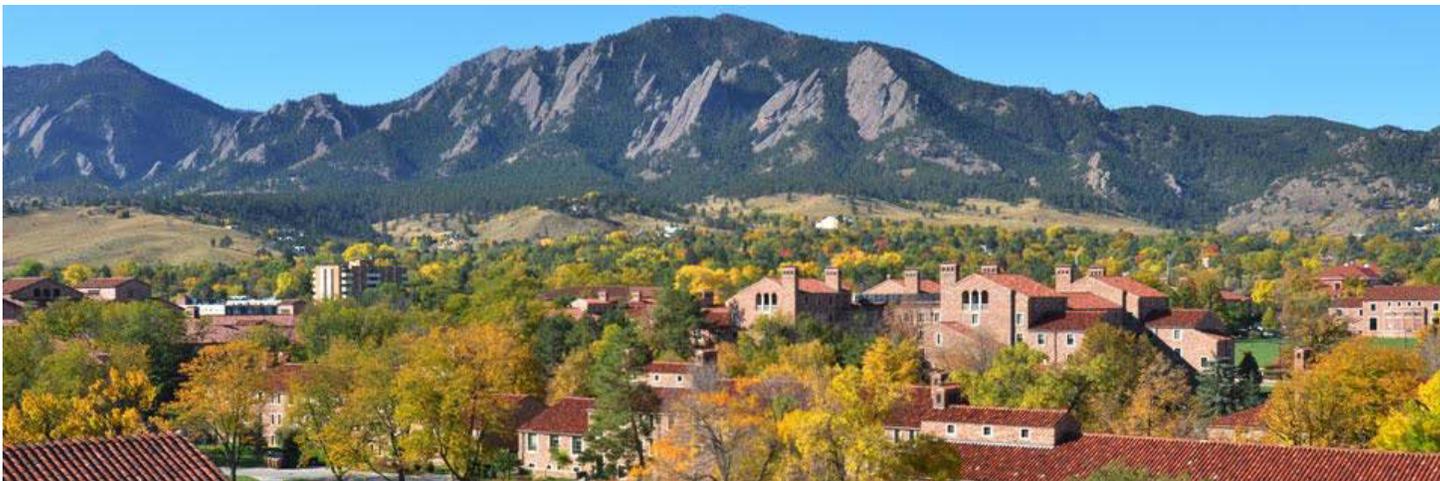




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## Welcome to the CU-Boulder Catalog, 2016–17

The 2016–17 *University of Colorado Boulder Catalog* contains a summary of campus offerings, policies and requirements; descriptions of colleges, schools and individual departments; and degree requirements, course descriptions and faculty listings as of February 2016. Students should refer to the degree, major and certification requirements listed at the time they formally enter a program. For additional information, students should consult their dean's office. Because the catalog is compiled in advance of the academic year it covers, changes in programs and policies may occur. Up-to-date information may be obtained by consulting departmental advisors, checking departmental bulletin boards, visiting MyCUinfo ([mycuinfo.colorado.edu](http://mycuinfo.colorado.edu)) and reviewing registration materials distributed each semester. All catalog information is subject to change without notice or obligation.

## About the Course Descriptions

The courses listed here are included in the Boulder campus catalog during the 2016–17 academic year. This listing does not constitute a guarantee that any particular course will be offered during this year. Consult specific programs and major requirements within each school and college for more information. Also see the online Guest Course Search ([www.colorado.edu/academics/course-search](http://www.colorado.edu/academics/course-search)) for details about course offerings.

## Course Numbering

Consult specific departments and programs within schools and colleges for [restrictions, requirements and permissions](#).

- **1000–2000 courses** are usually intended for lower-division students (freshmen and sophomores).

The *University of Colorado Boulder Catalog* is published yearly by CU-Boulder Strategic Relations in cooperation with the academic departments.

University of Colorado  
Boulder  
Strategic Relations  
3100 Marine St.  
584 UCB  
Boulder, Colorado 80309-0584

Queries should be directed to

[catalog@colorado.edu](mailto:catalog@colorado.edu)

*Photography:*

Glenn Asakawa, Casey A. Cass and Patrick Campbell

## Other CU-Boulder Catalogs

School of Law, Summer Session, Continuing Education, CAETE and Independent Learning offer their own catalogs.

- **3000–4000 courses** are intended for upper-division students (juniors and seniors), and may require instructor consent.
- **5000 courses** usually require graduate-student status, but may be open to qualified undergraduates with instructor consent. Consult the program or department.
- **6000, 7000 and 8000 courses** are usually open only to graduate students.

#### Abbreviations

**Coreq.**—corequisite

**Lab.**—laboratory

**Lect.**—lecture

**Prereq.**—prerequisite

**Rec.**—recitation

**CE/SL**—civic engagement/service learning component

## Course Credits

Course credits are stated in semester units.

## Nondiscrimination Statement

The University of Colorado Boulder does not discriminate on the basis of race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy in admission and access to, and treatment and employment in, its educational programs and activities. The university takes affirmative action to increase ethnic, cultural, and gender diversity; to employ qualified disabled individuals; and to provide equal opportunity to all students and employees.

