major in Natural Resource Recreation and Tourism
Natural Resource Tourism Concentration

In addition to the natural resource recreation and tourism core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>FRESHMAN</td>
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<td>ECCC 202</td>
<td>Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B)</td>
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<td>M CC 120A-B</td>
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<td>Hospitality Industry</td>
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<td>General Statistics (M/M CC 120A-B)</td>
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<td>BK 305</td>
<td>Fundamentals of Marketing (EC/ECCC 101 or EC/ECCC 202 or EA/EACC 202)</td>
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<td>BN 305</td>
<td>Fundamentals of Management</td>
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<td>Managerial Economics (EA/EACC 202 or EC/ECCC 202)</td>
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<td>Public Relations</td>
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<td>Public Relations in Natural Resources (NR/NRCC 320)</td>
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<td>RR 330</td>
<td>Social Aspects of Natural Resource Management</td>
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<td>Outdoor Recreation Programming (RR 100)</td>
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<td>Budgeting and Revenue Resources (RR 100)</td>
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Major in Natural Resource Recreation and Tourism
Parks and Protected Area Management Concentration

In addition to the natural resource recreation and tourism core courses, the following must be completed:

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<td>130 Earth System Science</td>
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<td>124 Logarithmic and Exponential Function (M/M CC 118 or M/M CC 121 or placement)</td>
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**SOPHOMORE**

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<td>141 Calculus in Management Science (M/M CC 118 or M/M CC 121)</td>
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**JUNIOR**

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<td>Principles of Vertebrate Management (BY 220; M/M CC 141 and M/M CC 124 or M/M CC 155 or M/M CC 160)</td>
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<td>NR 322</td>
<td>Introduction to Geographic Information Systems</td>
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<td>OR</td>
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<td>NR 323</td>
<td>Remote Sensing of Natural Resources</td>
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<td>RR 330</td>
<td>Social Aspects of Natural Resource Management</td>
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<td>Management of Parks and Protected Areas (RR 231, RR 330)</td>
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<td>Outdoor Recreation Programming (RR 100)</td>
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**SENIOR**

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<td>Biological Diversity (NR 120A or B or one course in biology)</td>
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<td>NR 420</td>
<td>Integrated Ecosystem Management</td>
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<td>NR 440</td>
<td>Land Use Planning</td>
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<td>NR 460</td>
<td>Wilderness Management (BY 220, NR 300, RR 431 or written consent of instructor)</td>
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<td>RR 439</td>
<td>Open Space and Natural Area Management (NR 440 or RR 431)</td>
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<td>RR 431</td>
<td>Park and Protected Area Management (RR 100, RR 330)</td>
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**PROGRAM TOTAL = 120 credits**

<sup>1</sup> Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).

<sup>2</sup> Select from the list of courses in category 3E in the AUCC.

<sup>3</sup> Select from departmental list of approved courses.

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**DEPARTMENT OF RANGELAND ECOSYSTEM SCIENCE**

*Office in Natural Resources Building, Room 240E*

*Professor R. Dennis Child, Head*

**Major in Rangeland Ecology**

Do you feel more at home working on the range than in the mountain forests or on the sea? Are you an ecologist at heart who would like to help ensure that the nation's rangelands are managed to promote sustainable multiple uses? Do you wish to help restore damaged rangeland to reduce erosion, enhance wildlife habitat, and improve water quality? Would you like to manage large rangelands for a federal, state, or private land agency? If your answer to any of these questions is “yes” then a major in rangeland ecology may be the right choice for you.

The Department of Rangeland Ecosystem Science offers a single major in Rangeland Ecology emphasizing interdisciplinary study of and research on the world's rangelands. Rangelands occupy nearly 50 percent of the earth's land surface and consist of natural grasslands, savannas, shrublands, riparian areas, deserts, tundra, alpine communities, and coastal marshes. Colorado is an ideal setting for the study of rangeland ecology and management with short grass prairie to the east and high elevation grasslands and riparian areas to the west.
Students are prepared to manage the animal, soil, and vegetation resources on rangelands primarily for state and federal land management agencies. The curricula are accredited by the Society for Range Management and meets U.S. Civil Service requirements for range conservationist and soil conservationist. With a few additional courses graduates can meet U.S. Civil Service requirements for soil scientist and ecologist. Students develop an in-depth understanding of basic plant and animal biology; a basic understanding of the physical sciences as they relate to range ecology; knowledge of important concepts of ecology and range management; an understanding of economics related to recognizing alternatives; and analytical and decision making skills. Students also develop communication, political, and interpersonal skills to make their education effective.

Four concentrations are offered. **Range and Forest Management** prepares students in multiple-use principles to manage and administer both rangeland and forest resources for U.S. and state government agencies or private business. **Restoration Ecology** provides students with skills important to restoration and rehabilitation of damaged rangeland ecosystems. **Rangeland Management** focuses on multi-use rangeland management issues and techniques. The Science concentration prepares students for research and graduate studies in rangeland management and range science.

**Characteristics and Skills**

- Strong interest in range biology
- A desire to understand range, wildlife, and water management principles
- Aptitude for natural sciences
- Strong analytical ability
- Likes working with physical things and in nature
- Organizational and decision making skills
- Prefers hands on work
- Prefers working outdoors-in the field
- Well organized and able to pay attention to detail
- Adaptable to changing conditions and environments
- Interest in policy formation and implementation
- Able to work in a team and alone
- Able to write and speak accurately and clearly
- Interest in data and policy analysis
- Able to integrate knowledge of a variety of concepts to obtain an holistic perspective

**Potential Occupations**

Range scientists are trained to manage lands that produce herbage for all grazing animals, for aesthetic values, and for watershed enhancement. Knowledgeable in ecosystem structure, range scientists possess an understanding of the functions of the ecosystem with respect to nutrient cycling, energy flows among feeding levels, and animal requirements for food and shelter. These scientists are also trained to assess rehabilitation potential following drastic disturbances and to develop procedures for land reclamation and management. Range scientists often work closely with other specialists in wildlife, hydrology, forestry, soils, agronomy, recreation and other disciplines.

The profession offers an opportunity to work full time with natural resources, the improvement of environmental quality, and the basic problem of ecology. Because of growing interest in all aspects of the environment, the demand for additional range scientists is expected to increase by 33 percent in the next decade. In the U.S. most range scientists work for the Federal and state governments while private industry, colleges and universities, and international agencies are increasingly employing range scientists.

Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:

- Range scientist
- Range manager
- Soil conservationist
- Soil scientist
- Range conservationist
- Range ecologist
- Ranch manager
- Researcher
- Commercial sales and service representative
- Consultants
- Mine rehabilitation specialist
- Real estate/land manager
- International range specialist
### RANGE AND FOREST MANAGEMENT CONCENTRATION

M CC 120A-B and M CC 121 are considered review courses; credits in these courses may not be used toward the degree in rangeland ecology.

**Major in Rangeland Ecology**

**Range and Forest Management Concentration**

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<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
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<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120 A-B or placement in M/M CC 121 or higher)</td>
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<td>C 245</td>
<td>Fundamentals of Organic Chemistry (C/C CC 107 or C 113)</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>EACC 202</td>
<td>Agricultural and Resource Economics(^2)</td>
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<td>F 230</td>
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<td>M CC 141</td>
<td>Calculus in Management Sciences (M/M CC 118 or M/M CC 121)</td>
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<td>NRCC 192</td>
<td>Natural Resources Freshman Seminar</td>
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<td>Health and wellness(^4)</td>
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**SUMMER SESSION**

| NR 220 | Natural Resource Ecology and Measurements (BY 103 or BZ/BZCC 120; M/M CC 121)         | 5       |               |

**SOPHOMORE**

| BZ 223 | Plant Identification (BY 103 or BZ/BZCC 120)                                         | 3       |               |
| ERCC 304| Principles of Watershed Management                                                    | 3       | 3A            |
| F 210  | Dendrology (BZ/BZCC 120)                                                              | 3       |               |
| FW 360 | Principles of Vertebrate Management (BY 220, M/M CC 141 or M/M CC 155 or M/M CC 160) | 3       |               |
| RS 300 | Principles of Range Management (BY 103 or BZ/BZCC 120)                                | 3       |               |
| SC 240 | Introductory Soil Science (C/C CC107 or C/C CC 111)                                   | 4       |               |
| SPCC 200| Public Speaking                                                                       | 3       | 2B1           |
| STCC 307| Introduction to Biostatistics\(^5\) (M/M CC 121)                                     | 3       | 2D            |
| EHCC 307| Introduction to Biostatistics\(^5\) (M/M CC 121)                                     | 3       | 2D            |
| **TOTAL**                                                                                         | 25      |               |

**JUNIOR**

| F 311  | Forest Ecology (BY 220)                                                               | 3       |               |
| F 322  | Economics of the Forest Environment (EC/ECCC 202 or EA/EACC 202 or EC/ECCC 240 or EA/EACC 240) | 3       |               |
| F 325  | Silviculture (F 210, F 311, NR 220)                                                   | 3       |               |
| FW 467 | Wildlife Nutrition (C 245)                                                            | 3       |               |
### Course Title (Prerequisite) Credits AUCC Category

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<td>Rangeland Ecogeography (RS 300, BZ 223 or F 210 or NR 220)</td>
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<td>RS 332</td>
<td>Range Measurements (ST/STCC 201 or ST/STCC 301 or ST/STCC 307 or EH/EHCC 307 or RS 300 or concurrent reg.; NR 220 or RS 331)</td>
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<td>RS 351</td>
<td>Range Plant Production and Decomposition (BY 220 RS 300; SC 240)</td>
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<td>RS 352</td>
<td>Range Animal-Habitat Interactions (BY 220, RS 300 or RS 320/SC 320)</td>
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<td>RS 420</td>
<td>Grass Taxonomy (BZ 223 or written consent of instructor)</td>
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<td>AN 478</td>
<td>Beef Production and Management (AN 250, AN 310, AN 320, AN 330)</td>
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<td>F 321</td>
<td>Forestry Biometry (ST/STCC 201 or ST/STCC 301; NR 220)</td>
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<td>NRCC 320</td>
<td>Natural Resources History and Policy</td>
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<td>NR 322</td>
<td>Introduction to Geographic Information Systems</td>
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<td>Rangeland Improvements (RS 300 or RS 320/SC 320)</td>
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<td>Rangeland Economics and Analysis (EA/EACC 202, RS 300)</td>
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<td>RS 471</td>
<td>Range Planning and Grazing Management (RS 470 or concurrent reg.)</td>
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<td>Rangeland Ecosystem Planning (RS 471)</td>
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<td>SC 440</td>
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**TOTAL** 28

**PROGRAM TOTAL = 120 credits**

<sup>1</sup> M/M CC 120, M/M CC 121, and M/M CC 124 are considered review courses; credits in these courses may not be used toward completion of a degree in rangeland ecology, but are enforced prerequisites for M/M CC 141 and BY 220.

<sup>2</sup> ECCC 202 may be substituted for EACC 202.

<sup>3</sup> Select from list of courses in category 3B in the All-University Core Curriculum (AUCC).

<sup>4</sup> Select from list of courses in category 3G in the AUCC.

<sup>5</sup> STCC 301 may be substituted for the choice of STCC 307 or EHCC 307.

<sup>6</sup> Select from list of courses in category 3E in the AUCC.

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**RANGELAND MANAGEMENT CONCENTRATION**

**Major in Rangeland Ecology**

**Rangeland Management Concentration**

<table>
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<td>BY 103</td>
<td>Biology of Organisms - Animals and Plants (BY 102/LSCC 102)</td>
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<tr>
<td>BY 220</td>
<td>Fundamentals of Ecology (one course in Biology; M/M CC 124 or M/M CC 141 or M/M CC 155)</td>
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<td>C 245</td>
<td>Fundamentals of Organic Chemistry (C/C CC107 or C 113)</td>
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<td>Attributes of Living Systems</td>
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**SOPHOMORE**

| AN 300E | Topics in Animal Sciences-Family Ranching (AN 100) | 1 | |
| BZ 223 | Plant Identification (BY 103 or BZ/BZCC 120) | 3 | |
| EACC 202 | Agricultural and Resource Economics<sup>3</sup> | 3 | 3C |
| EA 310 | Agricultural Marketing (EA/EACC 202 or EC/ECCC 202) | 3 | |
| NR 224 | Integrated Ranch Management I (A/A CC 120 or first year seminar) | 3 | |
| **OR** | Integrated Ranch Management I (A/A CC 120 or first year seminar) | 3 | |
| RS 300 | Principles of Range Management (BY 103 or BZ/BZCC 120) | 3 | |
| RS 331 | Rangeland Ecogeography (RS 300, BZ 223 or F 210 or NR 220) | 3 | |
| SC 240 | Introductory Soil Science (C/C CC 107 or C/C CC 111) | 4 | |
| SPCC 200 | Public Speaking | 3 | 2B1 |
| STCC 307 | Introduction to Biostatistics<sup>4</sup> (M/M CC 121) | 3 | 2D |
| **OR** | Introduction to Biostatistics<sup>4</sup> (M/M CC 121) | 3 | 2D |
| **Elective** | | 1 | |
| **TOTAL** | | 30 | |

**JUNIOR**

| BZ 440 | Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.) | 3 | |
| ERCC 304 | Principles of Watershed Management | 3 | 3A |
| FW 360 | Principles of Vertebrate Management (BY 220; M/M CC 141 or M/M CC 155, or M/M CC 160) | 3 | |
| NRCC 320 | Natural Resources History and Policy | 3 | 3D & 3F |
| NR 324 | Integrated Ranch Management II (A 224/NR 224) | 3 | |
| **OR** | Integrated Ranch Management II (A 224/NR 224) | 3 | |
| RS 351 | Range Plant Production and Decomposition (BY 220, RS 300, SC 240) | 3 | 4A & 4B |
| RS 352 | Range Animal-Habitat Interactions (BY 220, RS 300 or RS 320/SC 320) | 3 | 4B |
| RS 420 | Grass Taxonomy (BZ 223 or written consent of instructor) | 3 | |
| S 341 | Sociology of Rural Life (S/S CC 100 or S/S CC 105) | 3 | |
| | Arts/humanities<sup>5</sup> | 3 | 3B |
| **TOTAL** | | 30 | |

**SENIOR**

<p>| AN 372 | Sheep Production (AN 250, AN 310, AN 320, AN 330) | 3 | |
| AN 478 | Beef Production and Management (AN 250, AN 310, AN 320, AN 330) | 3 | |
| EA 305 | Farm and Ranch Records and Analysis (EA/EACC 202 or EC/ECCC 202) | 3 | |
| EA 478 | Agricultural Policy (EA/EACC 202 or EC/ECCC 202 or EA/EACC 240 or EC/ECCC 240) | 3 | |</p>
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<td>US Travel - Integrated Ranch Management</td>
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PROGRAM TOTAL = 122 credits

1 M/M CC 120, M/M CC 121, and M/M CC 124 are considered review courses; credit in these courses may not be used toward completion of a degree in rangeland ecology, but are enforced prerequisites for M/M CC 141 and BY 220.

2 Select from list of courses in category 3G in the All-University Core Curriculum (AUCC).

3 ECC 202 may be substituted for EACC 202.

4 STCC 301 may be substituted for the choice of STCC 307 or EHCC 307.

5 Select from list of courses in category 3B in the AUCC.

6 Select from list of courses in category 3E in the AUCC.

RESTORATION ECOLOGY CONCENTRATION

Major in Rangeland Ecology
Restoration Ecology Concentration

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<td>BY 103</td>
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<td>BY 220</td>
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<td>COCC 150</td>
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<td>LSCC 102</td>
<td>Attributes of Living Systems</td>
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<td>M CC 141</td>
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<td>Natural Resources Freshman Seminar</td>
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SUMMER SESSION

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SOPHOMORE

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<td>Plant Identification (BY 103 or BZ/BZCC 120)</td>
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<td>Agricultural and Resource Economics(^3)</td>
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<td>Principles of Range Management (BY 103 or BZ/BZCC 120)</td>
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<td>RS 331</td>
<td>Rangeland Ecogeography (RS 300, BZ 223 or F 210 or NR 220)</td>
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<td>Course</td>
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<td>SC 240</td>
<td>Introductory Soil Science (C/C CC 107 or C/C CC 111)</td>
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<td>SPCC 200</td>
<td>Public Speaking</td>
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<td>Introduction to Biostatistics*(M/M CC 121)*</td>
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<td>Introduction to Biostatistics*(M/M CC 121)*</td>
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**OR**

| Social/behavioral sciences* | 3 | 3C |

**TOTAL**

| JUNIOR | | |
|--------|------------------|---------|------------------|
| BZ 440 | Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.) | 3 | |
| ER 416 | Land Use Hydrology (SC 240, ST/STCC 201) | 3 | |
| FW 360 | Principles of Vertebrate Management (BY 220; M/M CC 141 or M/M CC 155 or M/M CC 160) | 3 | |
| NR 322 | Introduction to Geographic Information Systems | 4 | |
| RS 332 | Range Measurements (ST/STCC 201 or ST/STCC 301 or ST/STCC 307 or EH/EHCC 307; RS 300 or concurrent reg.; NR 220 or RS 331) | 2 | |
| RS 351 | Range Plant Production and Decomposition (BY 220, RS 300, SC 240) | 3 | 4A, 4B |
| RS 352 | Range Animal-Habitat Interactions (BY 220, RS 300 or RS 320/SC 320) | 3 | 4B |
| RS 420 | Grass Taxonomy (BZ 223 or written consent of instructor) | 3 | |
| SC 350 | Soil Fertility Management (SC 240) | 3 | |

**Arts/humanities* | 3 | 3B |

**TOTAL**

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<td>EH 446</td>
<td>Environmental Toxicology (C 245 or C 343)</td>
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<td>PL 345</td>
<td>Environmental Ethics</td>
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<td>SC 378</td>
<td>Environmental Soil Science (SC 240)</td>
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<td>SC 442</td>
<td>Forest and Range Soils (SC 240)</td>
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<td>SC 455</td>
<td>Soil Microbiology (MB 300 or SC 240)</td>
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<td>Rangeland Economics and Analysis (EA/EACC 202, RS 300)</td>
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<td>RS 471</td>
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<td>RS 478</td>
<td>Restoration Ecology (BY 220 or BZ 450 or F 311; SC 240)</td>
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<td>SC 440</td>
<td>Pedology (SC 240)</td>
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**Global and cultural awareness* | 3 | 3E |

**TOTAL**

| PROGRAM TOTAL = 121 credits |
|-----------------------------|---------|------------------|

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1 M CC 120, M CC 121, and M CC 124 are considered review courses; credits in these courses may not be used toward completion of a degree in rangeland ecology, but are enforced prerequisites for M CC 141 and BY 220.

2 Select from list of courses in category 3G in the All-University Core Curriculum (AUCC).

3 ECCC 202 may be substituted for EACC 202.
### SCIENCE CONCENTRATION

**Major in Rangeland Ecology**

**Science Concentration**

<table>
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<td>BY 103</td>
<td>Biology of Organisms (BY/LSCC 102)</td>
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<tr>
<td>BY 220</td>
<td>Fundamentals of Ecology (one course in biology; M/M CC 124 or M/M CC 141 or M/M CC 155)</td>
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<tr>
<td>C CC 107</td>
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<tr>
<td>C 245</td>
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<td>COCC 150</td>
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<td>Principles of Watershed Management</td>
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\(^1\) Select from list of courses in category 3C in the AUCC.

\(^2\) Select from list of courses in category 3B in the AUCC.

\(^3\) Select from list of courses in category 3E in the AUCC.

\(^4\) STCC 301 may be substituted for STCC/EHCC 307.

\(^5\) OR

**(H)** Introduction to Biostatistics (M/M CC 121)
<table>
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<th>AUCC Category</th>
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<td>NR 322</td>
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<td>Range Plant Production and Decomposition (BY 220, RS 300, SC 240)</td>
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**SENIOR**

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<tr>
<td>SC 440</td>
<td>Pedology (SC 240)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electives</td>
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</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>29</td>
<td></td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL = 122 credits**

1 M/M CC 120, M/M CC 121, and M/M CC 124 are considered review courses; credit in these courses may not be used toward completion of a degree in rangeland ecology, but are enforced prerequisites for M/M CC 141 and BY 220.

2 Select from list of courses in category 3G in the All-University Core Curriculum (AUCC).

3 EC/ECCC 202 (Principles of Microeconomics) may be substituted for EA/EACC 202.

4 ST/STCC 301 (Introduction to Statistical Methods) may be substituted for ST/STCC/EH/EHCC 307.

5 Select from list of courses in category 3E in the AUCC.

6 Select from list of courses in category 3B in the AUCC.
College of Natural Sciences

Office in Statistics Building, Room 117
Professor John C. Raich, Dean
Professor Thomas W. Sneider, Associate Dean
Dr. John C. McGrew, Assistant Dean

UNDERGRADUATE MAJORS

Biochemistry
Biological Science
Botany
Chemistry
Computer Science
Mathematics
Natural Sciences
Physics
Psychology
Zoology

In addition to degree programs, the College of Natural Sciences provides fundamental courses in the biological, mathematical, behavioral, and physical sciences for Colorado State’s seven other colleges. In this role the college serves Colorado State’s broad liberal and general education objectives.

COLLEGE PROGRAMS

Undergraduate Majors

The college’s 8 departments offer 10 undergraduate majors, all leading to a bachelor of science degree which requires a minimum of 120 credits with a minimum of 42 credits in upper-division courses.

Preparation for the Health Professions

Special advisers assist students in planning for entrance into accredited colleges of dentistry and dental hygiene, human medicine and osteopathy, nursing, optometry, pharmacy, physical therapy, physician assistant, podiatry, chiropractic, and other health professions. Since the advisers are acquainted with University courses and the requirements of the professional schools, they can help students fulfill requirements, plan for alternate but related careers, and make the most of their total undergraduate experience.

Students entering a health preprofessional program must declare a formal academic major and be assigned an appropriate adviser. No preprofessional program is a major in itself. The major may be in any college and should be chosen with the student’s educational and alternative vocational objectives in mind.