[Other Catalogs](#)

## Main Catalog Archive

The archive of the University's main catalogs for previous years.

[Catalog Archive](#)

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## Other Catalogs

|   |  |  |
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| <p><b>School of Law</b></p> <ul style="list-style-type: none"> <li><a href="#">View Online</a></li> </ul> <p><i>The School of Law Catalog</i> courses represent a wide range of law-related subjects, including natural resources, the environment, criminal law, business, constitutional law, taxation, public law, American Indian law, litigation, intellectual property and jurisprudence.</p>   | <p><b>Summer Session</b></p> <ul style="list-style-type: none"> <li><a href="#">View Online</a></li> <li><a href="#">Request Print Catalog</a></li> </ul> <p><i>The Summer Session Catalog</i> lists more than 500 university courses offered in the summer. Unique summer opportunities include Maymester, the FIRST program and special featured courses.</p>  | <p><b>Continuing Education</b></p> <ul style="list-style-type: none"> <li><a href="#">View Online</a></li> <li><a href="#">Request Print Catalog</a></li> </ul> <p><i>The Continuing Education Catalog</i> details the many credit and noncredit programs, nontraditional courses and student services CU offers for high school students, working professionals, college students or lifelong learners.</p> |
| <p><b>CAETE</b></p> <ul style="list-style-type: none"> <li><a href="#">Request Print Catalog</a></li> </ul> <p>The Center for Advanced Engineering and Technology Education (CAETE) is the distance learning and professional studies arm of CU-Boulder College of Engineering and Applied Science. <i>The CAETE Catalog</i> offers access to flexible and convenient post-graduate course work, certificate programs, advanced degrees and professional development courses in engineering, technology, computers and business management. Courses are delivered via the Internet, CD-ROM and/or in the classroom during the evenings, weekends and on-site.</p> | <p><b>Independent Learning</b></p> <ul style="list-style-type: none"> <li><a href="#">View Online</a></li> <li><a href="#">Request Print Catalog</a></li> </ul> <p><i>The Independent Learning Catalog</i> is CU-Boulder's distance learning program that provides traditional undergraduate and graduate credit classes online, by correspondence, or through individualized instruction. Choose term-based courses or self-paced courses, and learn on your own terms.</p> |  |



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### University of Colorado History

At its first session in 1861, Colorado's territorial legislature passed an act providing for a university in Boulder. Between 1861 and 1876, Boulder citizens donated land south of town and made gifts from \$15 to \$1,000 to match the \$15,000 the state legislature appropriated for the university's construction. In 1875, Colorado citizens laid the cornerstone for the university's first building, Old Main, and officially founded CU in 1876, the same year Colorado joined the union. The university opened its doors the following year with 44 students, a president, and one instructor.

Today, the University of Colorado is a four-campus system that includes the University of Colorado Boulder, the University of Colorado Colorado Springs, the University of Colorado Denver and the University of Colorado Anschutz Medical Campus. The campuses have a combined enrollment of about 61,000 students. To meet the needs of its students, the university system offers an extensive number of undergraduate, graduate and professional degree programs, as well as opportunities to study abroad, engage in public service and conduct research.

CU received sponsored program awards that include funding from the National Institutes of Health, the National Science Foundation and NASA. Sponsored research within the university

system represents annual awards totaling more than \$878.3 million. Federal agencies are the principal sources of these funds for research and training contracts and grants, but the state of Colorado also provides appropriations for university operations, teaching and research activities. CU also relies on revenues from tuition and fees, contracts and grants, investments and interest income, health services and the generous support of private foundations and donors.

An elected nine-member Board of Regents governs CU and is charged by the state constitution with the general supervision of the university and the exclusive control and direction of all its funds and appropriations, unless otherwise provided by law. The board conducts its business at regular meetings open to the public and through committees. The president is the chief administrative officer and is responsible for providing leadership to the university.

For more information about the CU Board of Regents, go to [www.cu.edu/regents](http://www.cu.edu/regents); to learn more about the CU system, visit [www.cu.edu](http://www.cu.edu).

## Campuses

### The Boulder Campus

#### Statutory Mission

CU-Boulder's vision is grounded in its statutory mission as a national public research university. In Colorado statute, the university is defined as the "*comprehensive graduate research university with selective admissions standards . . . offer(ing) a comprehensive array of undergraduate, master and doctoral degree programs*" of what is now designated the University of Colorado System.

CU-Boulder recognizes the exceptional opportunities associated with its role as a research university, and values the unique strength and character research achievements bring to undergraduate education. It is keenly aware of its responsibility for educating the next generation of citizens and leaders, and for fostering the spirit of discovery through research. Indeed, CU-Boulder believes that its students, both graduate and undergraduate, benefit from the comprehensive mix of programs and research excellence that characterize a flagship university. Thus, CU-Boulder's statutory mission is relevant today and will remain relevant tomorrow.

Since 2007, CU-Boulder's strategic plan, *Flagship 2030* ([www.colorado.edu/flagship](http://www.colorado.edu/flagship)), has been guiding near-term actions and investments that will sustain CU's quality and competitiveness and, through visionary "flagship initiatives," will transform the university within the next quarter-century.

#### General Information about CU-Boulder

As a comprehensive university, CU-Boulder is committed to the liberal education of students via a broad curriculum ranging from the baccalaureate through the postdoctoral levels.

With an enrollment of over 30,800 students, the University of Colorado Boulder is the largest campus in the four-campus system. The student population comes from every state in the nation and from more than 120 foreign countries. Many different ethnic, religious, academic and social backgrounds are represented, fostering the development of a multicultural academic community that enriches each student's educational experience.

On the Boulder campus, the chancellor is the chief academic and administrative officer and is responsible for conducting campus affairs in accordance with the policies of the Regents, and overseeing the Athletic Department. Faculty participate in campus governance through the Faculty Senate and the Faculty Assembly. Students participate through the University of

Colorado Student Government (CUSG) and the United Government of Graduate Students (UGGS).

CU-Boulder has more than 1,156 tenure and tenure track faculty, with 100 percent holding doctorates or appropriate terminal degrees. The faculty includes nationally and internationally recognized scholars with many academic honors and awards, including several CU-Boulder research faculty from the National Snow and Ice Data Center who shared the 2007 Nobel Peace Prize with former Vice President Al Gore for their contributions to the international report of the Intergovernmental Panel on Climate Change; John Hall, winner of the 2005 Nobel Prize in physics; Carl Wieman and Eric Cornell, winners of the 2001 Nobel Prize in physics; Tom Cech, winner of the 1989 Nobel Prize in chemistry; and David Wineland, winner of the 2012 Nobel Prize in physics. Eight faculty have received MacArthur Fellowships, the so-called "Genius Grant." Twenty-six active or retired faculty are members of the National Academy of Sciences; 24 are included in the membership of the American Academy of Arts and Sciences; 15 are members of the National Academy of Engineering; and seven are members of the National Academy of Education. Most faculty members, including full professors, teach both undergraduate and graduate classes. Faculty members incorporate their research and creative activities directly into instructional programs.

Research conducted at CU-Boulder is supplemented by research institutes devoted both to the advancement of knowledge in particular areas and to graduate training. Many of these institutes have developed international reputations.

To enhance its research capabilities and to provide collaborative opportunities with government and business, CU-Boulder developed a 200-acre research park east of the main campus. The park provides expanded room for research institutes and centers that work closely with university researchers.

The educational environment of a research university is characterized by a broad range of experiences in many different settings. While the classroom is the location for most instructional activities, laboratories, seminars and field work also are important features of the undergraduate and graduate experience. Some programs encourage off-campus internships and training; study abroad programs also have gained popularity. For students whose interests cross traditional disciplinary lines, a number of interdisciplinary programs are available.

## The Campus Setting

CU-Boulder is located at the foot of the Rocky Mountains, at an altitude of 5,400 feet. The Flatirons geologic formation is visible from nearly everywhere on campus. The climate is temperate, with generally pleasant days and cool evenings. On average, Boulder enjoys about 300 sunny days each year. The main campus covers 600 acres and includes about 200 buildings constructed of rough-cut Colorado sandstone with red tile roofs. The rural Italian (or Tuscan vernacular) architectural style evolved from a master plan developed by Philadelphia architect Charles Klauder in 1919. The Norlin Quadrangle, including the original Old Main building, is listed in the State and *National Register of Historic Places*. The campus has been noted as one of the most aesthetically pleasing in the country.

Boulder County encompasses five ecological zones, from 5,000 feet above sea level (plains grassland) to 14,000 feet (alpine tundra). Downtown Boulder is only 20 miles from the Continental Divide and boasts some of the most spectacular scenery in the United States. The city of Boulder, population 103,000, is committed to preserving its beautiful natural environment and is surrounded by 45,000 acres of open space.

Denver, the state's capital city, is 30 miles from Boulder. Denver offers the attractions and resources of a large metropolitan area and is accessible from Boulder by traveling on U.S. 36, also known as the Denver-Boulder Turnpike. Denver's international airport is served by most major carriers and is located approximately 60 minutes southeast of Boulder. Boulder and the

Denver International Airport are connected by a public transportation system.

## Undergraduate Enrollment and Graduation Rates

CU-Boulder's fall 2015 entering freshman class numbered 6,208. Of these, 46 percent were females, 53 percent residents of Colorado and 24 percent members of minority groups (African Americans, Asian Americans, Hispanics/Latinos, Native Americans and Pacific Islanders). Sixty-nine percent enrolled in the College of Arts and Sciences, 10 percent in the Leeds School of Business, 15 percent in the College of Engineering and Applied Science and 6 percent, combined, enrolled in the College of Media, Communication and Information, the Program in Environmental Design and the College of Music. About 10 percent of freshmen entering CU-Boulder transfer to another college or school within the university before they graduate.