Students planning to enter a health field may make initial inquiry at the Hughes Undergraduate Biosciences Center for the Life Sciences, (970) 491-3658.

Freshman Open Option

Office in Statistics Building, Room 117

Students who have not decided on a major but whose interests, aptitudes, and high school academic preparation in mathematics and the natural sciences clearly point to a major in this college may enroll as Natural Sciences Open Option. This option extends through the two semesters of the freshman year. Students may declare a departmental or interdepartmental major anytime during their freshman year and are required to do so at the beginning of their sophomore year.

Courses that should be taken by Natural Sciences Open Option students are mathematics, one or two basic science courses (chemistry, biology, physics), arts and humanities and behavioral and social sciences courses, and COCC 150. If biology is chosen as one of the science courses, it is strongly recommended that general chemistry also be taken.

Graduate Programs

The master of science and doctor of philosophy degrees are offered by all departments. For detailed information, see the Graduate and Professional Bulletin, and consult the appropriate department.

INTERDEPARTMENTAL MAJOR

Major in Natural Sciences

Are you interested in really discovering how things “work?” Do exact quantitative explanations rather than generalities satisfy you? Do you like seeing if an idea or
theory can explain a variety of different phenomena? Do you have a strong interest in the physical sciences? Would you prefer a broad scientific education rather than a specialized one? Would you enjoy teaching science classes to high school students? If your answer to any of these questions is “yes,” then physical sciences may be the major for you.

The natural science major provides students with a broad exposure to the physical sciences, rather than specialization in one particular area. This major is well suited for students with career goals in secondary teaching, technical writing, management, and atmospheric science. Others use this major as a basis for graduate work and research or entry into medical and veterinary professional programs.

Concentrations within the major include: Biology Education, Biology/Natural Resource Education, Chemistry Education, General Science Education, Geology Education, Physical Science, and Physics Education.

Curriculum requirements for the physical science concentration include two semesters each of calculus, chemistry, and physics. Students are required to gain depth in the form of a double minor selected from chemistry, computer science, biochemistry, geology, mathematics, statistics or physics. This requirement occupies one-third to one-half of the concentration’s total coursework. Liberal arts requirements and free electives round out the curriculum. Students seeking teaching certification can complete one of the education concentrations or a post-bachelor program.

**Characteristics And Skills**

- Strong aptitude for science and mathematics
- Strong interest in the physical sciences
- Curiosity and creativity
- Keen power of observation
- Attention to detail
- Self-discipline
- Logical and critical thinking ability
- Patience and perseverance
- Enjoys reading
- Good writing and oral communications skills
- Ability to work independently or in a team
- Enjoys experimentation and gathering data

**Potential Occupations**

Properly designed programs can qualify graduates for admission to professional studies in legal and health-related fields or graduate studies in the basic or applied sciences. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:

- Secondary educator in chemistry, physics, mathematics, or computer science
- Technical science writer
- Atmospheric scientist
- Medical and scientific illustrator
- Computer or communication equipment sales representative
- Technical products representative
- Astronomer
- Crime laboratory analyst
- Patent examiner
- Calibration laboratory technician
- Quality control technician
- Forensic analyst
- Air quality analyst
- Laboratory Technician
- Chemical sales representative
- Patent examiner
- Documentation and manual writer
- Product support personnel
## BIOLOGY EDUCATION CONCENTRATION

### Major in Natural Sciences

**Biology Education Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
</table>

### FRESHMAN

**Select 8 credits from the following sets of courses:**

- **BZCC 110** Principles of Animal Biology
- **AND** Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)
- **BZCC 120** Principles of Plant Biology
- **OR** Attributes of Living Systems (high school chemistry)
- **BY 103** Biology of Organisms-Animals and Plants (BY/LSCC 102)

### C CC 111

General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)

### C CC 112

General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)

### C 113

General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)

### C 114

General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)

### M CC 155

Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)

- Arts/humanities
- First-year seminar
- Written communication

**TOTAL** 29

### SOPHOMORE

**Select one of the following:**

- **BZ 220** Introduction to Evolution (BY 103 or BZ/BZCC 111 or BZ/BZCC 120)
- **BZ 350** Molecular and General Genetics (BY/LSCC 102, one course in statistics)
- **BZ 455** Human Heredity and Birth Defects (BY 103 or BZ/BZCC 111)
- **SC 330** Principles of Genetics (BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)

### C 245

Fundamentals of Organic Chemistry (C/C CC 107 or C 113)

### C 246

Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent reg.)

**Select one of the following pairs of courses:**

- **PHCC 121** General Physics I (concurrent reg. in M/M CC 125)
- **PHCC 122** General Physics II (PH/PHCC 121)
- **PHCC 141** Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)
- **PHCC 142** Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255)

### STCC 301

Introduction to Statistical Methods (M/M CC 121)

**TOTAL** 30-31
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
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<tbody>
<tr>
<td>JUNIOR</td>
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<tr>
<td>AACC 100</td>
<td>Introduction to Astronomy</td>
<td>3</td>
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<tr>
<td>AACC 101</td>
<td>Astronomy Laboratory (AA/AACC 100 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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<tr>
<td>ERCC 140</td>
<td>Physical Geology</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>BY 310</td>
<td>Cell Biology (one semester of organic chemistry or concurrent reg.; two semesters of introductory biology)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BY 311</td>
<td>Developmental Biology (BY 310 or written consent of instructor)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EDCC 275</td>
<td>Schooling in the United States (consent of Teacher Licensure Office)</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td>ED 331</td>
<td>Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ED 386</td>
<td>Practicum (ED 320 or concurrent reg., admission to Teacher Licensure Program)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>EDCC 430</td>
<td>Diversity and Communication (EDCC 275; admission to Teacher Licensure Program)</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td>Additional communication(^4)</td>
<td>3</td>
<td>2B</td>
</tr>
<tr>
<td></td>
<td>Historical perspectives(^3)</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td></td>
<td>Social/behavioral sciences(^6)</td>
<td>3</td>
<td>3C</td>
</tr>
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<td>32</td>
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<tr>
<td>SENIOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BC 351</td>
<td>Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BC 352</td>
<td>Principles of Biochemistry Laboratory (BC 301 or BC 351 or BC 401 or concurrent reg., 2 credits of college chemistry laboratory)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ED 450</td>
<td>Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ED 460</td>
<td>Methods and Materials in Teaching Science (ED 320, admission to Teacher Licensure Program)</td>
<td>4</td>
<td></td>
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<tr>
<td>ED 485B</td>
<td>Student Teaching-Secondary (ED 450, ED 460)</td>
<td>11</td>
<td>4A</td>
</tr>
<tr>
<td>ED 486J</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ED 493A</td>
<td>Seminar-Professional Relations (concurreny reg. in ED 485A or B or VE 485)</td>
<td>1</td>
<td>4C</td>
</tr>
<tr>
<td>ED 493B</td>
<td>Seminar-Assessment of Learning (concurreny reg. in ED 485A or B or VE 485)</td>
<td>1</td>
<td>4B</td>
</tr>
<tr>
<td></td>
<td>Health and wellness(^7)</td>
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<td>3G</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>29</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Select from list of courses in category 3B in the All-University Core Curriculum (AUCC).

\(^2\) Select from list of courses in category 1 in the AUCC.

\(^3\) Select from list of courses in category 2A in the AUCC.

\(^4\) Select from list of courses in category 2B in the AUCC.

\(^5\) Select from list of courses in category 3D in the AUCC.

\(^6\) Select from list of courses in category 3C in the AUCC.

\(^7\) Select from list of courses in category 3G in the AUCC.
The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.

**BIOLOGY/NATURAL RESOURCE EDUCATION CONCENTRATION**

**Major in Natural Sciences**
**Biology/Natural Resources Education Concentration***

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
<td>3</td>
<td>3A</td>
</tr>
<tr>
<td>BZCC 111</td>
<td>Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 107</td>
<td>Fundamental of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>ERCC 140</td>
<td>Physical Geology</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>M CC 155</td>
<td>Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)</td>
<td>4</td>
<td>2C</td>
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<tr>
<td></td>
<td>Arts/humanities*</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>First-year seminar*</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Written communication*</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>29</td>
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</table>

**SOPHOMORE**

<table>
<thead>
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<th>Course</th>
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<th>AUCC Category</th>
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</thead>
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<tr>
<td>BY 220</td>
<td>Fundamentals of Ecology (one course in biology; M/M CC 124 or M/M CC 141 or M/M CC 155)</td>
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<td>Select four to five credits from the following:</td>
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<td>BZ 212</td>
<td>Animal Biology-Invertebrates (BY 103 or BZ/BZCC 111)</td>
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<td>BZ 214</td>
<td>Animal Biology-Vertebrates (BY 103 or BZ/BZCC 111)</td>
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<tr>
<td>EN 302</td>
<td>Applied and General Entomology</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>AND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EN 303A</td>
<td>General Entomology Laboratory (EN 302 or concurrent reg.)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>C 245</td>
<td>Fundamentals of Organic Chemistry (C/C CC 107 or C 113)</td>
<td>4</td>
<td></td>
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<tr>
<td>C 246</td>
<td>Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent reg.)</td>
<td>1</td>
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<tr>
<td>NR 120A-B</td>
<td>Environmental Conservation (B) participation in University Honors Program)</td>
<td>3-4</td>
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<tr>
<td>PHCC 110</td>
<td>Descriptive Physics</td>
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<tr>
<td>PHCC 111</td>
<td>Descriptive Physics Laboratory (PH/PHCC 110 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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<tr>
<td>SC 240</td>
<td>Introductory Soil Science (C/C CC 107 or C/C CC 111)</td>
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<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
<td>3</td>
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<tr>
<td>Course</td>
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<td>Credits</td>
<td>AUCC Category</td>
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<tr>
<td>JUNIOR</td>
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<tr>
<td>BC 351</td>
<td>Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343)</td>
<td>4</td>
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</tr>
<tr>
<td>BZ 220</td>
<td>Introduction to Evolution (BY 103 or BZ/BZCC 111 or BZ/BZCC 120)</td>
<td>3</td>
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</tr>
<tr>
<td>EDCC 275</td>
<td>Schooling in the United States (consent of Teacher Licensure Office)</td>
<td>3</td>
<td>3F</td>
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<tr>
<td>ED 331</td>
<td>Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
<td>1</td>
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</tr>
<tr>
<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ED 386</td>
<td>Practicum (ED 320 or concurrent reg., admission to Teacher Licensure Program)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>EDCC 430</td>
<td>Diversity and Communication (EDCC 275; admission to Teacher Licensure Program)</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td>Additional communication&lt;sup&gt;5&lt;/sup&gt;</td>
<td>3</td>
<td>2B</td>
</tr>
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<td></td>
<td>Historical perspectives&lt;sup&gt;6&lt;/sup&gt;</td>
<td>3</td>
<td>3D</td>
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<td></td>
<td>Social/behavioral sciences&lt;sup&gt;7&lt;/sup&gt;</td>
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<td>Directed elective&lt;sup&gt;8&lt;/sup&gt;</td>
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<tr>
<td>SENIOR</td>
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</tr>
<tr>
<td>ED 450</td>
<td>Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ED 460</td>
<td>Methods and Materials in Teaching Science (ED 320, admission to Teacher Licensure Program)</td>
<td>4</td>
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<tr>
<td>ED 485B</td>
<td>Student Teaching-Secondary (ED 450, ED 460)</td>
<td>11</td>
<td>4A</td>
</tr>
<tr>
<td>ED 486J</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ED 493A</td>
<td>Seminar-Professional Relations (concurent reg. in ED 485A or B or VE 485)</td>
<td>1</td>
<td>4C</td>
</tr>
<tr>
<td>ED 493B</td>
<td>Seminar-Assessment of Learning (concurent reg. in ED 485A or B or VE 485)</td>
<td>1</td>
<td>4B</td>
</tr>
<tr>
<td>MB 300</td>
<td>General Microbiology (C 245 or C 341 or concurrent reg.; BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)</td>
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<td></td>
<td>Health and wellness&lt;sup&gt;8&lt;/sup&gt;</td>
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<td>Electives</td>
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<tr>
<td></td>
<td>TOTAL</td>
<td>27-29</td>
<td></td>
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</tbody>
</table>

**PROGRAM TOTAL = 120-122 credits**

<sup>1</sup> Select from list of courses in category 3B in the All-University Core Curriculum (AUCC).

<sup>2</sup> Select from list of courses in category 1 in the AUCC.

<sup>3</sup> Select from list of courses in category 2A in the AUCC.

<sup>4</sup> Select from the following: EACC 240 or ECCC 240, ERCC 304, FW 360, GR 210, NR 220, RR 100, RS 300.

<sup>5</sup> Select from list of courses in category 2B in the AUCC.

<sup>6</sup> Select from list of courses in category 3D in the AUCC.

<sup>7</sup> Select from list of courses in category 3C in the AUCC.

<sup>8</sup> Select from list of courses in category 3G in the AUCC.

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CHEMISTRY EDUCATION CONCENTRATION

Major in Natural Sciences
Chemistry Education Concentration*

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BZCC 110</td>
<td>Principles of Animal Biology AND Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)</td>
<td>3</td>
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<td>BZCC 111</td>
<td>Principles of Plant Biology OR Attributes of Living Systems (high school chemistry)</td>
<td>4</td>
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<td>LSCT 102</td>
<td>Biology of Organisms-Animals and Plants (BY/LSCCT 102)</td>
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<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
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<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 11 or concurrent reg.)</td>
<td>1</td>
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</tr>
<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<tr>
<td>C 114</td>
<td>Calculus for Physical Scientists I (M/M CC 124; concurrent reg. in M/M CC 124)</td>
<td>4</td>
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<td>M CC 160</td>
<td>Calculus for Physical Scientists II (M/M CC 124, M/M CC 160) First-year seminar† Written communication‡</td>
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SOPHOMORE

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<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>C 261</td>
<td>Fundamentals of Inorganic Chemistry (C 113)</td>
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<tr>
<td>C 341</td>
<td>Organic Chemistry I (C 113)</td>
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<td>C 343</td>
<td>Organic Chemistry II (C 341)</td>
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<tr>
<td>C 344</td>
<td>Organic Chemistry Laboratory (C 114; C 343 or concurrent reg.)</td>
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<tr>
<td>PHCC 142</td>
<td>Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255)</td>
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<tr>
<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121) Additional communication† Arts/humanities‡</td>
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<td>Astronomy Laboratory (AA/AACC 100 or concurrent reg.)</td>
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<td>Physical Geology</td>
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<td>C 331</td>
<td>Quantitative Analysis (C 113)</td>
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<td>Quantitative Analysis Laboratory (C 114; C 331 or concurrent reg.)</td>
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<td>C 334</td>
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<td>C 471</td>
<td>Fundamentals of Physical Chemistry (C 113; M/M CC 161 or M/M CC 255; PH/PHCC 122 or PH/PHCC 142)</td>
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<td>EDCC 275</td>
<td>Schooling in the United States (consent of Teacher Licensure Office)</td>
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<tr>
<td>ED 331</td>
<td>Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<tr>
<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
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<tr>
<td>ED 386</td>
<td>Practicum (ED 320 or concurrent reg., admission to Teacher Licensure Program)</td>
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<tr>
<td>EDCC 430</td>
<td>Diversity and Communication (EDCC 275; admission to Teacher Licensure Program)</td>
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<td>3E</td>
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<tr>
<td>Historical perspectives</td>
<td>3</td>
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<tr>
<td>Social/behavioral science</td>
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**SENIOR**

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<td>Survey of Biochemistry (C 245)</td>
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<td>BC 351</td>
<td>Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343)</td>
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<td>BC 352</td>
<td>Principles of Biochemistry Laboratory (BC 301 or BC 351 or BC 401 or concurrent reg., 2 credits of college chemistry laboratory)</td>
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<td>ED 450</td>
<td>Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
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<td>Methods and Materials in Teaching Science (ED 320; admission to Teacher Licensure Program)</td>
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<td>ED 485B</td>
<td>Student Teaching-Secondary (ED 450, ED 460)</td>
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<td>ED 486J</td>
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<td>Seminar-Professional Relations (concurrent reg. in ED 485A or B or VE 485)</td>
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<td>ED 493B</td>
<td>Seminar-Assessment of Learning (concurrent reg. in ED 485A or B or VE 485)</td>
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**PROGRAM TOTAL = 120 credits**

---

1 Select from list of courses in category 1 in the All-University Core Curriculum (AUCC).
2 Select from list of courses in category 2A in the AUCC.
3 Select from list of courses in category 2B in the AUCC.
4 Select from list of courses in category 3B in the AUCC.
5 Select from list of courses in category 3D in the AUCC.
6 Select from list of courses in category 3C in the AUCC.
7 Select from list of courses in category 3G in the AUCC.

*The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.

**GENERAL SCIENCE EDUCATION CONCENTRATION**

**Major in Natural Sciences**

**General Science Education Concentration***

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td><strong>FRESHMAN</strong></td>
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<tr>
<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
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<td>BZCC 111</td>
<td>Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)</td>
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<tr>
<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
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<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
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<td>BY 103</td>
<td>Biology of Organisms-Animals and Plants (BY/LSCC 102)</td>
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<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 11 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<td>C 114</td>
<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
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<td>M CC 155</td>
<td>Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)</td>
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<tr>
<td>M CC 255</td>
<td>Calculus for Biological Scientists II (M/M CC 155 and concurrent reg. in M/M CC 126)</td>
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<tr>
<td><strong>OR</strong></td>
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<tr>
<td>M CC 160</td>
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<td>M CC 161</td>
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<td><strong>First-year seminar</strong>*</td>
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<td><strong>SOPHOMORE</strong></td>
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<td>ERCC 140</td>
<td>Physical Geology</td>
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<td>Credits</td>
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<td>PHCC 122</td>
<td>General Physics II (PH/PHCC 121)</td>
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<td>PHCC 141</td>
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<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
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<td>Arts/humanities(^1)</td>
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<td>3B</td>
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<td>Social/behavioral sciences(^4)</td>
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<td>Requirement for minor(^3)</td>
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**JUNIOR**

| EDCC 275 | Schooling in the United States (consent of Teacher Licensure Office)                | 3       | 3F            |
| ED 331   | Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office) | 1       |               |
| ED 350   | Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program) | 3       |               |
| ED 386   | Practicum (ED 320 or concurrent reg., admission to Teacher Licensure Program)       | 1       |               |
| EDCC 430 | Diversity and Communication (EDCC 275; admission to Teacher Licensure Program)      | 3       | 3E            |
|         | Additional communication\(^5\)                                                     | 3       | 2B            |
|         | Health and wellness\(^3\)                                                          | 2       | 3G            |
|         | Historical perspectives\(^4\)                                                     | 3       | 3D            |
|         | Requirements for minor\(^3\)                                                      | 12      |               |
|         | **TOTAL**                                                                          | **31**  |               |

**SENIOR**

| ED 450 | Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J) | 4       |               |
| ED 460 | Methods and Materials in Teaching Sciences (ED 320, admission to Teacher Licensure Program) | 4       |               |
| ED 485B | Student Teaching-Secondary (ED 450, ED 460)                                         | 11      | 4A            |
| ED 486J | Practicum-Methods and Assessment (admission to Teacher Licensure Program)          | 1       |               |
| ED 493A | Seminar-Professional Relations (concurrent reg. in ED 485A or B or VE 485)          | 1       | 4C            |
| ED 493B | Seminar-Assessment of Learning (concurrent reg. in ED 485A or B or VE 485)          | 1       | 4B            |
|         | Electives                                                                         | 5       |               |
|         | **TOTAL**                                                                          | **27**  |               |

**PROGRAM TOTAL = 120 credits**

\(^1\) Select from list of courses in category 1 in the All-University Core Curriculum (AUCC).

\(^2\) Select from list of courses in category 2A in the AUCC.

\(^3\) Select from list of courses in category 3B in the AUCC.

\(^4\) Select from list of courses in category 3C in the AUCC.
5 Students must complete a minor in one of the following areas—chemistry, physics, biology, earth-space science, environmental science, mathematics. Consult with School of Education on selection of minor.