Of the freshmen entering in summer or fall 2009 who enrolled full time, 47 percent graduated within four years; 67 percent graduated within five years; and 71 percent graduated within six years. Of the students who entered in fall 2014, 86 percent returned for their second fall semester.

## CU-Boulder Academic Programs

The Boulder campus offers more than 3,800 different courses in approximately 150 fields of study. These courses represent a full range of disciplines in the humanities, the social sciences, the physical and biological sciences, the fine and performing arts and the professions. CU-Boulder is accredited by the Higher Learning Commission and a member of the North Central Association ([www.ncahlc.org](http://www.ncahlc.org); 800-626-7440 or 312-263-0456). (See *individual colleges and schools for additional accreditation information.*)

For information on the content of academic programs and official degree designations, refer to the appropriate catalog sections. Additional graduate and professional programs are located on other campuses of the university.

## Colorado Springs Campus

The University of Colorado Colorado Springs, located on Austin Bluffs Parkway in Colorado Springs, is one of the fastest growing universities in the state. The university offers 37 bachelor's, 19 master's and five doctoral degrees. The campus enrolls more than 11,000 students annually. Schools and colleges on this campus include:

- College of Business and Administration
- College of Education
- College of Engineering and Applied Science
- Graduate School
- College of Letters, Arts and Sciences
- Beth-El College of Nursing and Health Sciences
- School of Public Affairs

## University of Colorado Denver | Anschutz Medical Campus

The University of Colorado Denver | Anschutz Medical Campus offers comprehensive programs for undergraduate, graduate and health sciences students on two campuses: CU Denver Campus in lower downtown Denver and CU Anschutz, the medical campus in Aurora. Students study in 158 degree programs across 13 schools and colleges.

The university awards more than 4,750 degrees each year and confers more graduate degrees than any other public university in the state. More than \$439 million in sponsored research

awards came to CU Denver | Anschutz in 2013–14.

## CU Denver

Near the heart of downtown, the campus is conveniently located on the Auraria Campus with easy access to Denver's commercial and governmental hubs. Schools and colleges on this campus include:

- College of Architecture and Planning
- College of Arts & Media
- Business School
- School of Education & Human Development
- College of Engineering and Applied Science
- College of Liberal Arts and Sciences
- School of Public Affairs

## CU Anschutz Medical Campus

CU Anschutz Medical Campus in Aurora trains the health sciences workforce of the future by blending education, research and clinical care all in one place. In addition to University of Colorado Hospital and Children's Hospital Colorado, a number of renowned institutes are located on the campus. Schools and colleges on this campus include:

- School of Dental Medicine
- School of Medicine
- College of Nursing
- School of Pharmacy
- Colorado School of Public Health
- Graduate School

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The campus operates year round, with fall and spring semesters of 16 weeks each and a summer term that includes two three-week sessions (Maymester and Augmester), two five-week sessions, an eight-week session, a 10-week session and two intensive (one- or more-week) sessions.

For a complete calendar of academic and financial dates and deadlines, visit [colorado.edu/registrar](http://colorado.edu/registrar).

- Summer 2016
- Fall 2016
- Spring 2017
- Summer 2017

| Summer 2016     |  |
|-----------------|--|
| May 9 (Mon.)    | Classes begin for session M (Maymester)                                      |
| May 26 (Thurs.) | Final exams for session M (Maymester)  |
| May 30 (Mon.)   | <b>Memorial Day</b> holiday; campus closed                                   |
| May 31 (Tues.)  | Classes begin for sessions A, C and D  |
| July 1 (Fri.)   | Final exams for session A (first five-week session)                          |
| July 4 (Mon.)   | <b>Independence Day</b> ; campus closed                                      |
| July 5 (Tues.)  | Classes begin for session B (second five-week session)                       |
| July 22 (Fri.)  | Final exams for session C (eight-week session)                               |
| Aug. 1 (Mon.)   | Classes begin for session G (Augmester)                                      |
| Aug. 5 (Fri.)   | Final exams for sessions B and D (second five-week session, 10-week session) |

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|---------------------|---|
| Aug. 18<br>(Thurs.) | Final exams for session G (Augmester)         |
| Aug. 18<br>(Thurs.) | Official graduation date. No summer ceremony. |

*The university requests that make-up time be provided to students absent for religious reasons.*

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- Summer 2016
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### Fall 2016

|                          |  |
|--------------------------|--|
| Aug. 22 (Mon.)           | Classes begin  |
| Sept. 5 (Mon.)           | <b>Labor Day</b> holiday; campus closed  |
| Oct. 1 (Sat.)            | Freshman and transfer application deadline for spring semester                               |
| Oct. 1–4 (Thurs.–Sun.)   | Family Weekend   |
| Nov. 15 (Tues.)          | Freshman non-binding early action application deadline for fall semester and summer sessions |
| Nov. 21-23 (Mon.–Wed.)   | Fall break; no classes   |
| Nov. 24-25 (Thurs.–Fri.) | <b>Thanksgiving</b> holiday; campus closed   |
| Dec. 9 (Fri.)            | Last day of classes  |
| Dec. 10 (Sat.)           | Reading Day  |
|                          |  |

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|------------------------------|---|
| Dec. 11-15 (Sun.–<br>Thurs.) | Final exams (begin at 4:30 p.m. Sunday) |
| Dec. 15 (Thur.)              | Degree Conferral                        |

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- Summer 2016
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| Spring 2017            |  |
|------------------------|--|
| Jan. 15 (Sun.)         | Freshman application deadline for summer and fall sessions |
| Jan. 16 (Mon.)         | <b>Martin Luther King Jr.</b> holiday; campus closed       |
| Jan. 17 (Tues.)        | Classes begin  |
| Mar. 1 (Wed.)          | Transfer application deadline for fall and summer sessions |
| Mar. 27-31 (Mon.–Fri.) | Spring break (campus closed Friday, March 31)              |
| May 1 (Mon.)           | Freshman confirmation deadline                             |
| May 5 (Fri.)           | Last day of classes  |
| May 6 (Sat.)           | Reading Day  |
| May 7-11 (Sun.–Thurs.) | Final exams (begin at 4:30 p.m. Sunday)                    |
| May 12 (Fri.)          | Commencement   |

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- Summer 2016
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### Summer 2017

|                 |  |
|-----------------|--|
| May 15 (Mon.)   | Classes begin for session M (Maymester)                                      |
| May 29 (Mon.)   | <b>Memorial Day</b> holiday; campus closed                                   |
| June 2 (Fri.)   | Final exams for session M (Maymester)  |
| June 5 (Mon.)   | Classes begin for sessions A, C and D  |
| July 4 (Tues.)  | <b>Independence Day</b> holiday; campus closed                               |
| July 7 (Fri.)   | Final exams for session A (first five-week session)                          |
| July 11 (Tues.) | Classes begin for session B (second five-week session)                       |
| July 28 (Fri.)  | Final exams for session C (eight-week session)                               |
| Aug. 7 (Mon.)   | Classes begin for session G (Augmester)                                      |
| Aug. 11 (Fri.)  | Final exams for sessions B and D (second five-week session, 10-week session) |

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| Aug. 24<br>(Thurs.) | Final exams for session G (Augmester)         |
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**Irene C. Griego**, Vice Chair, District 7; *term expires January 2021*  
**Steve Bosley**, At Large; *term expires January 2017*  
**Michael Carrigan**, District 1; *term expires January 2017*  
**John Carson**, District 6; *term expires January 2021*  
**Glen Gallegos**, District 3; *term expires January 2019*  
**Stephen Ludwig**, At Large; *term expires January 2019*  
**Sue Sharkey**, District 4, *term expires January 2017*  
**Linda Shoemaker**, District 2; *term expires January 2021*

### Administrative Officers

#### CU System

**Bruce Benson**, President. *BS, University of Colorado Boulder.*  
**Leonard Dinegar**, Senior vice president and chief of staff. *BA, Catholic University of America; MA, University of Colorado Denver.*  
**Michael Lightner**, Vice president and academic affairs officer (interim). *BS, MS, University of Florida; PhD, Carnegie-Mellon University.*  
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**Ken McConnellogue**, Vice president for communication. *BS, University of Colorado Boulder; MA, University of Northern Colorado.*  
**Patrick O'Rourke**, Vice president, university counsel, and secretary to the Board of Regents. *BA, Creighton University; JD, Georgetown University Law Center.*  
**Kathy Nesbitt**, Vice president, employee and information services. *BA, University of Colorado; JD, Southern University Law Center*  
**Todd Saliman**, Vice president and chief financial officer. *BA, University of Colorado Boulder.*

#### CU-Boulder

**Philip P. DiStefano**, Chancellor; professor of education. *BS, PhD, Ohio State University; MA, West Virginia University.*  
**Russell L. Moore**, Provost and executive vice chancellor for academic affairs. *BS, University of California, Davis; PhD, Washington State University.*  
**Kelly Fox**, Senior vice chancellor and chief financial officer. *BA, University of Nebraska; MA, University of Colorado Denver.*  
**Robert Boswell**, Vice chancellor for diversity, equity, and community engagement. *BA,*

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*Marietta College; PhD, University of Colorado Boulder.*

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**Frances Draper**, Vice chancellor for strategic relations. *BA, Stanford University; MBA, University of California, Berkeley.*

**Steve Thweatt**, Vice chancellor for administration. *B.Arch., Louisiana State University.*

**Stein Sture**, Vice chancellor for research. *BS, MS, PhD, University of Colorado Boulder. BS, University of California, Davis; PhD, Washington State University.*

**Christina Gonzales**, Vice chancellor for student affairs, *BS, MA, New Mexico State University*

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### Academic Advising

Academic advising is an integral part of a college education. Its goal is to assist students in making responsible decisions as they develop educational plans compatible with their potential career and life goals. Advising is more than offering information about academic courses and programs; it also involves encouraging students to formulate important questions about the nature and direction of their education and working with them to find answers to these questions.