6 Select from list of courses in category 2B in the AUCC.

7 Select from list of courses in category 3G in the AUCC.

8 Select from list of courses in category 3D in the AUCC.

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**GEOLOGY EDUCATION CONCENTRATION**

**Major in Natural Sciences**

**Geology Education Concentration***

<table>
<thead>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
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<tr>
<td>AACC 100</td>
<td>Introduction to Astronomy</td>
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<tr>
<td>ER 272</td>
<td>Oceanography I</td>
<td>3</td>
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<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry II (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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<tr>
<td>ER 154</td>
<td>Historical and Analytic Geology (ER/ERCC 130 or ER/ERCC 140 or ER 150/ERCC 192A)</td>
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<tr>
<td>ERCC 192A</td>
<td>Physical Geology and Freshman Seminar</td>
<td>4</td>
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<tr>
<td>M CC 155</td>
<td>Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126, concurrent reg. in M/M CC 124)</td>
<td>4</td>
<td>2C</td>
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|  | Arts/humanities¹ | 3 | 3B |
|  | Social/behavioral science² | 3 | 3C |
|  | Written communication³ | 3 | 2A |
| **TOTAL** | | 29 | |

<p>| <strong>SOPHOMORE</strong> | | | |
| BZCC 110 | Principles of Animal Biology | 3 | 3A |
| BZCC 111 | Animal Biology Laboratory | 1 | 3A |
| LSCC 102 | Attributes of Living Systems (high school chemistry) | 4 | 3A |
| C 113 | General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160) | 3 | |
| C 114 | General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.) | 1 | |
| ER 232 | Mineralogy and Mineral Optics (ER/ERCC 140 or ER 150/ERCC 192A, C/C CC 111, M/M CC 124 or concurrent reg.) | 5 | |
| ER 454 | Geomorphology (ER/ERCC 140 or ER 150/ERCC 192A or GR 210; M/M CC 155 or M/M CC 160) | 4 | |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
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<td>3A</td>
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<td></td>
<td>Additional communication⁴</td>
<td>3</td>
<td>3B</td>
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<td></td>
<td>Historical perspectives⁴</td>
<td>3</td>
<td>3C</td>
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<td>ER elective (select from list in junior year)</td>
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**JUNIOR**

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<tr>
<th>BY 103</th>
<th>Biology of Organisms-Animals and Plants (BY/LSCC 102)</th>
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<tr>
<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
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<td>3A</td>
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<tr>
<td>EDCC 275</td>
<td>Schooling in the United States (consent of Teacher Licensure Office)</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td>ED 331</td>
<td>Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ED 386</td>
<td>Practicum (ED 320 or concurrent reg., admission to Teacher Licensure Program)</td>
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<td></td>
</tr>
<tr>
<td>EDCC 430</td>
<td>Diversity and Communication (EDCC 275; admission to Teacher Licensure Program)</td>
<td>3</td>
<td>3E</td>
</tr>
</tbody>
</table>

Select two of the following courses:

| ER 342  | Paleontology (ER 154)                                                               | 3       |               |
| ER 344  | Stratigraphy and Sedimentology (ER 154)                                             | 4       |               |
| ER 364  | Igneous and Metamorphic Petrology (ER 232)                                          | 4       |               |
| ER 372  | Structural Geology (ER 154, M/M CC 125, concurrent reg. in PH/PHCC 141)             | 4       |               |
| ER 446  | Environmental Geology (ER 454 or concurrent reg.)                                   | 3       |               |

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<thead>
<tr>
<th>M CC 161</th>
<th>Calculus for Physical Scientists II (M/M CC 124, M/M CC 160)</th>
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<th>2C</th>
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<tbody>
<tr>
<td>M CC 255</td>
<td>Calculus for Biological Scientists II (M/M CC 155 and concurrent reg. in M/M CC 126)</td>
<td>4</td>
<td>2C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHCC 142</th>
<th>Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255)</th>
<th>5</th>
<th>3A</th>
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<tbody>
<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124, M/M CC 160)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 255</td>
<td>Calculus for Biological Scientists II (M/M CC 155 and concurrent reg. in M/M CC 126)</td>
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</table>

**SENIOR**

<table>
<thead>
<tr>
<th>AT 440</th>
<th>Meteorology (M/M CC 161 or M/M CC 255, PH/PHCC 121 or PH/PHCC 141)</th>
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<tbody>
<tr>
<td>ED 450</td>
<td>Instruction II- Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
<td>4</td>
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<tr>
<td>ED 460</td>
<td>Methods and Materials in Teaching Science (ED 320; admission to Teacher Licensure Program)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ED 485B</td>
<td>Student Teaching-Secondary (ED 450, ED 460)</td>
<td>11</td>
<td>4A</td>
</tr>
<tr>
<td>ED 486J</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
<td>1</td>
<td></td>
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<tr>
<td>ED 493A</td>
<td>Seminar-Professional Relations (concurrent reg. in ED 485A or B or VE 485)</td>
<td>1</td>
<td>4C</td>
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<tr>
<td>ED 493B</td>
<td>Seminar-Assessment of Learning (concurrent reg. in ED 485A or B or VE 485)</td>
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<td>4B</td>
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<tr>
<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
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<td>Course</td>
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<td>Credits</td>
<td>AUCC Category</td>
</tr>
<tr>
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<td>--------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td></td>
<td>Health and wellness</td>
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<td>3G</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>29</strong></td>
<td></td>
</tr>
</tbody>
</table>

PROGRAM TOTAL = 120-121 credits

1 Select from list of courses in category 3B in the All-University Core Curriculum (AUCC).
2 Select from list of courses in category 3C in the AUCC.
3 Select from list of courses in category 2A in the AUCC.
4 Select from list of courses in category 2B in the AUCC.
5 Select from list of courses in category 3D in the AUCC.
6 Select from list of courses in category 5G in the AUCC.

*The College of Applied Human Sciences is redesigning its teacher education programs to meet the new statutory requirements, including the ability of a student to complete the graduation requirements in four academic years and 800 hours of field experience. The approval of existing teacher preparation programs will terminate on June 30, 2001. The redesigned programs will be reviewed and reauthorized by the Commission on Higher Education in 2000-2001. Since the new teacher preparation curriculum is not available at the time of the catalog printing, new students who intend to enroll in teacher preparation programs should consult with their assigned adviser or the School of Education immediately to plan their curriculum. Because the institution cannot guarantee that all majors currently offered for teacher preparation will receive approval by the State of Colorado under the new statutory requirements, it is important that students consult with their assigned adviser. Students who were admitted and began their teacher preparation programs prior to July 1, 2000, may complete the degree requirements published in the 1999-2000 catalog.

**PHYSICAL SCIENCE CONCENTRATION**

Major in Natural Sciences
Physical Science Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>M CC 120A-B</td>
<td>College Algebra I (Math Placement Exam)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 121</td>
<td>College Algebra II (M/M CC 120A-B or placement)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 124</td>
<td>Logarithmic and Exponential Functions (M/M CC 118 or M/M CC 121 or placement)</td>
<td>1</td>
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<tr>
<td>M CC 125</td>
<td>Numerical Trigonometry (M/M CC 118 or M/M CC 121 or placement)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 126</td>
<td>Analytic Trigonometry (M/M CC 125 or placement)</td>
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<td></td>
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<td>2B</td>
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<tr>
<td></td>
<td>First-year seminar²</td>
<td>2-3</td>
<td>1</td>
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<tr>
<td></td>
<td>Minor³</td>
<td>9</td>
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</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>27-28</strong></td>
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</table>

**SOPHOMORE**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
<td>3</td>
<td></td>
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<tr>
<td>C 114</td>
<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
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<td></td>
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<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<td>--------------------------------------------------------------------------------------</td>
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<tr>
<td>M CC 155</td>
<td>Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)</td>
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<td>2C</td>
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<tr>
<td>M CC 255</td>
<td>Calculus for Biological Scientists II (M/M CC 155; concurrent reg. in M/M CC 126)</td>
<td>4</td>
<td>2C</td>
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<tr>
<td><strong>OR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 124; concurrent reg. in M/M CC 124)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124, M/M CC 160)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>PHCC 141</td>
<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
<td>5</td>
<td>3A</td>
</tr>
<tr>
<td>PHCC 142</td>
<td>Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255)</td>
<td>5</td>
<td>3A</td>
</tr>
<tr>
<td></td>
<td>Logical/critical thinking&lt;sup&gt;4&lt;/sup&gt;</td>
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<td>2D</td>
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<td></td>
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<td>6</td>
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<td></td>
<td>TOTAL</td>
<td>31</td>
<td></td>
</tr>
</tbody>
</table>

**JUNIOR**

|                      | Arts/humanities<sup>5</sup>                                                        | 3       | 3B            |
|                      | Biological/physical sciences<sup>6</sup>                                            | 3       | 3A            |
|                      | Global and cultural awareness<sup>7</sup>                                           | 3       | 3E            |
|                      | Health and wellness<sup>8</sup>                                                     | 2       | 3G            |
|                      | Historical perspectives<sup>9</sup>                                                 | 3       | 3D            |
|                      | Minor<sup>1</sup>                                                                   | 15      |               |
|                      | Social/behavioral sciences<sup>10</sup>                                             | 3       | 3C            |
|                      | U.S. public values and institutions<sup>11</sup>                                   | (3)     | 3F            |
|                      | TOTAL                                                                              | 32      |               |

**SENIOR**

|                      | Building foundations/perspectives<sup>12</sup>                                     | 3       | 4B            |
|                      | Capstone course<sup>13</sup>                                                        | 3       | 4C            |
|                      | Using competencies<sup>14</sup>                                                      | 3       | 4A            |
|                      | Minor<sup>1</sup>                                                                   | 12      |               |
|                      | Electives<sup>15</sup>                                                              | 8-9     |               |
|                      | TOTAL                                                                              | 29-30   |               |

**PROGRAM TOTAL = 120 credits**

---

1. Select from the list of courses in category 2B in the All-University Core Curriculum (AUCC).
2. Complete a course satisfying AUCC category 1 that is offered within a major that is the same as one of the minors that will be completed.
3. Declare and complete two minors from the following list: Biochemistry, Chemistry, Computer Science, Geology, Mathematics, Physics, Scientific Computing, Statistics.
4. Select from the list of courses in category 2D in the AUCC.
5. Select from the list of courses in category 3B in the AUCC.
6. Select from the list of courses in category 3A in the AUCC.
7. Select from the list of courses in category 3E in the AUCC.
8. Select from the list of courses in category 3G in the AUCC.
9. Select from the list of courses in category 3D in the AUCC.
10. Select from the list of courses in category 3C in the AUCC.
11. Select from the list of courses in category 3F in the AUCC. Some of these courses will also satisfy the requirement for another category.
12. Complete a course satisfying AUCC category 4B that is offered within a major that is the same as one of the minors that will be completed.
13. Complete a course satisfying AUCC category 4C that is offered within a major that is the same as one of the minors that will be completed.
Complete a course satisfying AUCC category 4A that is offered within a major that is the same as one of the minors that will be completed.

Majors must take enough electives to total 120 credits. Of the 120 credits, 42 must be upper-division (300 and 400 level) credits.

PHYSICS EDUCATION CONCENTRATION

Major in Natural Sciences
Physics Education Concentration*

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>C 114</td>
<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124, M/M CC 160)</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>PHCC 141</td>
<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
<td>5</td>
<td>3A</td>
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<td>PHCC 192</td>
<td>The Flying Circus of Physics</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Social/behavioral sciences¹</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
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<td>30</td>
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</table>

| **SOPHOMORE** | | | |
| AACC 100 | Introduction to Astronomy | 3 | 3A |
| AACC 101 | Introduction to Astronomy Laboratory (AA/AACC 100 or concurrent reg.) | 1 | 3A |
| BZCC 110 | Principles of Animal Biology | 3 | 3A |
| BZCC 111 | Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.) | 1 | 3A |
| BZCC 120 | Principles of Plant Biology | 4 | 3A |
| M 261 | Calculus for Physical Scientists III (M/M CC 161) | 4 | |
| PHCC 142 | Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255) | 5 | 3A |
| PH 314 | Introduction to Modern Physics (PH/PHCC 142, concurrent reg. in M 261) | 4 | 4A, 4B |
| | Additional communication² | 3 | 2B |
| | Health and wellness³ | 2 | 3G |
| **TOTAL** | | | 30 |

<p>| <strong>JUNIOR</strong> | | | |
| CSCC 151 | C++ for Scientists and Engineers (M/M CC 124, M/M CC 126) | 4 | 2D |
| EDCC 275 | Schooling in the United States (consent of Teacher Licensure Office) | 3 | 3F |
| ED 331 | Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office) | 1 | |
| EDCC 430 | Diversity and Communication (EDCC 275; admission to Teacher Licensure Program) | 3 | 3E |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>PH 245</td>
<td>Introduction to Electronics (PH/PHCC 142, M/M CC 161)</td>
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<tr>
<td>PH 315</td>
<td>Modern Physics Laboratory (concurrent reg. in PH 314)</td>
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<td>4A, 4B</td>
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<tr>
<td>PH 361</td>
<td>Physical Thermodynamics (PH/PHCC 142, M 261)</td>
<td>3</td>
<td>4A, 4B</td>
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<tr>
<td></td>
<td>Arts/humanities&lt;sup&gt;4&lt;/sup&gt;</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>Historical perspectives&lt;sup&gt;3&lt;/sup&gt;</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>30</strong></td>
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**SENIOR**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 350</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ED 386</td>
<td>Practicum (ED 320 or concurrent reg., admission to Teacher Licensure Program)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ED 450</td>
<td>Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
<td>4</td>
<td></td>
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<tr>
<td>ED 460</td>
<td>Methods and Materials in Teaching Sciences (ED 320, admission to Teacher Licensure Program)</td>
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<tr>
<td>ED 485B</td>
<td>Student Teaching-Secondary (ED 450, ED 460)</td>
<td>11</td>
<td>4A</td>
</tr>
<tr>
<td>ED 486J</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ED 493A</td>
<td>Seminar-Professional Relations (concurrent reg. in ED 485A or B or VE 485)</td>
<td>1</td>
<td>4C</td>
</tr>
<tr>
<td>ED 493B</td>
<td>Seminar-Assessment of Learning (concurrent reg. in ED 485A or B or VE 485)</td>
<td>1</td>
<td>4B</td>
</tr>
<tr>
<td>PH 353</td>
<td>Optics and Waves (M 261, PH/PHCC 142)</td>
<td>4</td>
<td>4A, 4B</td>
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<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>30</strong></td>
<td></td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

<sup>1</sup> Select from the list of courses in category 3C in the All-University Core Curriculum (AUCC).
<sup>2</sup> Select from the list of courses in category 2B in the AUCC.
<sup>3</sup> Select from the list of courses in category 3G in the AUCC.
<sup>4</sup> Select from the list of courses in category 3B in the AUCC.
<sup>5</sup> Select from the list of courses in category 3D in the AUCC.

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DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

Office in Molecular and Radiological Biosciences
Building, Room 316
Professor Robert W. Woody, Chair

Major in Biochemistry

Has the chemical composition of living things always been fascinating to you? Do you love molecules? Would you like to have a role in the detection, diagnosis, and treatment of disease? Are you curious about gene expression and cellular replication? Would you like to design laboratory equipment or processes? Are you interested in discovering how bacteria store and transmit genetic information? And, what about how our bodies synthesize vitamins and minerals? Have you ever thought about a career in water purification or sewage treatment? If you answered “yes” to any of these questions, then maybe a biochemistry major is for you.

As the name suggests, biochemistry links biology and chemistry. Biochemistry is most simply defined as the chemistry of living systems. It is the science which tries to explain how “lifeless” molecules work together to make “living” organisms. The methods of chemistry and molecular biology are used to study the structure and behavior of the complex molecules found in biological materials and the ways these molecules interact to form cells, tissues, and whole organisms. Biochemistry provides the basis for advances in human and veterinary medicine, agriculture, and biotechnology. Biochemists may participate in interdisciplinary research and development projects alongside chemical engineers, biologists, microbiologists, agronomists, physicians and other professionals. They investigate the molecular mechanisms of diseases such as AIDS, diabetes, and heart disease and develop solutions to environmental problems through biotechnology.

The biochemistry major provides a student with a strong, well-balanced background in the biological, physical, and mathematical sciences. As a biochemistry major, your studies will include macromolecular structure and function; cellular biochemistry; metabolism; gene expression, structure, replication, and repair; cell organization, communication, growth, aging, and death. You will also be required to take courses in physics, organic chemistry, physical chemistry for life sciences, and statistical measurements and methods used in research. Opportunities exist for independent study, internships, or advanced research-oriented laboratory classes during your junior and senior years, which provide opportunities for experiential learning and working closely with our faculty.

Characteristics and Skills

- Interest in sciences
- Motivated to learn, intellectual curiosity
- Attention to detail
- Critical thinking skills
- Strong organization skills
- Analytical skills
- Problem solving skills
- Imaginative, yet logical
- Interpreting technical/scientific data
- Perceiving/defining cause and effect relationships
- Ability to work as part of a team
- Patience
- Good decision maker
- Strong communication skills –oral and written
- Computer literate
- Ability to use scientific instruments and equipment

Potential Occupations

Because biochemistry is such a broad science, it is excellent preparation for many different careers. About one-half of Colorado State’s graduates continue in graduate studies (biochemistry, molecular biology, or related life sciences), or professional health fields. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Approximately one-fourth are pre-med or pre-vet students, and one-fourth obtain employment in industrial, governmental, academic, or biotechnology sectors of the job market. Participation in internships is highly recommended to enhance practical training and development. This type of experience provides the opportunity to build a relationship with a faculty member. Thus, a student obtains experience and a meaningful reference, which greatly enhances their ability to obtain a job of their choosing or entrance into a top graduate or professional program.

Biochemists are involved in laboratory-based research and development, production, marketing, sales, and management in pharmaceutical, agricultural, food, biotechnology, and health care industries. Some of the Federal government employers are the Food and Drug Administration, U.S. Departments of Agriculture, Interior, and Defense, and the National Institute of Health. Good employment opportunities exist in biotechnology, genetic engineering, cancer research, and pharmacology. However, medical scientists can expect considerable competition for basic research and academic positions due to the recent budget tightening by the Federal government, which supplies much of the research money. The following job titles are some of the possible opportunities for graduates in biochemistry. Some may
require further training or education.
- Process research technician
- Production/quality assurance lab technician
- Biomedical/pharmaceutical researcher or salesperson
- Molecular biologist
- Biophysicist
- Cytologist
- Toxicologist
- Bio-technologist
- Industrial hygienist
- Dairy technologist
- Environmental analyst, hygienist or chemist
- Wastewater treatment chemist
- Food and drug inspector
- Museum technician
- Teacher
- Writer
- Fisheries biologist
- Research analyst
- Medical or clinical lab technologist

M CC 120A-B, M CC 121, M CC 124, M CC 125, and M CC 126 are considered review courses; credit in these courses, either by examination or completion, may not be used toward a degree in biochemistry, i.e., they do not count toward the 120 credits required for graduation.

A minimum overall grade point average of 2.0 must be earned for all required biochemistry and NS prefix lecture and laboratory courses. This minimum average includes the original grade for any repeated course.

Major in Biochemistry

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BCCC 192</td>
<td>Biochemistry Freshman Seminar</td>
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</tr>
<tr>
<td>BY 103</td>
<td>Biology of Organisms (BY/LSCC 102)</td>
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<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
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<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C CC 111 or concurrent reg.)</td>
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<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<tr>
<td>C 114</td>
<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
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<tr>
<td>LSCC 102</td>
<td>Attributes of Living Systems</td>
<td>4</td>
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<td><strong>SOPHOMORE</strong></td>
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<tr>
<td>M CC 155</td>
<td>Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)</td>
<td>4</td>
<td>2C</td>
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<tr>
<td>M CC 255</td>
<td>Calculus for Biological Scientists II (M/M CC 155)</td>
<td>4</td>
<td>2C</td>
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<td><strong>OR</strong></td>
<td></td>
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<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
<td>4</td>
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<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124 and M/M CC 160)</td>
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<td>33</td>
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<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<td>--------</td>
<td>---------------------</td>
<td>---------</td>
<td>---------------</td>
</tr>
<tr>
<td>NS 202</td>
<td>Molecular Biosciences-Cellular Biochemistry (BY/LSCC 102, C/C CC 111, C/C CC 112 or concurrent reg.)</td>
<td>4</td>
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<tr>
<td>NS 203</td>
<td>Genetic Mechanisms Laboratory (C/C CC 112; NS 201 or concurrent reg.)</td>
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<tr>
<td>NS 204</td>
<td>Cellular Biochemistry Laboratory (C/C CC 112; NS 202 or concurrent reg.)</td>
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Select one of the following pairs of courses:

<table>
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<th>Title (Prerequisite)</th>
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<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>PHCC 121</td>
<td>General Physics I (M/M CC 125)</td>
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<tr>
<td>PHCC 122</td>
<td>General Physics II (PH/PHCC 121)</td>
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<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHCC 141</td>
<td>Physics for Scientist and Engineers I (M/M CC 126, M/M CC 155 or M/M CC 160)</td>
<td>5</td>
<td>3A</td>
</tr>
<tr>
<td>PHCC 142</td>
<td>Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255)</td>
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Additional communication
Health and wellness

TOTAL

JUNIOR

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC 401</td>
<td>Comprehensive Biochemistry I (C 245 or C 343 or concurrent reg. in C 343; M/M CC 155 or M/M CC 160)</td>
<td>3</td>
<td>4A</td>
</tr>
<tr>
<td>BC 403</td>
<td>Comprehensive Biochemistry II (BC 401)</td>
<td>3</td>
<td>4B</td>
</tr>
<tr>
<td>BC 404</td>
<td>Comprehensive Biochemistry Laboratory (BC 401 or concurrent reg.; C 246 or C 344; NS 204)</td>
<td>2</td>
<td>4B</td>
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<tr>
<td>C 331</td>
<td>Quantitative Analysis (C 113)</td>
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<tr>
<td>C 334</td>
<td>Quantitative Analysis Laboratory (C 114; C 331 or concurrent reg.)</td>
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Select one of the following:

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<th>Title (Prerequisite)</th>
<th>Credits</th>
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<tbody>
<tr>
<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
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<tr>
<td>STCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
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<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EHCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
<td>3</td>
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Bioscience elective
Category 3 courses
Electives

TOTAL

SENIOR

Select four credits from one or more of the following:

<table>
<thead>
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<th>Course</th>
<th>Title (Prerequisite)</th>
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<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC 406A</td>
<td>Protein Biochemistry (BC 404)</td>
<td>2</td>
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<tr>
<td>BC 406B</td>
<td>Molecular Genetics (BC 404)</td>
<td>2</td>
<td></td>
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<tr>
<td>BC 406C</td>
<td>Cellular Biochemistry (BC 404)</td>
<td>2</td>
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<tr>
<td>BC 408</td>
<td>Techniques in Structural Biology (BC 404; C 471 or C 474)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>BC 487A</td>
<td>Internship (BC 401, BC 403, BC 404 with minimum GPA or 2.0; written consent of instructor)</td>
<td>Var.</td>
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<tr>
<td>BC 487B</td>
<td>International Internship (BC 401, BC 463, BC 495 (1 credit in lab of CSU mentor); selection by departmental committee)</td>
<td>Var.</td>
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<tr>
<td>BC 495</td>
<td>Independent Study (minimum GPA of 3.0 and consent of laboratory mentor)</td>
<td>Var.</td>
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<tr>
<td>BC 498</td>
<td>Research (written consent of research mentor and department chair)</td>
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<tr>
<td>BC 499</td>
<td>Thesis (written consent of department chair)</td>
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Var.