Academic Advising services vary across colleges and schools on the Boulder campus. Academic Advisors are either professional staff or faculty members who guide students to identify, develop, pursue and attain meaningful educational and personal goals.

### Responsibilities of Students and Advisors

Within the advising system on the Boulder campus, both students and advisors have responsibilities.

Students are responsible for:

- knowing the requirements of their particular academic program, selecting courses that meet those requirements in an appropriate time frame and monitoring their progress toward graduation;
- consulting with their academic advisor regularly throughout their academic career, so as to avoid seeking advising only during busy registration periods; and
- being prepared for advising sessions (for example, by bringing in a list of questions or concerns, having a tentative schedule in mind and/or being prepared to discuss interests and goals with their advisor).

Academic advisors are responsible for:

- helping students clarify their values, goals and abilities;
- helping students understand the nature and purpose of a college education;
- providing accurate information about educational options, requirements, policies and

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procedures;

- helping students explore educational programs consistent with the requirements of their degree program and with their goals, interests and abilities;
- assisting students in monitoring and evaluating their educational progress; and
- helping students locate and integrate the many resources of the university to meet their unique educational needs and aspirations.

Note: The university cannot assume responsibility for problems resulting from students failing to follow the policies stated in this catalog or from incorrect advice given by someone other than an appropriate staff member of the college.

## New Student & Family Programs

New Student & Family Programs Office works to support new undergraduate students and their family members as students transition to campus. New Student & Family Programs continues to support family members throughout the student's experience at CU-Boulder.

New, undergraduate students are required to complete an online orientation program, the New Student Welcome Experience, in order to register for classes. The New Student Welcome Experience helps incoming students learn more about student success, advising, registration and campus. New students are sent access instructions to their CU-Boulder email account.

In addition to the online requirement, new students and their family members are encouraged to attend a New Student Welcome Day on campus. These one-day programs for confirmed students and family members provide opportunities to connect with academic and student life opportunities.

New Student Welcome Programs coordinates the fall and spring Welcome events surrounding the first day of classes. Students participate in programs, sessions and opportunities to connect with current students, faculty and staff to create a healthy and positive transition to CU-Boulder.

Please visit [www.colorado.edu/welcome](http://www.colorado.edu/welcome) for more information.

## Summer Session

Summer Session at CU-Boulder, an integral part of the university's year-round program, offers students opportunities for study, individual development and recreational activity. Summer students can choose from more than 500 courses, allowing progress toward a degree in most areas of study.

Summer Session begins with Maymester, an intensive three-week term offered immediately after spring semester ends, and concludes with Augmester, a three-week term before fall semester begins. Courses are also offered in one-to-four, five-, eight- and ten-week formats. Online and on-campus courses are available.

Complementing Summer Session offerings, a rich calendar of summer events includes performances in repertory by members of the Colorado Shakespeare Festival, musical productions presented by the CU Summer Opera company and performances by members of the Colorado Music Festival. Organized recreational activities are offered through the Student Recreation Center.

Visit the Summer Session website to see all courses, schedules and other information, [summer.colorado.edu](http://summer.colorado.edu).

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## Student Affairs

Student Affairs facilitates and enriches the personal growth, success, health and well-being of every student at the University of Colorado Boulder. Encompassing support services that enhance the classroom experience--where students eat, sleep, build community, make friends and where students can go when they need help--the Division of Student Affairs is committed to academic success while helping students to overcome the obstacles that may impede progress. Our mission is to develop and implement innovative programs and services that positively impact student engagement and success, improve campus climate and increase retention and graduation rates. We do this by working to create inclusive environments and experiences to address the social, emotional, physical, professional and academic needs of our students.

### Commitment to Diversity

Student Affairs supports and contributes to creating and sustaining a diverse, multicultural, socially just and inclusive campus climate by learning about, recognizing and honoring the diverse backgrounds, histories, identities and life experiences of all our students, faculty and staff. Our goal is to create an environment in which all community members feel welcomed, safe and at home and can thrive.

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# Academic Records

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## Class Level

Class level is based on the total number of semester hours passed, as follows:

- **Freshman:** 0–29.9 semester hours
- **Sophomore:** 30–59.9 semester hours
- **Junior:** 60–89.9 semester hours
- **Senior:** 90–123.9 semester hours
- **Fifth-Year Senior:** 124 and above semester hours

The normal course load for most undergraduates is 15 credit hours each semester.

## Course Load

The following are the most widely used general definitions of full-time course load. For further information and guidelines, students should see specific college and school sections of this catalog. Students who receive financial aid or veterans benefits or who live in university housing should check with the appropriate office regarding course-load requirements for eligibility purposes.

## Undergraduate Course Load

For financial aid purposes, full time is 12 or more credit hours for fall, spring and summer semesters.

For enrollment verification and academic purposes (not related to financial aid), 12 credit hours is considered a full-time load in the fall and spring semester, and 6 credit hours is considered

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full time in the summer. For further information, view the Office of the Registrar's [enrollment grid](#).