<table>
<thead>
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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>BC 463</td>
<td>Molecular Genetics (NS 201; BC 401 or concurrent reg. or BC 351)</td>
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<tr>
<td>BC 465</td>
<td>Molecular Regulation-Cell Function (NS 202; BC 403 or concurrent reg. or BC 351)</td>
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<tr>
<td>BC 493</td>
<td>Seminar (BC 401 or concurrent reg.)</td>
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410

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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>C 471</td>
<td>Fundamentals of Physical Chemistry (C 113; M/M CC 161 or M/M CC 255; PH/PHCC 122 or PH/PHCC 142)</td>
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<tr>
<td></td>
<td>Bioscience elective&lt;sup&gt;4&lt;/sup&gt;</td>
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<td></td>
<td>Category 3 course&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>3B-3F</td>
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<td></td>
<td>Electives</td>
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<tr>
<td></td>
<td>TOTAL</td>
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<td>26-27</td>
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</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

<sup>1</sup> Select from the list of courses in categories 3B-3F (one course from each category) in the All-University Core Curriculum (AUCC).

<sup>2</sup> Select from the list of courses in category 2B in the AUCC.

<sup>3</sup> Select from the list of courses in category 3G in the AUCC.

<sup>4</sup> Select in consultation with adviser using list approved by the department.

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**DEPARTMENT OF BIOLOGY**

*Office in Anatomy-Zoology Building, Room E 106
Professor F. Brent Reeves, Acting Chair*

**Major in Biological Science**

Are microscopic bacteria and viruses a curiosity to you? Do you enjoy learning about organ systems and cells in humans and animals? Would you like to have a role in the detection, diagnosis and treatment of diseases? Have you wondered about the effects of a forest fire and how new growth occurs? Do you enjoy doing research? Do you have a passion for biological sciences you want to share with others? Do you want to go further in your education and pursue a health care profession, such as a chiropractor or pharmacist, or even medical school? If you answered “yes” to any of these questions, you may want to consider biological science as a major.

Biology is the study of all living things—from bacteria and viruses that can be seen only under a microscope, to plants, animals, and humans and their relationship to their environments. As a biology major, you will study the structure and function of cells, organ systems and tissues in animals and humans, the structure and function of plants, ecology (the relationship between living things and their environment), and evolution. You will learn about forensic biology (identification of human remains), genetics and heredity, aquatic toxicology (methods that biologists use to measure the impact of pollution on water), microscopic organisms such as bacteria, and laboratory techniques that biologists use in research. As you can see, this major provides a broad background in the basic biological sciences. It also offers an opportunity to choose an area of emphasis within life sciences that is related to your particular career goal. (For example, anatomy for health professions, aquatic biology for marine biologists, etc.)

The curriculum includes a two-semester introductory biology sequence, cell biology, developmental biology, ecology and genetics. Required courses in the physical sciences include a minimum of one year in introductory chemistry, and at least one course in organic chemistry, physics, and one in biochemistry, including labs in each. In addition, students choose a selected field of 12 credits in one of the following: anatomy/physiology, aquatic biology, behavioral biology, cellular/molecular and genetic biology, ecology, evolution/genetics and systematics, microbiology, or integrative organismal biology. There is an additional requirement of one course in two other fields, which assures a broad base of study. A calculus course and a statistics course are also required.

**Characteristics and Skills**

- Attention to detail
- Critical thinking
- Strong organization skills
- Analytical skills
- Problem solving skills
- Interpreting technical/scientific data
- Perceiving/defining cause and effect relationships
- Good decision maker
- Communication skills - oral and written

**Potential Occupations**

Training in biology prepares you for a very large number of occupations. Some involve daily interaction with dozens of people, others can be done in complete isolation; some are narrowly specific, others require knowledge far beyond science. Without advanced degrees, the demand for this major has never been high in any given employment area, but because of the diversity of career options, most students find employment. Career options related to biology include water quality assessments, field and lab technician work, agriculture, teaching (high school), or sales (i.e., pharmaceutical,
agricultural). It can also be the beginning of your education towards dental, medical, or veterinary school, and a number of health professions such as podiatry or optometry. Graduates are encouraged to pursue advanced degrees to attain higher salaried positions and opportunities for rising to top professional levels. Participation in internships and laboratory or research experience is highly recommended and encouraged by the department to enhance your practical training and development.

Combining biology with nonscience skills can involve some exciting careers as well. Incorporate biology and English to become a technical writer or science fiction novelist. Combine biology and art and go into medical and scientific illustration. Link biology and history to become a historian of science or medicine. Work in both biology and philosophy/religion to be a medical ethicist or bioethicist. Combine biology and psychology as a neuroscientist. Join biology and political science to carry out science policy studies or be a patent lawyer in biotechnology. Try mixing biology and business to get into hospital administration and biotechnology administration. Some of these may involve obtaining double majors, but if one sounds like you, consider and explore the possibility.

The following are some of the career opportunities for biology majors:
- Aquarium and museum worker
- Assistant research scientist
- Biological researcher
- Biology photographer
- Bio-technologist
- Brewery laboratory assistant
- Consumer product researcher
- Marine bacteriologist, biologist, or ecologist
- Nuclear medicine technician
- Park naturalist
- Pharmaceutical researcher or salesperson
- Public health officer
- Science librarian
- Environmental educator, health specialist, or impact specialist
- Ecologist
- Fisheries biologist or conservationist
- Industrial hygienist
- Insurance claims representative
- High school teacher
- Medical or clinical laboratory technologist
- Peace Corps

To be qualified for graduation, students in the biological science major must have a minimum grade of C- in each of their biological, physical science, and mathematical courses used to meet requirements for the major. This applies to courses taken as substitutions for meeting these requirements. The minimum scholastic average acceptable for graduation is 2.00 computed only for courses attempted at Colorado State.

M CC 120, M CC 121, M CC 124, and M CC 125 are considered review courses; credits in these courses may not be used toward a degree in the majors in biological science, botany, or zoology.

### Major in Biological Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>FRESHMAN</td>
<td>Select eight credits from the following:</td>
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<tr>
<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
<td>3</td>
<td>3A</td>
</tr>
<tr>
<td>BZCC 111</td>
<td>Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>BY 103</td>
<td>Biology of Organisms-Animals and Plants (BY/LSCC 102)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BZCC 192</td>
<td>First-Year Seminar in Life Sciences</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>C CC 111</td>
<td>General Chemistry 1 (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory 1 (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
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<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<td>-------</td>
<td>-------------------------------------------------------------------------------------</td>
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<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<td>C 114</td>
<td>General Chemistry Laboratory II (C/C CC 112 and C 113 or concurrent reg.)</td>
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<td>College Composition (Composition Placement Exam)</td>
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<td>M CC 155</td>
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<td>2C</td>
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<td></td>
<td>Additional communication</td>
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</tr>
<tr>
<td></td>
<td>Arts/humanities</td>
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<td>3B</td>
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</table>

**SOPHOMORE**

BY 310 | Cell Biology (one semester of organic chemistry or concurrent reg.; two semesters of introductory biology) | 4       |

BY 311 | Developmental Biology (BY 310)                                                      | 4       |

BZ 220 | Introduction to Evolution (BY 103 or BZ/BZCC 110 and BZ/BZCC 111 or BZ/BZCC 120) | 3       |

Select one of the following sets of courses:

- C 245 | Fundamentals of Organic Chemistry (C/C CC 107 or C 113) AND C 246 | 4       |
  - OR C 341 | Organic Chemistry I (C 113) AND C 343 | 3       |
  - OR C 344 | Organic Chemistry Laboratory (C 114; C 343 or concurrent reg.) | 2       |

Select one of the following courses:

- STCC 301 | Introduction to Statistical Methods (M/M CC 121) | 3       |
- STCC 307 | Introduction to Biostatistics (M/M CC 121) | 3       |
- OR EHCC 307 | Introduction to Biostatistics (M/M CC 121) | 3       |

Arts/humanities | 3 | 3B |
Health and wellness | 2 | 3G |
Historical perspectives | 3 | 3D |
Social/behavioral sciences | 3 | 3C |

TOTAL 30-33

**JUNIOR**

BZ 350 | Molecular and General Genetics (BY/LSCC 102; one course in statistics) | 4       |

Select one of the following pairs of courses:

- PHCC 121 | General Physics I (concurrent reg. in M/M CC 125) | 5       |
- PHCC 122 | General Physics II (PH/PHCC 121) | 5       |
- OR PHCC 141 | Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160) | 5       |
- PHCC 142 | Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255) | 5       |

Arts/humanities | 3 | 3B |
U.S. public values and institutions | (3) | 3F |
Selected field | 6 | |
Additional fields | 3 | |
Major in Botany

Are you a plant lover? Would you like to ponder the mysteries of photosynthesis, plant growth, and genetic transfer? Do water plants, algae, or fungi hold a special fascination for you? Would you like to know more about plant ecology and evolution? Are you curious about the relationships of grasses in plant ecosystems? If your answer to any of these questions is “yes,” then botany may be the major for you.

Botany is the general study of plants from microscopic algae to giant redwoods, from mushrooming fungi to flowering angiosperms. Plant anatomy, how plants function and grow, and how they survive and interrelate within their environments are topics of study. If you like the outdoors, a career in ecology, taxonomy or forestry might appeal to you. If you are attracted to the beauty and design of the microscopic world, you might enjoy a career in plant anatomy, morphology or cytology. Those interested in chemistry might enjoy plant biochemistry or molecular biology. Those intrigued by plant diseases may become plant pathologists. The mathematically oriented might explore systems ecology, genetics, biotechnology or biophysics.

The botany curriculum begins with a solid foundation in mathematics, the biological sciences and chemistry. Biochemistry, botany emphasizing terrestrial plant studies, and earth sciences round out the core. Botany majors also take liberal arts and communications courses to give breadth to their education.

Characteristics and Skills

- A strong general interest in plants
- A strong interest in science
- Able to gather and analyze data
- Skilled at designing projects, perceiving patterns and relationships
- Interest in experiments, lab work
- Able to operate scientific equipment, organize and classify data
- A desire to test ideas/hypothesis, draw conclusions from data, and solve problems
- Strong writing and oral communication skills
- Able to work independently or in teams

**Potential Occupations**

Botanists work in a wide array of private and public capacities in agriculture, biotechnology, education, natural resources management, government, health, human services, and research. Participation in internship opportunities is highly recommended to enhance your practical training and development. Graduates who pursue advanced studies can attain higher salaried positions with the possibility of rising to top professional levels. The following career opportunities are examples only, and by no means exhaust the available opportunities.

*Environment/Ecology*
- Park naturalist
- Environmental impact specialist
- Greenhouse technician
- U.S. Forest Service employee
- Landscape manager
- Botanist
- Horticulturist
- Ecologist
- Plant specialist

*Communication*
- National Forestry or Conservation Association staff writer

*Health Fields*
- Biological photographer or columnist
- Lab technician
- Biological researcher
- State or county health department worker
- Education production manager

*Human Services*
- Peace Corps volunteer
- Environmental educator

*Agriculture*
- Agronomist
- Plant biochemist/molecular biologist
- Tissue culture specialist
- Plant physiologist/pathologist
- Biotechnology specialist
- International development specialist
- Pesticide specialist

*Government*
- Plant quarantine officer
- County extension agent
- Highway roadside maintenance worker
- Administrator
- State department of natural resources employee
- Museum worker
- Public health officer
- Science librarian

*Business/Industry*
- Florist
- Greenhouse owner
- Sales representative
- Environmental consultant
- Plant buyer
- Agricultural or pharmaceutical salesperson
To be qualified for graduation, students in the botany major must have a minimum grade of C- in each of their biological, physical science, and mathematical courses used to meet requirements for the major. This applies to courses taken as substitutions for meeting these requirements. The minimum scholastic average acceptable for graduation is 2.00 computed only for courses attempted at Colorado State.

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<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<td></td>
<td>Additional communication¹</td>
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<td>Arts /humanities²</td>
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<tr>
<td>BZ 220</td>
<td>Introduction to Evolution (BY 103 or BZCC 110 and BZCC 111 or BZCC 120)</td>
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<td>C 245</td>
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<td>C 246</td>
<td>Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent reg.)</td>
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<tr>
<td>C 341</td>
<td>Organic Chemistry I (C 113)</td>
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<td>C 343</td>
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<td>C 344</td>
<td>Organic Chemistry Laboratory (C 114; C 343 or concurrent reg.)</td>
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<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
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<td>STCC 307</td>
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<td>2D</td>
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<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
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<td>AT 350</td>
<td>Introduction to Weather and Climate</td>
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<td>ERCC 130</td>
<td>Earth System Science</td>
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<td>GR 210</td>
<td>Physical Geography</td>
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<tr>
<td>SC 240</td>
<td>Introductory Soil Science (C/C CC 107 or C/C CC 111)</td>
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</table>

**Select two of the following courses:**

- Arts/humanities
- Health and wellness
- Historical perspectives
- Social/behavioral sciences

**Select from the list of courses in category 2B in the All-University Core Curriculum (AUCC).**

**Select from the list of courses in category 3B in the AUCC.**

**Select from the list of courses in category 3G in the AUCC.**

**JUNIOR**

- **BZ 350** Molecular and General Genetics (BY/LSCC 102; one course in statistics) 4 4A, 4B
- **BZ 450** Plant Ecology (BZ 223 or BZ 325) 4 4C

**Select one of the following pairs of courses:**

- **PHCC 121** General Physics I (concurrent reg. in M/M CC 125) 5 3A
- **PHCC 122** General Physics II (PH/PHCC 121) 5 3A

**OR**

- **PHCC 141** Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160) 5 3A
- **PHCC 142** Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M 255) 5 3A

**Select at least two courses from the following:**

- Introductory Phycology (BY/LSCC 102 or BY 103 or BZ/BZCC 120 or written consent of instructor)
- Introductory Mycology (BY 103 or BZ/BZCC 120)
- Comparative Morphology of Vascular Plants (BY 103 or BZ/BZCC 120)
- Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.)
- Plant Physiology Laboratory (BZ 440 or concurrent reg.)

**TOTAL** 27-32

**SENIOR**

- **BC 351** Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343) 4 4A, 4B

**OR**

- **BC 401** Comprehensive Biochemistry I (C 245 or C 343 or concurrent reg. in C 343; M/M CC 155 or M/M CC 160) 3 3A

**AND**

- **BC 403** Comprehensive Biochemistry II (BC 401) 3 3A

**BZ 325** Plant Systematics (BY 103 or BZ/BZCC 120) 4 3A

**BZ 331** Plant Anatomy (BY 103 or BZ/BZCC 120) 4 3A

**Select at least two courses from the following:**

- Introductory Phycology (BY/LSCC 102 or BY 103 or BZ/BZCC 120)
- Introductory Mycology (BY 103 or BZ/BZCC 120 or written consent of instructor)
- Comparative Morphology of Vascular Plants (BY 103 or BZ/BZCC 120)
- Plant Physiology (BY 103 or BZ/BZCC 120; C 245 or concurrent reg.)
- Plant Physiology Laboratory (BZ 440 or concurrent reg.)

**Electives**

**TOTAL** 28-33

**PROGRAM TOTAL = 120 credits**

1 Select from the list of courses in category 2B in the All-University Core Curriculum (AUCC).
2 Select from the list of courses in category 3B in the AUCC.
3 Select from the list of courses in category 3G in the AUCC.
Major in Zoology

Have you dreamed of working with animals in a zoo? Are you curious about the habits of animals or how they adapt to their environment? Would you like to do research with animals or train animals? What about working in a lab assisting with the detection, diagnosis and treatment of diseases? Is becoming a veterinarian something you have dreamed of? If you answered “yes” to any of these questions, you may want to consider majoring in zoology.

Zoologists study animals—their origin, behavior, diseases, and life processes. Some experiment with live animals in controlled or natural surroundings while others study animal tissue and structure in a laboratory setting. Some zoologists go on to study veterinary medicine. Zoologists collect facts useful to people in farming, medicine, pharmacy, wildlife conservation, and pest control. Zoology encompasses many specialties. At Colorado State, you may focus on general training in animal biology or concentrate in the following areas: animal behavior, aquatic biology (the study of plants and animals living in water), ecology (how animals adapt to their environments), genetics and evolution, invertebrate organisms, cellular/molecular biology and physiology, systematics and morphology, or vertebrate organisms.

The curriculum is designed to provide a basic understanding of zoology through a variety of laboratory experiences in combination with the study of facts and theories. The program encourages flexibility, strength, and depth. The coursework includes a two-semester introductory biology sequence and one course in both invertebrates and vertebrates. Required courses in the physical sciences include a minimum of one year introductory chemistry, and at least one course in organic chemistry, two courses in physics, and one in biochemistry, including labs in each. In addition, students select a minimum of 16 credits of zoology courses in their chosen areas of concentration. A calculus and statistics course is also required.

Characteristics and Skills

- Love for animals
- Attention to detail
- Critical thinking
- Strong organization skills
- Analytical skills
- Problem solving skills
- Interpreting technical/scientific data
- Perceiving/defining cause and effect relationships
- Good decision maker
- Communication skills—oral and written

Potential Occupations

This major prepares students to work in various areas of animal biology, such as research or private industry, or to begin graduate school or professional studies. Career opportunities include medical caretakers such as veterinarians, protective agencies such as shelters and refuges, trainers and handlers, animal-related businesses, aquatic/marine biologists, exotic animal specialists, wildlife conservation, and protective agencies. It is an appropriate major for students planning to attend medical or veterinary school. Graduates who pursue advanced studies can attain higher salaried positions with the possibility of rising to top professional levels. Participation in internships, laboratory or research opportunities is highly recommended and encouraged by the Department to enhance your practical training and development.

Opportunities for zoology majors include but are not limited to:

- Aquarium & museum curator/director
- Zoo keeper
- Animal trainer and instructor
- Science librarian
- Environmental technician
- Fish & wildlife technician
- Veterinary technician/assistant
- Marine bacteriologist, biologist, or ecologist
- Humane Society—various positions
- Cytotechnologist
- Ecologist
- Fisheries biologist or conservationist
- Laboratory technician
- Marketing researcher
- Medical technologist
- Park ranger
- Pharmaceutical sales representative
- Production supervisor
- Quality analysis technician in food or pharmaceutical industry
- Radiation protection technician
To be qualified for graduation, students in the zoology major must have a minimum grade of C- in each of their biological, physical science, and mathematical courses used to meet requirements for the major. This applies to courses taken as substitutions for meeting these requirements. The minimum scholastic average acceptable for graduation is 2.00 computed only for courses attempted at Colorado State.

M CC 120, M CC 121, M CC 124, and M CC 125 are considered review courses; credits in these courses may not be used toward a degree in the majors in biological science, botany, or zoology.

### Major in Zoology

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<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td>BZCC 110</td>
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<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
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<tr>
<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
<td>4</td>
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<tr>
<td>BY 103</td>
<td>Biology of Organisms-Animals and Plants (BY/LSCC 102)</td>
<td>4</td>
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<td>BZCC 192</td>
<td>First-Year Seminar in Life Sciences</td>
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<td>1</td>
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<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
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<td>3A</td>
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<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
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<tr>
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<td>Additional communication&lt;sup&gt;1&lt;/sup&gt;</td>
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<tr>
<td></td>
<td>Social/behavioral sciences&lt;sup&gt;2&lt;/sup&gt;</td>
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<td>3C</td>
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<td><strong>TOTAL</strong></td>
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<td>BZ 212</td>
<td>Animal Biology-Invertebrates (BY 103 or BZ/BZCC 111)</td>
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<td>BZ 214</td>
<td>Animal Biology-Vertebrates (BY 103 or BZ/BZCC 111)</td>
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<td>BZ 220</td>
<td>Introduction to Evolution (BY 103 or BZ/BZCC 110 and BZ/BZCC 111 or BZ/BZCC 120)</td>
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<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<td>C 343</td>
<td>Organic Chemistry II (C 341)</td>
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<td>2D</td>
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<td>Introduction to Biostatistics (M/M CC 121)</td>
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<td>EHCC 307</td>
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<td>Molecular and General Genetics (BY/LSCC 102; one course in statistics)</td>
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<td>OR</td>
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<td>AND</td>
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<td>Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M 255)</td>
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<td>3C</td>
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<td>U.S. public values and institutions</td>
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<td>Upper-division zoology courses</td>
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<td></td>
<td>Electives</td>
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| BZ 351 | Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343)              | 4       |               |
| BC 401 | Comprehensive Biochemistry I (C 245 or C 343 or concurrent reg. in C 343; M/M CC 155 or M/M CC 160) | 3       |               |
| BC 403 | Comprehensive Biochemistry II (BC 401)                                               | 3       |               |
| BY 320 | Ecology (one course in biology, M/M CC 155)                                         | 3       | 4C            |
|        | Arts/humanities                                                                     | 3       | 3B            |
|        | Upper-division zoology courses                                                      | 10      |               |
|        | Electives                                                                          | 4-9     |               |
|        | TOTAL                                                                               | 26-19   |               |

PROGRAM TOTAL = 120-125 credits
DEPARTMENT OF CHEMISTRY

Office in Chemistry Building, Room B 101
Professor C. Michael Elliott, Chair

Major in Chemistry

Are you naturally curious about what makes up the everyday things you see? Did you ever wonder about the composition of the substances that produce colors in clothes, paints, paper, rocks, and glass? Have you ever wondered what chemicals might reside in your food or drinking water and how they might affect you? Would you like to research and develop new products and manufacturing processes that are environmentally friendly? Does monitoring the composition of air, water, and soil to maintain or improve environmental quality interest you? Are you fascinated by the vast possibilities that lie in biotechnology and pharmaceutical research, food product development, medicine, and toxic substance management? If your answer to any of these questions is “yes,” then a major in chemistry may be right for you.

Chemists study the atomic structure of physical matter and analyze how it changes. More specifically, they analyze how basic atomic and molecular components are combined and can be manipulated to produce useful or improved products. Chemistry majors develop a solid foundation in general chemistry and mathematics followed by coursework in organic chemistry, quantitative analysis, physical chemistry, inorganic chemistry, and physics. The curriculum is rounded out by courses in the liberal and communications arts. Students who wish to work as professional chemists should select the ACS Certified concentration to obtain professional certification by the American Chemical Society. This objective entails three additional chemistry courses in inorganic chemistry and instrumental analysis. Additionally, students are encouraged to participate in undergraduate research. Those students whose career goals involve the health professions or secondary teaching generally take advanced coursework in biology or education. Students have access to state-of-the-art laboratories and equipment including NMR, FTIR, UV/Vis, fluorescence, Raman and mass spectrometers, vacuum lines, x-ray diffraction, column chromatography. Additionally, there are ample opportunities for undergraduate students to become involved in graduate level research in the laboratories of individual faculty members. Undergraduate research is strongly encouraged for any student planning a career in chemistry

Characteristics And Skills

- Strong interest in chemistry
- Strong aptitude for and interest in mathematics and the physical sciences
- Inquisitive and curious nature
- Innovative
- Analytical thinker
- Flexible, patient, and persevering
- Strong problem-solving ability
- Able to work independently or in a group
- Able to see the "big picture" while paying attention to detail
- Interest in experimentation and data analysis
- Good oral and written communications skills

Potential Occupations

Chemists are employed in a wide array of professional fields in private industry, government and education. Chemists work in research, development, analysis and testing, consulting, industrial quality control, environmental resource management, and forensics. Principal employers are petrochemical firms, biotechnology firms, consumer chemical firms, environmental testing laboratories, agricultural companies, governmental regulatory agencies, governmental and educational research laboratories, and manufacturing firms. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Recent Colorado State B.S. chemists with research experience have been exceptionally successful getting jobs in the chemical industry with starting salaries between $37k and $45k per year. Graduates who continue on for advanced studies can attain more responsible positions with the possibility
of rising to top professional levels. Chemistry is also an excellent major for those preparing for careers in veterinary medicine and the health professions. Career occupations include but are not limited to:

- Clinical chemist
- Pharmaceutical chemist
- Water quality chemist
- Toxicologist
- Forensic analyst
- Air quality analyst
- Laboratory Technician/Bench chemist
- Chemical sales and marketing representative
- Patent examiner
- Technical writer
- Agricultural chemist
- Researcher
- Consultant
- Educator

M CC 120A-B, M CC 121, M CC 124, M CC 125, and M CC 126 are considered review courses for chemistry majors. Credits for these courses may not be used toward the 120-128 credits required to graduate as a chemistry major. Chemistry majors must achieve a minimum grade of C in all the listed courses required for the major in chemistry.

Major in Chemistry (Core)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
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<tr>
<td>FRESHMAN</td>
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<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
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<tr>
<td>C CC 192</td>
<td>Introductory Seminar in Chemistry</td>
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<tr>
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<td>Health and wellness(^3)</td>
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<td>3G</td>
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<td>C 261</td>
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<td>Organic Chemistry II (C 341)</td>
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<td>C 344</td>
<td>Organic Chemistry Laboratory (C 114; C 343 or concurrent reg.)</td>
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<td>M 261</td>
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<tr>
<td>PHCC 141</td>
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<tr>
<td>PHCC 142</td>
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<td>3A</td>
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<td>25</td>
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<tr>
<td>Course</td>
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<td>Credits</td>
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<tr>
<td>--------</td>
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</tr>
<tr>
<td>JUNIOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 331</td>
<td>Quantitative Analysis (C 113)</td>
<td>3</td>
<td>4A</td>
</tr>
<tr>
<td>C 332</td>
<td>Quantitative Analysis Laboratory (C 114; C 331 or concurrent reg.)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>C 474</td>
<td>Physical Chemistry I (C 113, M 261, PH/PHCC 142)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>C 476</td>
<td>Physical Chemistry II (C 474)</td>
<td>3</td>
<td>4B</td>
</tr>
<tr>
<td></td>
<td>Global and cultural awareness¹</td>
<td>3</td>
<td>3E</td>
</tr>
<tr>
<td></td>
<td>Historical perspectives³</td>
<td>3</td>
<td>3D</td>
</tr>
<tr>
<td></td>
<td>Social/behavioral sciences⁵</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td></td>
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<td>20</td>
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<tr>
<td>SENIOR</td>
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<tr>
<td>C 493</td>
<td>Seminar (C 476)</td>
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<td>4C</td>
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<tr>
<td></td>
<td>TOTAL = 78 credits²</td>
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</tbody>
</table>

¹ Select from the list of courses in category 2B in the All-University Core Curriculum (AUCC).
² Select from the list of courses in category 3A in the AUCC with BZCC or LSCC prefixes.
³ Select from the list of courses in category 3G in the AUCC.
⁴ Select from the list of courses in category 3E in the AUCC.
⁵ Select from the list of courses in category 3D in the AUCC.
⁶ Select from the list of courses in category 3C in the AUCC.
⁷ To complete the B.S. in chemistry, students must also complete one of the following concentrations–ACS certified or non-ACS certified.

**ACS CERTIFIED CONCENTRATION**

**Major in Chemistry**

**ACS Certified Concentration**

In addition to the chemistry core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOPHOMORE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STCC 309</td>
<td>Statistics for Engineers and Scientists (M/M CC 161 or M/M CC 255)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td></td>
<td>Arts/humanities⁶</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
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<td>6</td>
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<tr>
<td>JUNIOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 440</td>
<td>Advanced Organic Chemistry Laboratory (C 343, C 344)</td>
<td>2</td>
<td>4B</td>
</tr>
<tr>
<td>C 478</td>
<td>Physical Chemistry Laboratory (C 471 or C 474; C 332 or C 334 or CB 333)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>U.S. public values and institutions²</td>
<td>3</td>
<td>3F</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>12</td>
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<tr>
<td>SENIOR</td>
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<td></td>
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</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------</td>
<td>---------</td>
<td>---------------</td>
</tr>
<tr>
<td>BC 301</td>
<td>Survey of Biochemistry (C 245)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BC 351</td>
<td>Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343)</td>
<td>4</td>
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</tr>
<tr>
<td>BC 401</td>
<td>Comprehensive Biochemistry I (C 245 or C 343 or concurrent reg. in C 343; M/M CC 155 or M/M CC 160)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>C 431</td>
<td>Instrumental Analysis (C 332 or C 334; C 471 or C 476 or concurrent reg.)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>C 461</td>
<td>Inorganic Chemistry (C 261; C 476 or concurrent reg.)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>C 462</td>
<td>Inorganic Chemistry Laboratory (C 461 or concurrent reg.)</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Advanced science electives\(^3\)

Electives

TOTAL 13

PROGRAM TOTAL = 32 credits

1 Select from the list of courses in category 3B in the AUCC.
2 Select from the list of courses in category 3F in the AUCC.
3 Additional advanced science courses (300+) to make a total of 10 credits when combined with the choice of BC 301, BC 351, or BC 401.

**NON-ACS CERTIFIED CONCENTRATION**

Major in Chemistry
Non-ACS Certified Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOPHOMORE</strong></td>
<td>Logical/critical thinking(^4)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td></td>
<td>Mathematics-based requirement(^2)</td>
<td>3</td>
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</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>JUNIOR</strong></td>
<td>Instrumental Analysis (C 332 or C 334; C 471 or C 476 or concurrent reg.)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>C 431</td>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 478</td>
<td>Physical Chemistry Laboratory (C 471 or C 474; and C 332 or C 344 or CB 333)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>C 440</td>
<td>Advanced Organic Chemistry Laboratory (C 343, C 344)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>C 462</td>
<td>Inorganic Chemistry Laboratory (C 461 or concurrent reg.)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts/humanities(^3)</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>7-9</td>
<td></td>
</tr>
<tr>
<td><strong>SENIOR</strong></td>
<td>Advanced science electives(^4)</td>
<td>6-8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>U.S. public values and institutions(^3)</td>
<td>3</td>
<td>3F</td>
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<tr>
<td></td>
<td>Electives</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>27-29</td>
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</table>

PROGRAM TOTAL = 120 credits

1 Select from the list of courses in category 2D in the AUCC.
2 Additional mathematics, 300-level M, CS, or ST course.
3 Select from the list of courses in category 3B in the AUCC.
4 Additional advanced science courses (300+) to make a total of 10 credits when combined with the choice of C 431 or C 478.
Major in Computer Science

Do you really enjoy operating computers? Would you like to program computers not just use them? Could you spend hours developing code and have the patience to find every bug? Would the study of computer operating systems, networks, or commercial software interest you? Would you like to become a software engineer, database designer, or graphics software developer? If the answer to any of these questions is “yes” then a major in Computer Science at Colorado State University might be the one for you.

Computer science is the study of the structure, function, and application of computers and is central to the rapidly expanding use of information technology. Computer scientists seek to advance the fundamental understanding of how information is processed, as well as the practical design of software and hardware to accomplish specific functions. Computer science courses include, but are not limited to, the study of operating system design, networks, programming languages, software engineering, graphics, databases, and artificial intelligence.

Computer science majors are required to complete basic courses in calculus, core courses in programming, computer organization, data structures, discrete structures, programming languages, software engineering, theory, and systems software. A general understanding of statistics is also required. Majors select senior-level courses from offerings such as graphics, artificial intelligence, operating systems, compilers, architecture, networks, parallel programming, and database systems.

Department of Computer Science laboratories occupy an entire floor of the University Services Center building, and are open to students many hours of the day, night, and weekends. General-use machines include minicomputers and some courses have dedicated laboratories. All major systems are networked and accessible by direct network connection from student residences.

Characteristics and Skills

- Able to analyze and solve complex problems
- Effective writing and oral communication skills
- Knowledge of how to organize data
- Logical
- Patience and perseverance
- Talent for mathematics and physics
- Creativity
- Able to grasp the big picture but pay attention to details

Potential Occupations

Most computer science students are able to choose from among several job offers at graduation. The proven performance of Colorado State graduates has resulted in annual recruiting visits by a wide variety of commercial firms, government agencies and research laboratories. Graduates have found employment with computer manufacturers, software companies, and with research and development teams in manufacturing companies. Internships enhance skills and marketability. Some career opportunities include:

- Systems programmer
- Hardware and software designer
- Researcher in computer and other manufacturing companies
- Systems administrator
- Electronic data processing (EDP) manager
- Security systems designer
- Database programmer
- Consultant
- Documentation and manual writer
- Technical product support personnel
- Technical sales and marketing specialist
- Educator
Major in Computer Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
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<tr>
<td>CSCC 153</td>
<td>Java Programming (M/M CC 118 or M/M CC 121)</td>
<td>4</td>
<td>2D</td>
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<tr>
<td>CS 166</td>
<td>Discrete Structures (CS/CSCC 151 or CS/CSCC 153 or CS 154, M/M CC 124)</td>
<td>4</td>
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<tr>
<td>M 166</td>
<td>Discrete Structures (CS/CSCC 151 or CS/CSCC 153 or CS 154, M/M CC 124)</td>
<td>4</td>
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</tr>
<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent registration in M/M CC 124)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124 and M/M CC 160)</td>
<td>4</td>
<td>2C</td>
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<tr>
<td>M CC 192</td>
<td>First-Year Seminar in Mathematical Sciences</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>STCC 192</td>
<td>First-Year Seminar in Mathematical Sciences</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>NSCC 192</td>
<td>Introductory Seminar</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Biological/physical sciences</td>
<td>7</td>
<td>3A</td>
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<tr>
<td></td>
<td>Electives</td>
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<td></td>
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<td><strong>TOTAL</strong></td>
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<td>31</td>
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**SOPHOMORE**

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<tbody>
<tr>
<td>CS 200</td>
<td>Algorithms and Data Structures (CS/CSCC 153 or CS 154, CS 166/M 166)</td>
<td>4</td>
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<tr>
<td>CS 253</td>
<td>Computer Programming Languages (CS 166/M 166, CS 200)</td>
<td>4</td>
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<tr>
<td>CS 270</td>
<td>Computer Organization (CS 166/M 166, concurrent reg in CS 200, M/M CC 124)</td>
<td>4</td>
<td></td>
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<tr>
<td>M 229</td>
<td>Matrices and Linear Equations (M/M CC 141 or M/M CC 155 or M/M CC 160)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td>STCC 309</td>
<td>Statistics for Engineers and Scientists (M/M CC 161 or M/M CC 255)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
<td></td>
<td>Additional communication</td>
<td>3</td>
<td>2B</td>
</tr>
<tr>
<td></td>
<td>Arts/humanities</td>
<td>3</td>
<td>3B</td>
</tr>
<tr>
<td></td>
<td>Health and wellness</td>
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<td>3G</td>
</tr>
<tr>
<td></td>
<td>Social/behavioral sciences</td>
<td>3</td>
<td>3C</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>3</td>
<td></td>
</tr>
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**JUNIOR**

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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>CS 301</td>
<td>Foundations of Computer Science (CS 166/M 166, CS 200, M/M CC 161, M 229)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CS 314</td>
<td>Software Development Methods (CS 253)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CS 370</td>
<td>System Architecture and Software (CS 200, CS 270, ST/STCC 301 or ST/STCC 309)</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
Course | Title (Prerequisite) | Credits | AUCC Category
--- | --- | --- | ---
Additional science | 5 |
Global and cultural awareness | 3 | 3E |
Historical perspectives | 3 | 3D |
U.S. public values and institutions | 3 | 3F |
Upper division electives | 5 |

TOTAL | 31 |

SENIOR

Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 410</td>
<td>Introduction to Computer Graphics (CS 314, M 229)</td>
<td>4</td>
<td>4A</td>
</tr>
<tr>
<td>CS 440</td>
<td>Introduction to Artificial Intelligence (CS 253, CS 301)</td>
<td>4</td>
<td>4A</td>
</tr>
<tr>
<td>CS 451</td>
<td>Operating Systems (CS 370)</td>
<td>4</td>
<td>4A</td>
</tr>
<tr>
<td>CS 475</td>
<td>Parallel Programming (CS 370)</td>
<td>4</td>
<td>4A</td>
</tr>
</tbody>
</table>

Building foundations | 9 | 4B |
Capstone experience | 12 | 4C |
Electives | 3 |

TOTAL | 28 |

PROGRAM TOTAL = 120 credits

1 Preparatory math (M CC 120, M CC 121, M CC 124, M CC 125, M CC 126) are considered review courses, and do not count toward a degree in computer science.

2 Choose two courses from two different departments (with lab, if lab is a separate course) from the following list: BZCC 110 and BZCC 111, BZCC 120, C CC 107 and C CC 108, C CC 111 and C CC 112, ERCC 140, PHCC 141, PHCC 142.

3 Any course, except IMP math.

4 Select from the list of courses in category 2B of the All-University Core Curriculum (AUCC).

5 Select from the list of courses in category 3B of the AUCC.

6 Select from the list of courses in category 3C of the AUCC.

7 Select from the list of courses in category 3E of the AUCC.

8 Choose a minimum of 5 credits from the approved department list for satisfying category 3A of the AUCC or from the following courses: AA 301, AT 350, AT 351, AT 440, C 113, C 114, CE 260, ER 154, LSCC 102, PHCC 142, PY 352, PY 353, SC 330, SC 331.

9 Select from the list of courses in category 3E of the AUCC.

10 Select from the list of courses in category 3D of the AUCC.

11 Select from the list of courses in category 3F of the AUCC.

12 Choose five credits of courses numbered 300 or above.

13 Select three courses from the CS Department Group II list.

14 Select three courses in addition to the course selected for the category 4A requirement from CS 410, CS 414, CS 420, CS 430, CS 440, CS 451, CS 453, CS 457, CS 470, and CS 475.

**DEPARTMENT OF MATHEMATICS**

**Office in Engineering Building, Room 121**

**Professor Rick Miranda, Chair**

**Major in Mathematics**

Do you enjoy the challenges of solving mathematical puzzles and analyzing complex formulas? Do people typically ask you to help solve mathematical problems because you are good with numbers? Are you good at organizing and analyzing information? Does the idea of calculating odds and probabilities fascinate you? Would you like to apply mathematics and mathematical modeling to the solution of engineering, planning, or risk management problems? Do you want to teach mathematics to junior high, high school, or college students? If you answer “yes” to any of these questions, then you may want to consider a major in Mathematics?

Mathematics is the science of numbers, shapes, probabilities, and measurements. It is a universal language in which information is stated in its simplest possible form. Mathematics has a dual nature—it is an independent field of study valued for its precision of thought and elegance, and it is an important source of techniques and methods increasingly applied to a variety of problems in a wide array of disciplines. For example, to test the operational characteristics of a new engineering
design and predict its performance (e.g. for an airplane or automobile), mathematical modeling and simulation is used to provide answers, faster and less expensively, than with tests performed on scale models.

The undergraduate program provides a liberal arts and practical education toward the ends of education and employment. The liberal arts component requires students to acquire a broad background in communication skills, humanities, social sciences, and natural sciences. The major core focuses on developing students' understanding and appreciation of the mathematical sciences, their problem solving skills, and ability to combine knowledge and skills in productive ways. Core subjects include three semesters of calculus, matrices and linear equations, advanced calculus of one variable, abstract algebra, linear algebra, computer programming, and statistics.

Five concentrations are available in the program. General Mathematics is a liberal arts program designed to provide a solid foundation in mathematics with the flexibility to explore and develop expertise in other academic areas. Because of this flexibility, this concentration is well suited for students who want to combine mathematics with other areas, such as business, law, computer science, or statistics. Students in this concentration are well prepared for graduate study in mathematics. Mathematics Education is designed to prepare students for a secondary teaching certificate in mathematics and for the study and development of educational theory and techniques. Students take a strong mathematics core, including the proofs-oriented course in advanced calculus required in the other concentrations. The Applied Mathematics concentration prepares students for careers as applied mathematicians working in business, government, and industry; therefore, it is recommended that students supplement their core program in the chosen area that their skills will be used, such as engineering, public health, finance, electronics, geology, etc. Course requirements emphasize mathematical foundations, applicable mathematics, and application of mathematics to other areas. Students receive training in numerical analysis, mathematical modeling and computing, as well as a solid preparation for further study. The Computational Mathematics concentration prepares students both for graduate work in mathematics and careers in industry. It is similar to the applied mathematics concentration, however course work in this concentration emphasizes the use of numerical methods in applied mathematics. The Actuarial Science concentration trains students how to use mathematics, statistics, business, and economics to analyze and plan for future situations involving financial uncertainties and risks. This concentration is designed to qualify students to take the first two examinations administered by the Society of Actuaries and lay the foundation for the remaining examinations.

Characteristics And Skills
- A strong interest and aptitude for mathematics
- Ability to think logically and quantitatively
- Methodical and accurate in nature
- Strong problem solving ability
- Strong reasoning and abstract thinking ability
- Ability to concentrate for extended periods of time
- Inquisitive and curious nature
- Innovative
- Analytical thinker
- Flexible, patient, and persevering
- Good communications skills
- Ability to work independently or in a team
- Abstract thinking and reasoning ability
- Fast in working with numbers

Potential Occupations
The mathematics major prepares students for a wide variety of occupations in business, industry, government, and education. Although there is no longer a national shortage of mathematics teachers, our math education graduates have been successful in finding positions. Actuarial science graduates who have passed the first two professional actuary exams can expect to find positions in large metropolitan areas with good entry-level salaries. Applied math graduates continue to find employment opportunities in government and private industry. Many pursue advanced degrees in mathematics, computational science or engineering. About one-third of general math graduates continue on to graduate school in mathematics or other disciplines, with the rest finding employment in a large variety of capacities. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:
- Applied mathematician
- Actuary
- Educator
- Engineer
- Statistician
- Financial analyst/adviser
- Computer programmer
- Computer systems analyst
- Mortgage officer
- Market analyst
- Tax auditor
- Risk analyst
- Accountant
- Math educator
A minimum grade of C is required in all mathematics, statistics, and computer science courses which are required for graduation. M CC 117, M CC 118, M CC 120A-B, M CC 121, M CC 124, M CC 125, and M CC 126 are considered review courses by the Department of Mathematics. Credits in these courses may not be used toward a degree in mathematics.

Transfer students must complete a minimum of nine upper-division credits in mathematics at Colorado State, excluding M 315, M 340, and mathematics courses ending in -80 to -99.