## Graduate Course Load

### Graduate Students

For financial aid course-load requirements, which are different than those set by the Graduate School, graduate students should consult the Office of Financial Aid at [www.colorado.edu/financialaid](http://www.colorado.edu/financialaid).

For enrollment verification and academic purposes, full time in the fall and spring semesters is: 5 credit hours of graduate course work, 8 hours of combined graduate/undergraduate course work, 12 hours of undergraduate course work or a varying number of thesis/dissertation hours, depending upon the student's status. Summer course load requirements vary. Consult the Graduate School's website at [www.colorado.edu/GraduateSchool](http://www.colorado.edu/GraduateSchool) for requirements.

Graduate students may register for a maximum of 15 credit hours per semester toward a degree during the fall and spring semesters.

### Law Students

Law students should consult the Office of Financial Aid for financial aid course-load requirements at [www.colorado.edu/financialaid](http://www.colorado.edu/financialaid).

For academic purposes, law students must be enrolled for a minimum of 10 credit hours to be considered full time in the fall and spring and for 5 credit hours in the summer. For more information, visit [www.colorado.edu/law](http://www.colorado.edu/law).

Law students may apply a maximum of 18 credit hours toward a degree during the fall and spring semesters.

## Academic Standing

Each college and school at the University of Colorado Boulder has published minimum requirements for undergraduate students to remain in good academic standing. See respective college and school sections related to academic standards, including policies for probation and suspension.

In addition, federal regulations require students to make satisfactory academic progress in a program of study to be eligible for financial aid. See <http://www.colorado.edu/financialaid/policies/satisfactory-academic-progress-sap-policy>.

## Grading System

The following grading system is standardized for all colleges and schools of the university. Each instructor is responsible for determining the requirements for a class and for assigning grades on the basis of those requirements.

Standard grade points per hour of credit

**A** = superior/excellent, 4.0

**A-** = 3.7

**B+** = 3.3

**B** = good/better than average, 3.0

**B-** = 2.7

**C+** = 2.3

**C** = competent/average, 2.0

**C-** = 1.7

**D+** = 1.3

**D** = 1.0

**D-** = minimum passing, 0.7

**F** = failing, 0.0

## Grade Symbols

**I** = incomplete; changed to F if not completed within one year

**IP** = in progress; thesis at the graduate level or specified graduate-level courses

**P** = passing; under the pass/fail option, grades of D- and above convert to a P. Other specified courses may also be graded on a pass/fail basis.

**NC** = no credit

**W** = withdrew

**\*\*\*** = class grades were not submitted when final grades were processed, or the student is currently enrolled in the course.

## Explanation of an I (Incomplete) Grade

An I grade indicates that the student did not complete the requirements for the course by the end of the grading period for that semester. If the student does not complete the course requirements within one year, the I grade is converted to an F. When a final grade has been assigned, the transcript states, "Originally graded as Incomplete."

Requests for incomplete grades must be initiated by the student when, for reasons beyond his or her control, the student is unable to complete the course requirements. A substantial amount of work must have been satisfactorily completed before approval for such a grade is given.

If an instructor grants a request for an incomplete, the instructor sets the conditions under which the course work can be completed and the time limit for its completion or if the course should be retaken. If a course is retaken, it must be completed on the Boulder campus or in Boulder evening classes, and the student must re-register for the course and pay the appropriate tuition.

The initial grade of I is not removed from the transcript if the course is retaken.

## Grade Point Average

The overall University of Colorado grade point average (GPA) is computed as follows: the credit hours and credit points are totaled for all courses; then the total credit points are divided by the total credit hours. Courses with grade symbols of P, NC, \*\*\* (grade not yet entered), W, I and IP are excluded from calculations. All standard letter grades (A–F) are included in the GPA,

including grades of F earned for courses graded on a pass/fail basis. Grades of I that are not completed within one year are converted to F grades and calculated in the GPA at the end of the one-year grace period. Below is example GPA calculation for a hypothetical semester:

- Grade Earned: A; Credit Points per Hour: 4.0; x Credit Hours: 4.0 = Credit Points in Course: 16.0
- Grade Earned: A-; Credit Points per Hour: 3.7; x Credit Hours: 4.0 = Credit Points in Course: 14.8
- Grade Earned: B+; Credit Points per Hour: 3.3; x Credit Hours: 4.0 = Credit Points in Course: 13.2
- Grade Earned: P; Credit Points per Hour: —; x Credit Hours: 3.0 = Credit Points in Course: — (excluded)
- Grade Earned: F; Credit Points per Hour: 0; x Credit Hours: 3.0 = Credit Points in Course: 0

Total of 15 credit hours with 44 credit points, so  $44/15 = 2.93$  GPA

For individual GPA calculations related to academic standing and graduation from a college or school, students should refer to their academic dean's office.

## Class Rank

Undergraduate students can get a document that indicates their class rank among students graduating within the last year. Students in the College of Arts and Sciences and the College of Engineering and Applied Science will have a ranking within their major degree program. Students in other schools, colleges and programs will have a ranking within their college. The request form is available in MyCUInfo.