**ACTUARIAL SCIENCE CONCENTRATION**

Major in Mathematics

Actuarial Science Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124 or M/M CC 160)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>M 229</td>
<td>Matrices and Linear Equations (M/M CC 141 or M/M CC 155 or M/M CC 160)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional communication(^1)</td>
<td>3</td>
<td>2B</td>
</tr>
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<td>Arts/humanities(^2)</td>
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<tr>
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<td>First-year seminar(^3)</td>
<td>2</td>
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<tr>
<td></td>
<td>Global and cultural awareness(^4)</td>
<td>3</td>
<td>3E</td>
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<tr>
<td></td>
<td>Health and wellness(^5)</td>
<td>2</td>
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<tr>
<td></td>
<td>Historical perspectives(^6)</td>
<td>3</td>
<td>3D</td>
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<tr>
<td><strong>TOTAL</strong></td>
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| **SOPHOMORE** | | | |
| BA 205 | Fundamentals of Accounting | 3 | |
| OR | | | |
| BA 210 | Accounting Information Systems I | 3 | |
| CSCC 151 | C++ for Scientists and Engineers (M/M CC 124, M/M CC 126) | 4 | 2D |
| OR | | | |
| CSCC 153 | Java Programming (M/M CC 118 or M/M CC 121) | 4 | 2D |
| ECC 202 | Principles of Microeconomics (M/M CC 118 or M/M CC 120A-B) | 3 | 3C |
| ECC 204 | Principles of Macroeconomics (EC/ECCC 202 or EA/EACC 202) | 3 | 3F |
| M 261 | Calculus for Physical Scientists III (M/M CC 161) | 4 | |
| M 345 | Differential Equations (M 229; M/M CC 161 or M/M CC 255) | 4 | |
| STCC 309 | Statistics for Engineers and Scientists (M/M CC 161 or M/M CC 255) | 3 | 2D |
| | Biological/physical sciences\(^7\) | 5 | 3A |
| **TOTAL** | | | 29 |

<p>| <strong>JUNIOR</strong> | | | |
| BF 300 | Principles of Finance (BA 210, EC/ECCC 204) | 3 | |
| BF 311 | Investments-Fixed Income Securities (BF 300 or BF 305) | 3 | |</p>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>EC 335</td>
<td>Introduction to Econometrics (EC/ECCC 204, ST/STCC 301)</td>
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<td>EA 335</td>
<td>Introduction to Econometrics (EC/ECCC 204, ST/STCC 301)</td>
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<td>M 350</td>
<td>Introduction to Numerical Analysis I (M 340 or M 345, knowledge of a programming language)</td>
<td>4</td>
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<tr>
<td>M 351</td>
<td>Introduction to Numerical Analysis II (M 350)</td>
<td>4</td>
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</tr>
<tr>
<td>M 369</td>
<td>Linear Algebra (M/M CC 161, M 229)</td>
<td>3</td>
<td>4A</td>
</tr>
<tr>
<td>ST 321</td>
<td>Elementary Probabilistic-Stochastic Modeling (M/M CC 121 or two years high school algebra; knowledge of a computer language)</td>
<td>3</td>
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<tr>
<td>ST 420</td>
<td>Probability and Mathematical Statistics I (M/M CC 255 or M 261)</td>
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<tr>
<td>ST 430</td>
<td>Probability and Mathematical Statistics II (ST 420)</td>
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<tr>
<td>U.S. public values and institutions(^8)</td>
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**SENIOR**

| BF 342 | Risk Management and Insurance (BF 300 or BF 305) | 3 | |
| BGCC 205 | Fundamentals of Business Law | 3 | 3F |
| BGCC 260 | Legal Environment of Business | 3 | 3F |
| M 317 | Advanced Calculus of One Variable (M/M CC 161) | 4 | 4B |
| M 417 | Advanced Multivariable Calculus (M 261, M 317, M 369) | 3 | 4C |
| M 495A | Independent Study-Analysis\(^9\) | 1 | |
| Biological/physical sciences\(^7\) | 5 | 3A |
| Electives | 11 | |
| TOTAL | 30 | |

**PROGRAM TOTAL = 120 credits**

1. Select from the list of courses in category 2B in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 3B in the AUCC.
3. Select from the list of courses in category 1 in the AUCC. M CC 192 and STCC 192 are recommended.
4. Select from the list of courses in category 3E in the AUCC.
5. Select from the list of courses in category 3G in the AUCC.
6. Select from the list of courses in category 3D in the AUCC.
7. Select from the list of courses in category 3A in the AUCC. One course must have a laboratory component.
8. Select from the list of courses in category 3F in the AUCC.
9. Preparation for Exam I

**APPLIED MATHEMATICS CONCENTRATION**

Major in Mathematics

**Applied Mathematics Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
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<td>FRESHMAN</td>
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<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 264; concurrent reg. in M/M CC 124)</td>
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<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 126 or M/M CC 160)</td>
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<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
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<tr>
<td>M 229</td>
<td>Matrices and Linear Equations (M/M CC 141 or M/M CC 155 or M/M CC 160)</td>
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<td>Additional communication(^1)</td>
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<td>Arts/humanities(^2)</td>
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<td>3B</td>
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<tr>
<td></td>
<td>First-year seminar(^3)</td>
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<td></td>
<td>Health and wellness(^4)</td>
<td>2</td>
<td>3G</td>
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<tr>
<td></td>
<td>Historical perspectives(^5)</td>
<td>3</td>
<td>3D</td>
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<tr>
<td></td>
<td>Social/behavioral sciences(^6)</td>
<td>3</td>
<td>3C</td>
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<tr>
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<td><strong>TOTAL</strong></td>
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**SOPHOMORE**

<table>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>CSCC 151</td>
<td>C++ for Scientists and Engineers (M/M CC 124, M/M CC 126)</td>
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<td>CS 166</td>
<td>Select one of the following courses: Discrete Structures (CS/CSCC 151 or CS/CSCC 153 or CS 154; M/M CC 124)</td>
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<td>OR</td>
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<tr>
<td>M 166</td>
<td>Discrete Structures (CS/CSCC 151 or CS/CSCC 153 or CS 154; M/M CC 124)</td>
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<td>M 301</td>
<td>Introduction to Combinatorial Theory (M/M CC 160)</td>
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<td>M 261</td>
<td>Calculus for Physical Scientists III (M/M CC 161)</td>
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<td>M 345</td>
<td>Differential Equations (M 229; M/M CC 161 or M/M CC 255)</td>
<td>4</td>
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<td>PHCC 141</td>
<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
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<tr>
<td>PHCC 142</td>
<td>Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255)</td>
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<tr>
<td>ST 302</td>
<td>Design of Experiments (ST/STCC 301 or ST/STCC 307 or EH/EHCC 307 or ST/STCC 309 or ST 311)</td>
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<tr>
<td>ST 304</td>
<td>Multiple Regression Analysis (M 229, ST/STCC 301 or ST/STCC 307 or EH/EHCC 307 or ST/STCC 309 or ST 311)</td>
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<td>ST 321</td>
<td>Elementary Probabilistic-Stochastic Modeling (M/M CC 121 or two years high school algebra; knowledge of a computer language)</td>
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<tr>
<td>STCC 309</td>
<td>Statistics for Engineers and Scientists (M/M CC 161 or M/M CC 255)</td>
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**JUNIOR**

<table>
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<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>CS 154</td>
<td>C++ to Java Programming Module (College-level C++ course)</td>
<td>2</td>
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<tr>
<td>M 350</td>
<td>Introduction to Numerical Analysis I (M 340 or M 345, knowledge of programming language)</td>
<td>4</td>
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<tr>
<td>M 351</td>
<td>Introduction to Numerical Analysis II (M 350)</td>
<td>4</td>
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<tr>
<td>M 369</td>
<td>Linear Algebra (M/M CC 161 or M 229)</td>
<td>3</td>
<td>4A</td>
</tr>
<tr>
<td></td>
<td>Biological/physical sciences(^7)</td>
<td>3</td>
<td>3A</td>
</tr>
<tr>
<td></td>
<td>Global and cultural awareness(^8)</td>
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<td>Mathematics sciences(^9)</td>
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<td>Related area(^10)</td>
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<td>U.S. public values and institutions(^11)</td>
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<td>3F</td>
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**SENIOR**

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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>M 317</td>
<td>Advanced Calculus of One Variable (M/M CC 161)</td>
<td>4</td>
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### COMPUTATIONAL MATHEMATICS CONCENTRATION

**Major in Mathematics**  
**Computational Mathematics Concentration**

<table>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td><strong>FRESHMAN</strong></td>
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<td>COCC</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>2A</td>
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<tr>
<td>COCC</td>
<td>Writing Arguments (CO/COC 150)</td>
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<td>COCC</td>
<td>Writing in the Disciplines (CO/COC 150)</td>
<td>3</td>
<td>2B2</td>
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<tr>
<td>COCC</td>
<td>Writing Online (CO/COC 150)</td>
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<td>JTCC</td>
<td>Professional and Technical Communication (CO/COC 150)</td>
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<td>SPC</td>
<td>Public Speaking</td>
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<td>2B1</td>
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<tr>
<td>M CC</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
<td>4</td>
<td>2C</td>
</tr>
<tr>
<td>M CC</td>
<td>Calculus for Physical Scientists II (M/M CC 124 and M/M CC 150)</td>
<td>4</td>
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</tr>
<tr>
<td>M</td>
<td>Matrices and Linear Equations (M/M CC 141 or M/M CC 155 or M/M CC 160)</td>
<td>2</td>
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</table>

Select one of the following courses:

- **Arts/humanities**
- **First-year seminar**
- **Health and wellness**
- **Historical perspectives**
- **Social/behavioral sciences**

Other requirements:

- **Electives**: 6-7

**PROGRAM TOTAL = 120 credits**

---

1. Select from the list of courses in category 2B in the All-University Core Curriculum (AUCC).
2. Select from the list of courses in category 3B in the AUCC.
3. Select from the list of courses in category 1 in the AUCC.
4. Select from the list of courses in category 3G in the AUCC.
5. Select from the list of courses in category 3D in the AUCC.
6. Select from the list of courses in category 3C in the AUCC.
7. Select from the list of courses (in a department other than Physics) in category 3A in the AUCC.
8. Select from the list of courses in category 3E in the AUCC.
10. A coherent set of courses outside the Mathematics Department in which mathematics is applied, approved by the concentration coordinator.
11. Select from the list of courses in category 3F in the AUCC.
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tr>
<td>CSCC</td>
<td>Java Programming (M/M CC 118 or M/M CC 121)</td>
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<tr>
<td>CS</td>
<td>Select one of the following courses: Discrete Structures (CS/CSCC 151 or CS/CSCC 153 or CS 154; M/M CC 124)</td>
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<tr>
<td>M</td>
<td>Discrete Structures (CS/CSCC 151 or CS/CSCC 153 or CS 154; M/M CC 124)</td>
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<tr>
<td>OR</td>
<td>Discrete Structures (CS/CSCC 151 or CS/CSCC 153 or CS 154; M/M CC 124)</td>
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<td></td>
</tr>
<tr>
<td>M</td>
<td>Introduction to Combinational Theory (M/M CC 160)</td>
<td>3</td>
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</tr>
<tr>
<td>M</td>
<td>Calculus for Physical Scientists III (M/M CC 161)</td>
<td>4</td>
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</tr>
<tr>
<td>M</td>
<td>Methods of Applied Mathematics I (M 340 or M 345)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Differential Equations (M 229; M/M CC 161 or M/M CC 255)</td>
<td>4</td>
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</tr>
<tr>
<td>PHCC</td>
<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
<td>5</td>
<td>3A</td>
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<tr>
<td>PHCC</td>
<td>Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255)</td>
<td>5</td>
<td>3A</td>
</tr>
<tr>
<td>STCC</td>
<td>Statistics for Engineers and Scientists (M/M CC 161 or M/M CC 255)</td>
<td>3</td>
<td>2D</td>
</tr>
<tr>
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<td><strong>TOTAL</strong></td>
<td><strong>31-32</strong></td>
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<tr>
<td><strong>JUNIOR</strong></td>
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<tr>
<td>CS</td>
<td>Algorithms and Data Structures (CS/CSCC 153 or CS 154; CS 166/M 166)</td>
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<tr>
<td>M</td>
<td>Methods of Applied Mathematics II (M 340 or M 345)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Introduction to Numerical Analysis I (M 340 or M 345; knowledge of programming language)</td>
<td>4</td>
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<tr>
<td>M</td>
<td>Introduction to Numerical Analysis II (M 350)</td>
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<tr>
<td>M</td>
<td>Linear Algebra (M/M CC 161, M 229)</td>
<td>3</td>
<td>4A</td>
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<tr>
<td>ST</td>
<td>Elementary Probabilistic-Stochastic Modeling (M/M CC 121 or two years of high school algebra; knowledge of a computer language)</td>
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<td>Global and cultural awareness</td>
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<td>3E</td>
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<td>ST</td>
<td>U.S. public values and institutions</td>
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<td>3F</td>
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<tr>
<td>M</td>
<td>Advanced Calculus of One Variable (M/M CC 161)</td>
<td>4</td>
<td>4B</td>
</tr>
<tr>
<td>M</td>
<td>Projects in Applied Mathematics (M 340 or M 345, knowledge of programming language)</td>
<td>3</td>
<td>4C</td>
</tr>
<tr>
<td>M</td>
<td>Introduction to Numerical Analysis II (M 350)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Linear Algebra (M/M CC 161, M 229)</td>
<td>3</td>
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<tr>
<td>ST</td>
<td>Biological/physical sciences</td>
<td>3-5</td>
<td>3A</td>
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<td>Global and cultural awareness</td>
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<td><strong>PROGRAM TOTAL = 120 credits</strong></td>
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1 Select from the list of courses in category 3B in the All-University Core Curriculum (AUCC).
2 Select from the list of courses in category 1 in the AUCC.
3 Select from the list of courses in category 3G in the AUCC.
4 Select from the list of courses in category 3D in the AUCC.
5 Select from the list of courses in category 3C in the AUCC.
GENERAL MATHEMATICS CONCENTRATION

Major in Mathematics
General Mathematics Concentration

<table>
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<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td>COCC 150</td>
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<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
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<td>2C</td>
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<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124, M/M CC 160)</td>
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<td>M 229</td>
<td>Matrices and Linear Equations (M/M CC 141 or M/M CC 155 or M/M CC 160)</td>
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<td></td>
<td>Additional communication</td>
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<td>Arts/humanities</td>
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<td>First-year seminar(s)</td>
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<td>Health and wellness</td>
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<td>3G</td>
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<td></td>
<td>Historical perspectives</td>
<td>3</td>
<td>3D</td>
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<td>4</td>
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<td>Linear Algebra (M/M CC 161, M 229)</td>
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<td>M 366</td>
<td>Introduction to Abstract Algebra (M/M CC 161)</td>
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<td>M 317</td>
<td>Advanced Calculus of One Variable (M/M CC 161)</td>
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<td>M 417</td>
<td>Advanced Multivariable Calculus (M 261, M 317 and M 369)</td>
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<td>M 419</td>
<td>Introduction to Complex Variables (M 261)</td>
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<td>Information Integrity and Security (M 369; M 301 or M 366)</td>
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<td>M 466</td>
<td>Groups, Rings, and Fields (M 366, M 369)</td>
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<td>M 417</td>
<td>Advanced Multivariable Calculus (M 261, M 317 and M 369)</td>
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<td>M 466</td>
<td>Groups, Rings, and Fields (M 366, M 369)</td>
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</table>

PROGRAM TOTAL = 120 credits

1 Select from the list of courses in category 2B in the All-University Core Curriculum (AUCC).
2 Select from the list of courses in category 3B in the AUCC.
3 Select from the list of courses in category 1 in the AUCC, M CC 193 and STCC 193 are recommended.
4 Select from the list of courses in category 3G in the AUCC.
5 Select from the list of courses in category 3D in the AUCC.
6 Select from the list of courses in category 3C in the AUCC.
7 From AUCC category 3A, select two courses with labs or one course with a lab and two other courses. Select additional courses from AUCC category 3A to total at least ten credits. Must include at least two different prefixes.
8 Select from the list of courses in category 3E in the AUCC.
9 Select from the list of courses in category 3F in the AUCC.
10 Select a total of 15 credits from the following, with 6 or more from (a). (a) Upper-division mathematics courses except M 315 and those ending in -80 to -99. (b) Upper-division M, CS, or ST courses, except those ending in -80 to -99.
11 Course selected here must be different from the course chosen for category 4C (Capstone).

MATHEMATICS EDUCATION CONCENTRATION

Major in Mathematics
Mathematics Education Concentration*

<table>
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<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
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<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
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<td>2C</td>
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<tr>
<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124, M/M CC 160)</td>
<td>4</td>
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<tr>
<td>M 229</td>
<td>Matrices and Linear Equations (M/M CC 141 or M/M CC 155 or M/M CC 160)</td>
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<td>Additional communication</td>
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<td>First-year seminar</td>
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<td>Health and wellness</td>
<td>2-3</td>
<td>3G</td>
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<td>Historical perspectives</td>
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<td>CSCC</td>
<td>Java Programming (M/M CC 118 or M/M CC 121)</td>
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<td>EDCC</td>
<td>Schooling in the United States (consent of Teacher Licensure Office)</td>
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<td>ED</td>
<td>Educational Technology (BD 111 or BD 150 or CS 110 or computer proficiency exam; completion of 30 credits of course work; consent of Teacher Licensure Office)</td>
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<td>EDCC</td>
<td>Diversity and Communication (EDCC 275; admission to Teacher Licensure Program)</td>
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<td>M</td>
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<td>M</td>
<td>Linear Algebra (M/M CC 161, M 229)</td>
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<td>SPCC</td>
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<td>Select nine to ten credits from the following:</td>
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<td>C CC</td>
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<td></td>
<td>AND General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
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<tr>
<td>C</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<td>3A</td>
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<td></td>
<td>AND General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
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<td>PHCC</td>
<td>General Physics I (concurrent reg. in M/M CC 125)</td>
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<td>3A</td>
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<td>PHCC</td>
<td>General Physics II (PH/PHCC 121)</td>
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<td>3A</td>
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<tr>
<td>PHCC</td>
<td>Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160)</td>
<td>5</td>
<td>3A</td>
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<td>PHCC</td>
<td>Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M/M CC 161 or M/M CC 255)</td>
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**JUNIOR**

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<td>ED</td>
<td>Instruction I-Individualization/Management (EDCC 275, ED 340; concurrent reg. in ED 386; admission to Teacher Licensure Program)</td>
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<td>ED</td>
<td>Practicum (ED 320 or concurrent reg., admission to Teacher Licensure Program)</td>
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<tr>
<td>ED</td>
<td>Instruction II-Standards and Assessment (ED 350, ED 386; concurrent reg. in ED 486J)</td>
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<td>ED</td>
<td>Methods and Materials in Teaching Mathematics (ED 320, 18 credits in mathematics, admission to Teacher Licensure Program)</td>
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<td>ED</td>
<td>Practicum-Methods and Assessment (admission to Teacher Licensure Program)</td>
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<td>M</td>
<td>Advanced Calculus of One Variable (M/M CC 161)</td>
<td>4</td>
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<td>M</td>
<td>Introduction to Abstract Algebra (M/M CC 161)</td>
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<tr>
<td>STCC</td>
<td>Statistics For Engineers and Scientists (M/M CC 161 or M/M CC 255)</td>
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### Course Title (Prerequisite) Credits AUCC Category

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<td>ED 485B</td>
<td>Student Teaching-Secondary (ED 450, ED 464)</td>
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<td>ED 493A</td>
<td>Seminar-Professional Relations (concurrent reg. in ED 485A or B or VE 485)</td>
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<td>ED 493B</td>
<td>Seminar-Assessment of Learning (concurrent reg. in ED 485A or B or VE 485)</td>
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<td>M 425</td>
<td>History of Mathematics (M/M CC 161)</td>
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<td>Euclidean and Non-Euclidean Geometry (M/M CC 161)</td>
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**PROGRAM TOTAL = 120-121 credits**

¹Select from the list of courses in category 2B in the All-University Core Curriculum (AUCC).

²Select from the list of courses in category 3B in the AUCC.

³Select from the list of courses in category 1 in the AUCC.

⁴Select from the list of courses in category 3G in the AUCC.

⁵Select from the list of courses in category 3D in the AUCC.

⁶Select from the list of courses in category 3C in the AUCC.

⁷Select from ST 420, ST 430, or upper-division mathematics courses except M 315 and those ending in -80 to -99.

⁸With sequence chosen above, must total at least 13 credits from AUCC category 3A and include courses with at least two different prefixes.

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**DEPARTMENT OF PHYSICS**

*Office in Engineering Building, Room 124
Professor James R. Sites, Chair*

**Major in Physics**

Are you interested in the description and explanation of natural phenomena? Are you good in mathematics and hope to put it to a practical use? Would you like to help unlock secrets to life and existence? Do the what, when, how and why of heat, light, sound, gravity, windstorms, volcanoes and energy intrigue you? Would you like to design devices to aid communications, medicine, aerospace, resource conservation or environmental preservation? Do radioactive elements and particle physics fascinate you as matter is transformed to energy and energy to matter? If your response to any of these questions is “yes,” you should consider a major in physics.

Physics is the study of the structure and interaction of matter and energy. Physics has practical application to a wide variety of tasks such as predicting floods and earthquakes, developing energy sources, conserving water and soil, controlling smog, positioning communications satellites and developing body-scanning devices. Physicists date fossils by using techniques to measure the radioactive decay of atoms. Physicists detect the existence of subatomic particles, measure the distances among stars and galaxies, and speculate on the origin and destiny of the universe.
The physics major begins with an emphasis on fundamentals in the basic sciences and mathematics to provide students with a broad foundation. Subsequent course work is designed to develop analytical and experimental abilities that allow students to solve problems involving the technical applications of physics. A strong liberal arts program rounds out the major and provides educational breadth. Two concentrations are possible. **Applied Physics** combines fundamental course work in physics with a selection of courses in a related disciplinary field. Four options are available. The electronics, semiconductors, and optics option is designed for students interested in the rapidly changing technology or in areas that overlap the boundaries of traditional engineering disciplines. The computers option focuses on the application of modern computer technology to problems in physics. The chemical physics option combines thorough knowledge of both chemistry and physics, which is useful in such interdisciplinary areas as materials science, surface science, and studies of molecular systems. The medical physics option prepares students for further study in health physics; a field in increasing demand as the theoretical advances are applied to medical research and practice.

**Characteristics And Skills**
- Strong aptitude for science and mathematics
- Strong interest in physics
- Curious/innovative
- Logical and critical thinking ability
- Patience and perseverance
- Enjoys reading
- Keen power of observation
- Mechanical and electronic abilities
- Good writing and oral communications skills
- Ability to work independently or in a team
- Enjoys experimentation and gathering data

**Potential Occupations**

Physicists find employment in industry in electronics, computers, medical technology, engineering-related fields, quality control and sales. Others teach high school physics. Physics graduates’ excellent math skills are useful in business and finance as well. Those pursuing graduate degrees can work in college teaching and in research for industry, government, and education. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who go on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:
- Health physicist
- Hydrologist
- Industrial hygienist
- Nuclear medical technologist
- Pollution control technician
- Environmental health technician
- Air pollution analyst
- Laserist
- High school physics/computer science teacher
- Photogrammetrist
- Medical and scientific illustrator
- Crime laboratory analyst
- Patent examiner
- Calibration laboratory technician
- Quality control technician
- Spectroscopist
- Photo optics technician
- Data processing systems analyst
- Radiographer
- Motors and controls tester
- Architectural and engineering supplies sales representative
- Electronics/communications equipment representative
- Precision instruments sales representative
- Technical writer
M CC 120A-B, M CC 121, M CC 124, M CC 125, and M CC 126 are considered review courses by the Department of Physics. Credits in these courses, either by examination or completion, may not be used toward a degree in physics.

Majors must achieve a minimum grade of C in all specific courses listed in the Core Program for freshman and sophomore years, in COCC 301A-D or JTCC 300, in all Colorado State physics, mathematics, and biological science courses, and in all technical elective courses which are used to meet requirements for the degree.

### Major in Physics (Core)

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<th>Title (Prerequisite)</th>
<th>Credits</th>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<tr>
<td>CSCC 151</td>
<td>C++ for Scientists and Engineers (M/M CC 124, M/M CC 126)</td>
<td>4</td>
<td>2D</td>
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<tr>
<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
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<td>2C</td>
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<td>M CC 161</td>
<td>Calculus for Physical Scientists II (M/M CC 124 and M/M CC 160)</td>
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<td>The Flying Circus of Physics</td>
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<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
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<td>Calculus for Physical Scientists III (M/M CC 161)</td>
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<td>M 340</td>
<td>Introduction to Ordinary Differential Equations (M/M CC 255 or M 261)</td>
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<td>PH 245</td>
<td>Introduction to Electronics (PH/PHCC 142, M/M CC 161)</td>
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<td>PH 314</td>
<td>Introduction to Modern Physics (PH/PHCC 142, concurrent reg. in M 261)</td>
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<td>PH 315</td>
<td>Modern Physics Laboratory (PH 314)</td>
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<td>Logical/critical thinking</td>
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<td>Social/behavioral sciences</td>
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<td>Writing in the Disciplines (CO/COC 150)</td>
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<td>JTCC 300</td>
<td>Professional and Technical Communication (CO/COC 150)</td>
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<td>Mechanics (PH/PHCC 141, M 340)</td>
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<td>PH 351</td>
<td>Electricity and Magnetism (M 340, PH/PHCC 142)</td>
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<td>4A, 4B</td>
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<td>PH 353</td>
<td>Optics and Waves (M 261, PH/PHCC 142)</td>
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<td>4A, 4B</td>
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<td>PH 361</td>
<td>Physical Thermodynamics (PH/PHCC 142, M 261)</td>
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<td>Arts/humanities</td>
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<td>Global and cultural awareness</td>
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<tr>
<td><strong>TOTAL</strong></td>
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<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
</tr>
<tr>
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<td>---------</td>
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</tr>
<tr>
<td>Historical perspectives</td>
<td>3</td>
<td>3D</td>
<td></td>
</tr>
<tr>
<td>U.S. public values and institutions</td>
<td>(3)</td>
<td>3F</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
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<td>TOTAL</td>
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**SENIOR**

<table>
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<th>Title (Prerequisite)</th>
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<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
<td>PH 325</td>
<td>Advanced Physics Laboratory (PH 315, concurrent reg. in JT/JTCC 300)</td>
<td>2</td>
<td>4C</td>
</tr>
<tr>
<td>PH 451</td>
<td>Introductory Quantum Mechanics I (PH 314, M 340)</td>
<td>3</td>
<td>4A, 4B</td>
</tr>
<tr>
<td>PH 492</td>
<td>Seminar</td>
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<tr>
<td>Electives</td>
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<tr>
<td>TOTAL</td>
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</table>

**PROGRAM TOTAL = 102 credits**

**NOTE:** Majors must achieve a minimum grade of C- in each specific course listed in the Core Program with prefixes PH, M, C, CO, CS, or JT. Majors must also achieve a minimum grade of C- in the biological science course used to satisfy UCC category 3A.

1 M/M CC 120A-B, M/M CC 121, M/M CC 124, M/M CC 125, and M/M CC 126 are considered review courses by the Department of Physics. Credits in these courses, either by examination or completion, may not be used toward a degree in Physics.

2 Select from BC, BY, BZ, or SC.

3 Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).

4 Select from the list of courses in category 2D in the AUCC.

5 Select from the list of courses in category 3C in the AUCC.

6 Select from the list of courses in category 3B in the AUCC.

7 Select from the list of courses in category 3E in the AUCC.

8 Select from the list of courses in category 3D in the AUCC.

9 Select from the list of courses in category 3F. Some of these courses will also satisfy the requirement for another category.

10 In order to complete the major in physics, a student must select one of the following concentrations—applied physics or physics. A minimum of 120 (42 upper division) credits is required to graduate.

**APPLIED PHYSICS CONCENTRATION**

**Major in Physics**

**Applied Physics Concentration**

In addition to the physics core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>SENIOR</td>
<td>Technical electives</td>
<td>18</td>
<td></td>
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</tbody>
</table>

**PROGRAM TOTAL = 120 credits**

1 For this concentration, 18 credits of technical electives must be selected from the departmental list. Majors must achieve a minimum grade of C- in each course used to satisfy the technical elective requirement.
PHYSICS CONCENTRATION

Major in Physics
Physics Concentration

In addition to the physics core courses, the following must be completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>SENIOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PH 452</td>
<td>Introductory Quantum Mechanics II (PH 451)</td>
<td>3</td>
<td>4A, 4B</td>
</tr>
<tr>
<td>PH 462</td>
<td>Statistical Physics (M 340, PH 314, PH 361)</td>
<td>3</td>
<td>4A, 4B</td>
</tr>
<tr>
<td></td>
<td>Technical electives</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>18</td>
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</tr>
</tbody>
</table>

PROGRAM TOTAL = 120 credits

1 Majors must achieve a minimum grade of C- in PH 452, PH 462, and the technical electives selected from the departmental list.

DEPARTMENT OF
PSYCHOLOGY

Office in Clark Building, Room B 219
Professor Ernest L. Chavez, Chair

Major in Psychology

Are you interested in the workings of the human mind? Do you wish to understand human behavior? Do the processes of development, perception, learning, motivation and thinking intrigue you? Would you like to better understand how psychology relates to the physiological and social functioning of animals and humans? Do you wish to work as a counselor helping people to deal with difficult issues in their lives or to achieve personal goals? Are you interested in a major that qualifies you for a wide range of occupations?

Psychology is one of the most popular and versatile majors providing a pre-professional education in the liberal arts tradition. The major emphasizes a strong background in the natural sciences, including mathematics, biology, chemistry and human anatomy, and the arts, humanities and social sciences including anthropology or sociology, philosophy, technical writing and history. Undergraduate psychology courses acquaint students with the basic theories, principles, and laws of human and animal behavior with a substantial emphasis on psychological measurement and testing. Psychology graduates are expected to demonstrate knowledge of psychological principles and concepts across several basic content areas. Graduates are also expected to possess an ability to engage in analytical and critical thinking, and to demonstrate knowledge and appreciation of the scientific methods used in psychological research.

A large complement of electives enables students to take a second major or minor in a field of interest and orient toward one or a combination of four goals.

1. Students can use a psychology degree as a background for careers outside psychology, with electives providing instruction in particular fields of interest.

2. A psychology degree can lead to careers in business, industry, government, education and professions such as law and medicine.

3. Students can graduate with a combination of courses and experiences to qualify for semiprofessional jobs in psychological settings or closely related fields.

4. Students can graduate with qualifications for entry into graduate study in psychology. Graduate programs offer general training followed by specialization. Advanced degrees are a prerequisite for professional careers in psychology.

Characteristics and Skills

- A strong interest in the study of human behavior and development
- Preference for a strong liberal arts and sciences background
- Enjoy working with people
- Desire to develop analytical and critical thinking skills
- Enjoy obtaining and analyzing data
- Ability to apply theory to concrete issues
- Interest in psychological measurement and testing
- Prefer concrete rather than abstract problems
- Good written and oral communications skills
- Work well in structured situations
- Able to work independently or in a team

Potential Occupations

A bachelor's degree in psychology prepares students for an exceptional variety of career options. Because of the major's strong liberal arts and sciences orientation students develop a number of important skills required in a broad range of occupations. Many opportunities exist for graduates with a bachelor degree in psychology, including working in mental health and other human service fields; or as a background for careers in law enforcement or positions in industry, public service, business, government and other professions.

Skills such as written and oral communication, cooperation, analytical and critical thinking, plus a strong background in the liberal arts and sciences demonstrate versatility and an ability to pursue a variety of career paths. Participating in paid or voluntary work, internships and cooperative education opportunities is highly recommended, as it will enhance a student's chances for employment. Employment options include but are not limited to:
- Human services worker
- Case worker
- Mental health services worker
- Probation officer
- Community relations officer
- Educator
- Program developer/administrator
- Human resources administrator
- Labor relations representative
- Compensation and benefits administrator
- Public relations specialist/Special events administrator
- Advertising producer/writer
- Account services representative
- Media representative
- Market researcher
- Government program administrator
- Business manager
- Buying Agent
- Sales representative
- Real Estate Broker
- Lawyer
- Physician

All psychology majors must obtain a minimum grade of C in each of the following required courses for the major: PYCC 100, PY 250A or B, PY 370, PY 371, PY 401, and STCC 301 or ST 311.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
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<td></td>
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</tr>
<tr>
<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
<td>3</td>
<td>2A</td>
</tr>
<tr>
<td>CS 110</td>
<td>Personal Computing</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>LS CC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td></td>
<td>Select one of the following pairs of courses:</td>
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<tr>
<td>M CC 117</td>
<td>College Algebra in Context I (Math Placement Exam)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 118</td>
<td>College Algebra in Context II (M/M CC 117)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 120A-B</td>
<td>College Algebra I (Math Placement Exam)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 121</td>
<td>College Algebra II (M/M CC 120A-B or placement)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>M CC 124</td>
<td>Logarithmic and Exponential Function (M/M CC 118 or M/M CC 121 or placement)</td>
<td>1</td>
<td>2C</td>
</tr>
<tr>
<td>PLCC 100</td>
<td>Appreciation of Philosophy</td>
<td>3</td>
<td>3B</td>
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<tr>
<td>PYCC 100</td>
<td>General Psychology</td>
<td>3</td>
<td>3C</td>
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<tr>
<td>PYCC 192</td>
<td>Introductory Seminar (concurrent reg. in PY/PYCC 100)</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<tr>
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<tr>
<td>SCC 100</td>
<td>General Sociology</td>
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**TOTAL** 30

**SOPHOMORE**

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<tbody>
<tr>
<td>PYCC 228</td>
<td>Psychology of Human Sexuality</td>
<td>3</td>
<td>3G</td>
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<tr>
<td><strong>OR</strong></td>
<td>Health and wellness¹</td>
<td>3</td>
<td>3G</td>
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<tr>
<td>PY 250A-B</td>
<td>Experimental Psychology (PY/PYCC 100)</td>
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<td>SPCC 200</td>
<td>Public Speaking</td>
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<td></td>
<td>Arts/humanities²</td>
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<td></td>
<td>Global and cultural awareness³</td>
<td>3</td>
<td>3E</td>
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<td></td>
<td>Historical perspectives⁴</td>
<td>3</td>
<td>3D</td>
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<td>Social/behavioral sciences⁵</td>
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**TOTAL** 31

**JUNIOR**

<table>
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<th>Course</th>
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<th>AUCC Category</th>
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<td>AY 300</td>
<td>Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
<td>4</td>
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<tr>
<td><strong>OR</strong></td>
<td>Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
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<td>COCC 300</td>
<td>Writing Arguments (CO/COCC 150)</td>
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<tr>
<td>PY 315</td>
<td>Social Psychology (PY/PYCC 100)</td>
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<td>PY 320</td>
<td>Abnormal Psychology (PY/PYCC 100)</td>
<td>3</td>
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<td>PY 325</td>
<td>Psychology of Personality (PY/PYCC 100)</td>
<td>3</td>
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<td><strong>Select one of the following:</strong></td>
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<tr>
<td>PY 316</td>
<td>Environmental Psychology (PY/PYCC 100)</td>
<td>3</td>
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<tr>
<td>PY 327</td>
<td>Psychological Perspectives on Female Experience (PY/PYCC 100)</td>
<td>3</td>
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<tr>
<td>PY 340</td>
<td>Organizational Psychology (PY/PYCC 100, ST/STCC 201, concurrent reg. in PY 341)</td>
<td>3</td>
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<tr>
<td>PY 440</td>
<td>Industrial Psychology (PY/PYCC 100, ST/STCC 201, concurrent reg. in PY 441)</td>
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<td><strong>Select one of the following:</strong></td>
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<tr>
<td>PY 317</td>
<td>Social and Environmental Laboratory (PY 250A or B; PY 315 or concurrent reg. or PY 316 or concurrent reg.)</td>
<td>2</td>
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<tr>
<td>PY 341</td>
<td>Organizational Psychology Laboratory (concurrent reg. in PY 340)</td>
<td>1</td>
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<td>PY 441</td>
<td>Industrial Psychology Laboratory (concurrent reg. in PY 440)</td>
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<td><strong>Select one of the following pairs of courses:</strong></td>
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<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
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<td>ST 302</td>
<td>Design of Experiments (ST/STCC 301 or ST/STCC 307 or EH/EHCC 307 or ST/STCC 309 or ST 311)</td>
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<tr>
<td><strong>OR</strong></td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
<td>3</td>
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</tr>
<tr>
<td>STCC 301</td>
<td>Data Analysis and Data Base Management (ST/STCC 301 or ST/STCC 307 or EH/EHCC 307 or ST/STCC 309 or ST 311)</td>
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<tr>
<td><strong>OR</strong></td>
<td>Data Analysis and Data Base Management (ST/STCC 301 or ST/STCC 307 or EH/EHCC 307 or ST/STCC 309 or ST 311)</td>
<td>3</td>
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<tr>
<td>ST 311</td>
<td>Statistics for Behavioral Sciences I (M/M CC 121)</td>
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<td><strong>OR</strong></td>
<td>Statistics for Behavioral Sciences I (M/M CC 121)</td>
<td>3</td>
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<tr>
<td>ST 311</td>
<td>Statistics for Behavioral Sciences II (ST 311 or written consent of instructor)</td>
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<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
<td>AUCC Category</td>
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<tr>
<td>PY 352</td>
<td>Psychology of Learning (PY/PYCC 100 or written consent of instructor)</td>
<td>3</td>
<td>3C</td>
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<tr>
<td>OR</td>
<td></td>
<td></td>
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<tr>
<td>PY 452</td>
<td>Cognitive Psychology (PY/PYCC 100 or written consent of instructor)</td>
<td>3</td>
<td></td>
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<tr>
<td>PY 370</td>
<td>Psychological Measurement and Testing (PY/PYCC 100, ST/STCC 301, concurrent reg. in PY 371)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PY 371</td>
<td>Psychological Measurement and Testing Laboratory (Corequisite: PY 370)</td>
<td>1</td>
<td>4A</td>
</tr>
<tr>
<td>PY 401</td>
<td>History and Systems of Psychology (PY/PYCC 100, PL/PLCC 120)</td>
<td>3</td>
<td>4A, 4C</td>
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<tr>
<td>PY 453</td>
<td>Cognitive Psychology Laboratory (PY 250A or B; PY 452 or concurrent reg.)</td>
<td>2</td>
<td>4A</td>
</tr>
<tr>
<td>PY 455A-B</td>
<td>Physiological Psychology Laboratory (PY 250A or B; PY 454A or concurrent reg. or PY 454B or concurrent reg.)</td>
<td>2</td>
<td>4A</td>
</tr>
<tr>
<td>PY 457</td>
<td>Sensation and Perception Laboratory (PY 250A or B; PY 456 or concurrent reg.)</td>
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<tr>
<td>Select one of the following:</td>
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</tr>
<tr>
<td>PY 454A</td>
<td>Physiological Psychology (PY/PYCC 100 or written consent of instructor)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PY 454B</td>
<td>Physiological Psychology (PY 250A or B)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PY 456</td>
<td>Sensation and Perception (PY 454A or B)</td>
<td>3</td>
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<tr>
<td>Arts/humanities</td>
<td>3</td>
<td>3B</td>
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</tr>
<tr>
<td>Electives</td>
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<tr>
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</tbody>
</table>

PROGRAM TOTAL = 120-121 credits

1 Select from the list of courses in category 3G in the All-University Core Curriculum (AUCC).
2 Select from the list of courses in category 3B in the AUCC.
3 Select from the list of courses in category 3E in the AUCC.
4 Select from the list of courses in category 3D in the AUCC.
5 Select from the list of courses in category 3C in the AUCC.

DEPARTMENT OF STATISTICS

Office in Statistics Building, Room 101
Professor Richard A. Davis, Chair

Instructional programs in the Department of Statistics serve a number of undergraduate majors and graduate programs across the University. The department offers an undergraduate minor (see the 1999-2000 General Catalog, pg. 269, for program details) but no undergraduate major is offered.
College of Veterinary Medicine and Biomedical Sciences

Office in Anatomy-Zoology Building, Room W 102
Professor James L. Voss, Dean
Professor Carol D. Blair, Associate Dean
Professor Robert L. Jones, Associate Dean
Assistant Professor Sherry McConnell, Associate Dean

UNDERGRADUATE MAJORS

Environmental Health
Microbiology

COLLEGE PROGRAMS

Biomedical Sciences Open Option
Doctor of Veterinary Medicine
Preprofessional Program in Veterinary Medicine

A concern for health and the diseases of animals and humans provides the unifying theme for the undergraduate, professional, and graduate programs of the College of Veterinary Medicine and Biomedical Sciences. The college combines teaching, research, and public service activities in basic biomedical disciplines such as anatomy, neurobiology, physiology, microbiology, pathology, and radiological health sciences, with applied disciplines such as clinical veterinary medicine and surgery, radiology, clinical laboratory sciences, epidemiology, and environmental health sciences. Graduates of the college in either the veterinary sciences or the biomedical sciences serve society in the broadest sense—they represent the concept that there is but “one medicine” with human and animal health intimately interrelated.

Major Courses of Study

The College of Veterinary Medicine and Biomedical Sciences offers undergraduate, professional, and graduate courses of study. There are two undergraduate programs leading to the bachelor of science degree with majors in environmental health and microbiology. The bachelor of science degree requires a minimum of 120 credits with a minimum of 42 in upper-division courses. The four-year professional veterinary medical program leads to the doctor of veterinary medicine degree. Graduate studies in each of the seven departments of the college lead to master of science and doctor of philosophy degrees. The college also offers a nondegree preveterinary medical program.

Biomedical Sciences Open Option

Biomedical Sciences Open Option is a program offered by the College of Veterinary Medicine and Biomedical Sciences for students who are in their first two years of undergraduate work at Colorado State. The program is especially designed for students who have an interest in a career or advanced studies in any of a number of fields which require training in biomedical sciences and who have not made a specific choice of major for the bachelor’s degree. Open Option allows students to explore programs and majors in the college by fulfilling course work requirements common to environmental health and microbiology degree programs as well as the preveterinary medicine curriculum. (Refer to the freshman/sophomore years in these programs for an example of a typical course of study that students would follow.)

After completion of the Open Option curriculum, or at any time during the course of study, students will select a major leading to the bachelor’s degree. Those who select the environmental health or microbiology majors can complete degree requirements in two additional years, as described by the departments. The program also prepares students for most other majors in biological sciences. Upon completion of one of the college’s baccalaureate degree programs, students are prepared to enter a career directly or to continue graduate studies in biological sciences or professional studies in veterinary medical, medical, or dental schools. Students who intend to apply to veterinary school may complete the Colorado State preveterinary requirements in one year beyond the Open Option program.

Continuing Education

The College of Veterinary Medicine and Biomedical Sciences supports the veterinary profession by offering continuing education courses which enable practicing veterinarians to obtain new medical information and meet the Colorado Veterinary Practice Act’s continuing education requirements for relicensing. The college shares responsibility for continuing education and
maintains close liaison with the American Veterinary Medical Association (AVMA), the Colorado Veterinary Medical Association (CVMA), the Colorado Board of Veterinary Medical Examiners, and the Western Interstate Commission for Higher Education (WICHE).

**Graduate Programs**

Programs leading to the master of science and doctor of philosophy degrees are offered in all departments of the college.

Students with bachelor of science or doctor of veterinary medicine degrees or well-qualified students who are currently pursuing veterinary medicine degrees, are eligible to study for advanced degrees offered in the Departments of Anatomy and Neurobiology, Environmental Health, Microbiology, Pathology, Physiology, and Radiological Health Sciences.

For detailed information about graduate programs, refer to the individual departments or write to the department concerned. See also the Graduate and Professional Bulletin.

**INTERDEPARTMENTAL PROGRAM**

**Doctor of Veterinary Medicine**

A four-year professional program in veterinary medicine is offered to approximately 134 selected students. Because the number of applicants exceeds the number of students who can be admitted to any class, the Admissions Committee for the College of Veterinary Medicine and Biomedical Sciences carefully evaluates each applicant to recommend those best qualified. Information concerning the academic pro-gram which leads to the doctor of veterinary medicine (D.V.M.) degree may be found in the Graduate and Professional Bulletin. The full course of study requires a minimum of six years: at least two years in a preprofessional program, and, after acceptance, four years in the professional program.

**Preprofessional Curriculum**

Students may take their preprofessional training at any accredited institution; however, courses must be substantially equivalent in subject content and level to those required at Colorado State. Specific inquiries regarding equivalent or substitute courses should be directed to the Office of the Dean or to the Preveterinary Advising Office.

While Colorado State students in a degree program will take a higher number of credits, the minimum course requirements for admission to the professional program, exclusive of electives, are:

*Arts, Humanities, Behavioral and Social Sciences* - at least 12 semester credits. (Agricultural or business courses and the required credits for English composition do not fulfill these requirements.)

*Biological Sciences* - at least three semester credits in genetics and a laboratory associated with a biological science course.

*Chemistry* - at least three semester credits in biochemistry and a laboratory associated with a chemistry course.

*English Composition* - at least three semester credits.

*Physics* - at least four semester credits with laboratory.

*Statistics* - at least three semester credits.

Additional courses which are not required, but highly recommended are cell biology, developmental biology, microbiology, nutrition, and computer science. These courses will enhance the student’s preparation for the professional program.

The preveterinary requirement is a minimum of 68 semester credits. Most students may find it beneficial to extend the requirements over a period of three years. Exceptional, highly motivated students may be able to complete all requirements within two years.

Specific courses offered at Colorado State which currently fulfill these requirements are listed in the following sample curriculum:
### Preprofessional Curriculum - Veterinary Medicine

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BY 103</td>
<td>Biology of Organisms - Animals and Plants (BY/LSCC 102) OR Principles of Plant Biology</td>
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<tr>
<td>BZCC 120</td>
<td>Principles of Plant Biology</td>
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<tr>
<td>BZCC 110</td>
<td>Principles of Animal Biology</td>
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<td>3A</td>
</tr>
<tr>
<td>BZCC 111</td>
<td>Animal Biology Laboratory (BZ/BZCC 110 or concurrent reg.)</td>
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<td>3A</td>
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<tr>
<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
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**Select from the following courses:**

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</tr>
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<tbody>
<tr>
<td>C CC 107</td>
<td>Fundamentals of Chemistry (M/M CC 120A-B or placement in M/M CC 121 or higher)</td>
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<td>3A</td>
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<tr>
<td>C CC 108</td>
<td>Fundamentals of Chemistry Laboratory (C/C CC 107 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher) AND General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>4</td>
<td>3A</td>
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<tr>
<td>C CC 112</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111, M/M CC 124, M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160) AND General Chemistry Laboratory II (C 112, C 113 or concurrent reg.)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>C 113</td>
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**SOPHOMORE**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC 351</td>
<td>Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343)</td>
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<tr>
<td>BZ 346</td>
<td>Population and Evolutionary Genetics (BZ 220, M/M CC 155, ST/STCC 301 or ST/STCC 307 or EH/EHCC 307)</td>
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<tr>
<td>BZ 350</td>
<td>Molecular and General Genetics (BY/LSCC 102; one course in statistics)</td>
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<tr>
<td>BZ 455</td>
<td>Human Heredity and Birth Defects (BY 103 or BZ/BZCC 111)</td>
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<tr>
<td>MB 450</td>
<td>Microbial Genetics (MB 300; BC 351 or BC 401 or concurrent reg.)</td>
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<tr>
<td>SC 330</td>
<td>Principles of Genetics (BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)</td>
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**Select one of the following sets of courses:**

<table>
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<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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</thead>
<tbody>
<tr>
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<td>Fundamentals of Organic Chemistry (C/C CC 107 or C 113)</td>
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<tr>
<td>C 246</td>
<td>Fundamentals of Organic Chemistry Laboratory (C/C CC 108 or C/C CC 112 or C 114; C 245 or concurrent reg.)</td>
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<td>C 341</td>
<td>Organic Chemistry I (C 113)</td>
<td>3</td>
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<tr>
<td>C 343</td>
<td>Organic Chemistry II (C 341)</td>
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<tr>
<td>C 344</td>
<td>Organic Chemistry Laboratory (C 114; C 343 or concurrent reg.)</td>
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</tbody>
</table>
### DEPARTMENT OF ANATOMY AND NEUROBIOLOGY

*Office in Anatomy-Zoology Building, Room W 103*

*Professor L. Ray Whalen, Interim Chairman*

The department offers undergraduate instruction in the neurosciences, anatomy of the human body, microscopic anatomy, cell structure, and mammalian anatomy and physiology. The department offers an undergraduate minor (see the 1999-2000 General Catalog, pg. 272, for program details) but no undergraduate major is offered.

### DEPARTMENT OF CLINICAL SCIENCES

*Office in Veterinary Teaching Hospital, 300 West Drake Road, Room A 201*

*Professor Anthony P. Knight, Head*

The Department of Clinical Sciences is primarily involved with teaching veterinary students in the professional veterinary medicine program the diagnosis, medical and surgical treatment, and prevention and management of domestic and exotic animal diseases. Through field service clinical experience, students receive on-the-farm training in livestock herd health management and production medicine. Elective courses provide students the opportunity to select areas such as large animal reproduction, zoological medicine, and a variety of other veterinary specialties.

No undergraduate major is offered.
DEPARTMENT OF
ENVIRONMENTAL HEALTH

Office in Environmental Health Building, Room 122
Professor John S. Reif, Head

Major in Environmental Health

Do you like studying about how people interact with their environment? Would it be interesting to focus on maximizing people’s health, comfort and productivity? Are you looking for the challenge of a science career or working with others in technical and political environments? Would the study of communicable disease transmission, toxic chemical exposure, or air and water quality management interest you? If so, you may want to consider environmental health as a career.

An environmental health degree prepares students for employment by public sector environmental agencies; academic institutions; private industry and graduate study in medicine, veterinary medicine, and related biomedical fields. The degree program is fully accredited by the standards of the National Environmental Health Science and Protection Accreditation Council. Before taking environmental health classes students will study the sciences including biology, physics, chemistry, calculus, and statistics—using all these basic sciences as tools to solve problems. Courses in speech and communication, writing and logical thought and others such as computer science, psychology and business management may be experienced. Field projects involving data gathering and analysis, including problem solution and presentations in written and oral formats are also required. Many undergraduates will spend summers working in a variety of environmental health professions or research projects. Additionally, majors will complete a professional internship for academic credit with a private sector company, environmental health agency or research entity (public or private).

Characteristics And Skills

- Strong interest in how people interact with their environment
- Aptitude for natural and biological sciences as well as mathematics
- Strong analytical ability and investigative skills
- Prefers hands on work
- Well organized and pays attention to detail
- Ability to work in a team or independently
- Strong communication skills
- Can work indoors and in the field

Potential Occupations

As society becomes more aware of the human health effects of internal and external environments, the need for experts trained to analyze and manage environmental health issues will expand. Participation in internships, volunteer activities, or cooperative education opportunities is highly recommended to enhance your practical training and development. Graduates who continue on for advanced studies can attain more responsible positions with the possibility of rising to top professional levels. Career occupations include but are not limited to:
- Toxicologist
- Epidemiologist
- Occupational health nurses and physicians
- Industrial hygienists
- Health educators
- Hazardous and solid waste specialists
- Air and water pollution specialists
- Sanitarians

MCC 120A-B, MCC 121, and MCC 124 are considered review courses in the major.

Major in Environmental Health

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<td>MCC 120</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>MCC 121</td>
<td>Human Health and Environmental Perspective (high school biology)</td>
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<td>MCC 124</td>
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<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
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<tr>
<td>EH 220</td>
<td>Environmental Health (BC 103 or BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 104 or BZ/BZCC 110 or BZ/BZCC 120 or concurrent reg.)</td>
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<td>EH 230</td>
<td>Environmental Health Field Methods (EH 220, high school chemistry)</td>
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<td>KACC 192</td>
<td>Key Academic Community Seminar (Concurrent reg. in companion courses)</td>
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<tr>
<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
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<tr>
<td>M CC 155</td>
<td>Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)</td>
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<tr>
<td></td>
<td>Social/behavioral sciences</td>
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<tr>
<td></td>
<td>U.S. public values and historical perspectives</td>
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**SOPHOMORE**

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<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
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<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C CC 111 or concurrent reg.)</td>
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<tr>
<td>C CC 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111; M/M CC 124 or M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<td>C CC 114</td>
<td>General Chemistry Laboratory II (C/C CC 112; C 113 or concurrent reg.)</td>
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<td>EHCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
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<td>OR</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
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<tr>
<td>STCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
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<td>PHCC 121</td>
<td>General Physics I (concurrent reg. in M/M CC 125)</td>
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<td>PHCC 122</td>
<td>General Physics II (PH/PHCC 121)</td>
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<td>Arts/humanities</td>
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<td></td>
<td>Global and cultural awareness</td>
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**JUNIOR**

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<tr>
<td>AY 300</td>
<td>Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
<td>4</td>
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<tr>
<td>OR</td>
<td>Principles of Human Anatomy and Physiology (C/C CC 103 or C/C CC 107 or C/C CC 111; BY/LSCC 102 or BZ/BZCC 101 or BZ/BZCC 110)</td>
<td>4</td>
<td></td>
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<tr>
<td>C 341</td>
<td>Organic Chemistry I (C 113)</td>
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<td>C 343</td>
<td>Organic Chemistry II (C 341)</td>
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<td>EH 320</td>
<td>Environmental Health Water Quality (EH 230, MB 300 or concurrent reg.)</td>
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<td>EH 332</td>
<td>Principles of Epidemiology (EH/EHCC 307 or ST/STCC 307; MB 149 or MB 300)</td>
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<td>EH 350</td>
<td>Industrial Hygiene and Air (AY 300/PS 300, EH 230)</td>
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<td>EH 492</td>
<td>Environmental Health Seminar</td>
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<tr>
<td>MB 300</td>
<td>General Microbiology (C 245 or C 341 or concurrent reg.; BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)</td>
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<td>MB 302</td>
<td>General Microbiology Laboratory (MB 300 or concurrent reg.)</td>
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<td>R 300</td>
<td>Introduction to Radiation Biology (BY/LSCC 102, PH/PHCC 121)</td>
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**SENIOR**

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<td>BC 351</td>
<td>Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343)</td>
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<tr>
<td>Course</td>
<td>Title (Prerequisite)</td>
<td>Credits</td>
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<tr>
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<td>BC 352</td>
<td>Principles of Biochemistry Laboratory (BC 301 or BC 351 or BC 401 or concurrent reg.)</td>
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<td>EH 410</td>
<td>Environmental Health Waste Management (C 343, EH 230)</td>
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<td>EH 430</td>
<td>Human Disease and the Environment (EH 320 and EH 446)</td>
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<td>EH 446</td>
<td>Environmental Toxicology (C 245 or C 343)</td>
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<td>EH 460</td>
<td>Environmental Health Program Management (EH 320, EH 350)</td>
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<td>EH 487V</td>
<td>Internship-Environmental Health</td>
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**PROGRAM TOTAL = 120 credits**

1. Select from the list of courses in category 3C in the All-University Core Curriculum (AUCC).
2. Select course that is in both category 3D and 3F of the AUCC.
3. Select from the list of courses in category 2B1, 2B2, or 2B3 in the AUCC.
4. Select from the list of courses in category 3B in the AUCC.
5. Select from the list of courses in category 3E in the AUCC.
6. At least two courses must be related to major and approved by an EH key advisor.
7. To complete the seven total elective credits for the program of study, select course(s) of interest.

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**DEPARTMENT OF MICROBIOLOGY**

*Office in Microbiology Building, Room B 116*
*Professor Ralph E. Smith, Interim Head*

**Major in Microbiology**

Does unlocking life's secrets excite you? Do you wish to understand how microbes affect human health? Have you ever wondered how microorganisms can be used to clean up pollution and toxic wastes? Would you like to study the human immune system, or help develop vaccines against infectious disease? Does the possibility of finding life on other planets interest you? Do you wonder how microorganisms can be used to improve foods and beverages, develop new medicines, or enhance farm crops? If your answers are “yes,” then a major in Microbiology may be the choice for you.

Microbiology is the study of organisms too small to be seen with the naked eye, including bacteria, viruses, algae, protozoa, and fungi. Microbiology emerged as a distinct science in the late nineteenth century, with the discovery that microorganisms are the cause of many infectious diseases, and that they play essential roles in the ecosystem and in industrial processes. Much past work in this field was directed toward the cure, control, or eradication of disease in humans and animals. Recent research has focused upon the use of microorganisms for the production of improved foods and new medicines. Discoveries of how to insert new genes into microorganisms and how to produce highly sophisticated antibodies against organisms that cause disease has great potential to influence human health. Use of microbial agents to “digest” toxic wastes may help clean up local environments or avert major disasters.

Microbiology majors acquire knowledge and laboratory skill in the structure, physiology, genetics, pathogenicity, ecology, and taxonomy of microorganisms. Required courses in biological sciences, chemistry, physics, and mathematics support the major. Specialties are in human and animal infectious diseases, immunology, bacteriology, virology, molecular genetics, and environmental and industrial processes. Microbiology is an ideal major for students who are preparing for professional veterinary or human medical programs or graduate studies in various biological sciences.

**Characteristics and Skills**

- Understanding of physics, chemistry, mathematics
- Knowledge of microbial genetics, microbial physiology, organic chemistry, biochemistry, molecular biology, virology and immunology
- Ability to analyze data and test theories
- Knowledge and practice in laboratory techniques and procedures
- Ability to write and speak effectively
- Creativity and problem solving skills
- Ability to work independently and cooperate with other scientists
- A deep curiosity about the origins, structure, and behavior of microbial life
Potential Occupations

Career opportunities in microbiology will continue to grow due to expansion of industrial biotechnology, greater public demand for improved medical care, increasing public dependence on new products of microbiological systems, and an increasing concern for the impact of industrial and accidental pollution of soil and water.

Academic programs in microbiology prepare students for employment in research and production laboratories operated by government agencies, industry, or private foundations. Microbiologists also work in hospitals, clinics, and public health agencies. Additional opportunities are in technical sales and in university research and teaching. The level of education and the area of specialization determine employment opportunities. Part-time laboratory work, internships, and cooperative education opportunities are highly recommended and will enhance your chances for permanent full-time employment. Positions are available in government, industry, and academic institutions. Depending on your interests, the electives you take, and the minor you select, available career choices include:

- Medical microbiologist
- Diagnostic microbiologist
- Public health microbiologist
- Environmental microbiologist
- Virologist
- Mycologist (studies fungi)
- Immunologist
- Microbial geneticist
- Microbial physiologist
- Industrial microbiologist
- Agricultural microbiologist
- Space microbiologist
- Medical technologist
- Bacteriologist

Medical Technology Program

Students who complete the B.S. degree in microbiology are eligible to enter a 12-month medical technology internship at any hospital accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Students are awarded a certificate in medical technology by the hospital at the conclusion of the internship and, upon successful completion of a national board examination, are certified to practice as professional clinical laboratory scientists.

Students who wish to enter a medical technology program should consult the key adviser in the Microbiology Department for assistance in selection of elective courses, and in selecting and applying to an internship program.

Major in Microbiology

<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
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</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN</td>
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</tr>
<tr>
<td>C CC 111</td>
<td>General Chemistry I (M/M CC 121 or placement in M/M CC 124 or higher)</td>
<td>4</td>
<td>3A</td>
</tr>
<tr>
<td>C CC 112</td>
<td>General Chemistry Laboratory I (C/C CC 111 or concurrent reg.)</td>
<td>1</td>
<td>3A</td>
</tr>
<tr>
<td>C 113</td>
<td>General Chemistry II (C/C CC 107 or C/C CC 111, M/M CC 124, M/M CC 141 or M/M CC 155 or M/M CC 160 or concurrent reg. in M/M CC 155 or M/M CC 160)</td>
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<td>C 114</td>
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<td>COCC 150</td>
<td>College Composition (Composition Placement Exam)</td>
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<td>LSCC 102</td>
<td>Attributes of Living Systems (high school chemistry)</td>
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<td>3A</td>
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<tr>
<td>M CC 155</td>
<td>Calculus for Biological Scientists I (M/M CC 124, M/M CC 125)</td>
<td>4</td>
<td>2C</td>
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<td>M CC 160</td>
<td>Calculus for Physical Scientists I (M/M CC 126; concurrent reg. in M/M CC 124)</td>
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<td>MBCC 192</td>
<td>Microbiology First-Year Seminar</td>
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<td>SPCC 200</td>
<td>Public Speaking¹</td>
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<tr>
<td>Biology elective²</td>
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SOPHOMORE
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<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>C 331</td>
<td>Quantitative Analysis (C 113)</td>
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<tr>
<td>C 334</td>
<td>Quantitative Analysis Laboratory (C 114; C 331 or concurrent reg.)</td>
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<td>C 341</td>
<td>Organic Chemistry I (C 113)</td>
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<td>C 343</td>
<td>Organic Chemistry II (C 341)</td>
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<td>C 344</td>
<td>Organic Chemistry Laboratory (C 114; C 343 or concurrent reg.)</td>
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<td>STCC 301</td>
<td>Introduction to Statistical Methods (M/M CC 121)</td>
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<td>2D</td>
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<td>STCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
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<td>2D</td>
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<td>EHCC 307</td>
<td>Introduction to Biostatistics (M/M CC 121)</td>
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<tr>
<td>MB 300</td>
<td>General Microbiology (C 245 or C 341 or concurrent reg.; BY/LSCC 102 or BZ/BZCC 110 or BZ/BZCC 120)</td>
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<tr>
<td>MB 302</td>
<td>General Microbiology Laboratory (MB 300 or concurrent reg.)</td>
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<td>4B</td>
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<td>MB 342</td>
<td>Immunology (MB 300)</td>
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<td>U.S. public values and institutions</td>
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<td>Electives</td>
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**JUNIOR**

Select one of the following sets of courses:

- BC 351 Principles of Biochemistry (C 245 or C 343 or concurrent reg. in C 343) | 4
- AND
- BC 352 Principles of Biochemistry Laboratory (BC 301 or BC 351 or BC 401 or concurrent reg.; two credits of college chemistry laboratory) | 1
- OR
- BC 401 Comprehensive Biochemistry I (C 245 or C 343 or concurrent reg. in C 343; M/M CC 155 or M/M CC 160) | 3
- AND
- BC 403 Comprehensive Biochemistry II (BC 401) | 3
- AND
- BC 404 Comprehensive Biochemistry Laboratory (BC 401 or concurrent reg.; C 246 or C 344; NS 204) | 2

- MB 351 Medical Microbiology (MB 342) | 3

Select one pair of the following courses:

- PHCC 121 General Physics I (concurrent reg. in M/M CC 125) | 5 | 3A
- PHCC 122 General Physics II (PH/PHCC 121) | 5 | 3A
- OR
- PHCC 141 Physics for Scientists and Engineers I (M/M CC 126; M/M CC 155 or M/M CC 160) | 5 | 3A
- PHCC 142 Physics for Scientists and Engineers II (PH/PHCC 141, concurrent reg. in M 161 or M/M CC 255) | 5 | 3A

- Arts/humanities | 3 | 3B
- Microbiology electives | 3 | 3B
- Electives | 4 | 3B

TOTAL 28-31

**SENIOR**

- MB 400 Capstone in Microbiology (MB 420 or concurrent reg.) | 2 | 4C
- OR
- MB 498 Research (MB 301 or MB 302) | 1-6 | 4C
- MB 420 Medical and Molecular Virology (MB 342; BC 351 or BC 401 or concurrent reg.) | 4 | 4A
<table>
<thead>
<tr>
<th>Course</th>
<th>Title (Prerequisite)</th>
<th>Credits</th>
<th>AUCC Category</th>
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<tbody>
<tr>
<td>MB 443</td>
<td>Microbial Physiology (MB 300; BC 351 or BC 401)</td>
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<td>4A</td>
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<tr>
<td>MB 450</td>
<td>Microbial Genetics (MB 300; BC 351 or BC 401 or concurrent reg.)</td>
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<td></td>
<td>Global and cultural awareness</td>
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<td>3E</td>
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<td></td>
<td>Health and wellness</td>
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<td>3G</td>
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<td></td>
<td>Historical perspectives</td>
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<td>3D</td>
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<td></td>
<td>Social/behavioral sciences</td>
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<td>3C</td>
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**PROGRAM TOTAL = 120-124 credits**

1. A number of additional courses will work for this category; refer to categories 2B1, 2B2, and 2B3 or the All-University Core Curriculum (AUCC).
2. Select three to five credits from approved list at department.
3. Select from the list of courses in category 3F in the AUCC.
4. Select from the list of courses in category 3B in the AUCC.
5. Select from approved list at department. One chosen course must be a laboratory course.
6. Select from the list of courses in category 3E in the AUCC.
7. Select from the list of courses in category 3G in the AUCC.
8. Select from the list of courses in category 3D in the AUCC.
9. Select from the list of courses in category 3C in the AUCC.
10. Select from list at department.
11. Student may take 0-4 elective credits depending upon earlier biology or biochemistry choices to yield a 120 credit program.

**DEPARTMENT OF PATHOLOGY**

*Office in Pathology Building, Room 110*

The instructional program of the Department of Pathology serves the veterinary medicine and the graduate biomedical curricula. Emphasis is placed on the causes and mechanisms of disease processes. No undergraduate major is offered.

**DEPARTMENT OF PHYSIOLOGY**

*Office in Physiology Building, Room 229*

*Professor Alan Tucker, Head*

Instructional programs in the Department of Physiology serve a number of undergraduate majors, the veterinary medicine curriculum, and graduate students enrolled in a variety of disciplines on campus. No undergraduate major is offered.
DEPARTMENT OF
RADIOLOGICAL HEALTH
SCIENCES

Office in Molecular and Radiological Biosciences
Building, Room 308
Professor F. Ward Whicker, Head

No undergraduate major is offered by the department.
TO THE CATALOG USER:

A correct ‘Index’ is not available for this catalog. You may use the catalog bookmarks or the hyperlinks in the ‘Table of Contents’. You may also search for specific text within the catalog using the “Find” tool in Acrobat Reader.

We apologize for any inconvenience.

Thank you,
Career Guidance Foundation
In “recognition” of a tradition of excellence at Colorado State University, here is a guide to the University’s official seal and logo. Each was designed to unify all those who are, and who will be, associated with the University. Identification with one or all of the symbols below is facilitated by the images, feelings, and memories they invoke. In identifying with these trademarks, the spirit of Colorado State University is perpetuated through generations of students, alumni, administrators, and personnel!

### The University Logo

**Our name says it all!** Our logo communicates immediately that we are Colorado State University to any audience, anywhere. The University’s name distinguishes it as a historical institution dedicated to excellence and innovation. The name has changed at three different junctures to accommodate the changes in educational needs paralleled by developments in society. The University’s name identifies the institution as the first authorized college and the only land-grant institution in Colorado.

Initially, Colorado State was referred to as Colorado Agricultural College. This name was deemed appropriate for the purposes of the University until the 1930s when the curricula expanded beyond an agricultural education. At that point, the institution was renamed Colorado State College of Agricultural and Mechanic Arts (Colorado A&M). The final name change, Colorado State University, coincided with the University’s implementation of an institutional focus on research.

The University’s logo, and name in any form, is protected from unauthorized use by federal trademark regulation.

### The University Seal

The official University seal displays the year of the University’s establishment, the institution’s name since 1957, and the components of its land-grant mission: education, service, extension, and research.

The official seal is reserved for use on diplomas, medallions, awards, certificates, and official University documents. Such uses require the formal dignity of the University as signified by the seal.

### The Ram Logo

The ram logo provides a standard graphic identity for the University’s athletic programs. The ram logo was designed by a University employee whose design was selected from 273 entries in a ram logo contest.

In retrospect ... exactly what Colorado State University means to us will be different for everyone. Through all the experiences, the University’s name and symbols remind us of a time and a place, of fond memories, of living, learning, and growing that result from our Colorado State experience.