## Official Transcripts

Students may order official transcripts through the MyCUInfo portal. Official transcripts are available as either a complete academic record of courses taken at all University of Colorado campuses or as a select career (undergraduate, graduate, law or non-credit). Official transcripts bear the signature of the registrar and the official seal of the university (not applicable to non-credit transcripts).

Transcripts can be withheld for ongoing financial obligations to the university or for disciplinary actions.

## Unofficial Transcripts

Unofficial transcripts also show the complete academic record of courses taken at the University of Colorado. However, academic institutions and potential employers generally do not accept the unofficial transcript as evidence of a student's career at CU-Boulder, as this transcript does not carry the registrar's signature, the seal of the university or other security features. Unofficial transcripts are primarily used for advising and counseling in offices on campus and at other University of Colorado campuses. Currently enrolled students and alumni who have access to the MyCUInfo portal may access and print unofficial transcripts free of charge via [MyCUInfo.colorado.edu](https://mycuinfo.colorado.edu).

## Holds

A hold may be placed on a student's record for a number of reasons, including but not limited to financial, advising, scholastic, conduct and health. A hold may prevent a student from registering, returning to school, obtaining an official transcript or receiving a diploma. Students should resolve holds as quickly as possible by contacting the appropriate campus office. General inquiries may be addressed to the Office of the Registrar. Inquiries on financial holds may be addressed to the Bursar's Office.

## Confidentiality of Student Records

Annual Notice to Students: The University of Colorado complies fully with the provisions of the Family Educational Rights and Privacy Act (FERPA) of 1974. The act was designed to protect the privacy of student education records, to establish the right of students to inspect and review their education records and the right to request an amendment or correction.

University guidelines explain procedures to be used by the institution for compliance with the provisions of the act. Copies of the guidelines may be obtained from the Office of the Registrar and at [www.colorado.edu/registrar/resources/family-educational-rights-and-privacy-act-ferpa](http://www.colorado.edu/registrar/resources/family-educational-rights-and-privacy-act-ferpa).

Students wishing to review their education records must schedule an appointment with the Office of the Registrar and present proper identification. All other records inquiries must be directed to the appropriate office, e.g., financial aid, bursar, etc.

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

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

1. **The right to inspect and review education records within 45 days of the day the university receives their request for access.**
2. **The right to request the amendment of students' education records that they believe are inaccurate or misleading.**
3. **The right to consent for disclosures of personally identifiable information contained in their education records, except to the extent that FERPA authorizes disclosure without consent.**
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 following items of student information have been designated by the University of Colorado Boulder as public or "directory" information: student names; student address (including designated local, mailing and home); local telephone number (not those defined as home or cell); campus email address; dates of attendance; enrollment status; class; college or school; previous educational institutions attended; major/minor fields of study; university-recognized honors and awards, and degrees, honors or awards applied for or conferred (e.g., certificates, thesis and dissertation titles) and dates conferred; past and present participation in officially recognized sports and activities; physical factors (height and weight) of athletes; student employment status (e.g., teaching assistant, GPTI, resident advisor, work-study, tutor or other) and positions held at the university and dates of employment, as well as GPTI/teaching assistant Faculty Course Questionnaire (FCQ) ratings; class seat assignment; College Opportunity Fund application and authorization status; expected date of completion in enrolled

course of study; and student photo. Such information may be disclosed by the institution at its discretion, unless the student has explicitly requested in writing that it not be released.

## Withholding Directory Information

Students have the right to withhold directory information from inquirers. To restrict the release of directory information, bring a photo ID to the Office of the Registrar during business hours to complete a privacy form.

## Student Consent for Release of Confidential Information

Students may complete a Student Permission form that allows the university to release educational record information to parents, spouses or other third parties.

## Release of Disciplinary Information

Provisions of the Family Educational Rights and Privacy Act of 1974, as amended by the Higher Education Amendments of 1998, govern access to a student's academic transcript or conduct file. The student and/or those university officials who demonstrate a legitimate educational need for disciplinary information may have access to the student's conduct file.

Parent(s) who provide proof that a student is a dependent as defined in Section 152 of the Internal Revenue Code of 1954 (i.e., a copy of the last federal income tax return listing the student as a dependent) can have access to the student's conduct file without written consent of the student. In this case, parents may have access to a conduct file, even if the student has requested otherwise.

In addition, parent(s) may be notified if a student under 21 is found responsible for a violation involving use or possession of alcohol and controlled substances. All other inquiries, including but not limited to inquiries from employers, government agencies, news media, family, friends or police agencies, require a written release from the student before access to university conduct files is granted. Exception: information may be released pursuant to a lawfully issued subpoena and as provided by the Campus Security Act as amended by the Higher Education Amendments of 1992.

The Campus Security Act permits higher education institutions to disclose to alleged victims of any crime of violence (e.g., murder, robbery, aggravated assault, burglary, motor vehicle theft, arson) the results of the conduct proceedings conducted by the institution against an alleged perpetrator with respect to such crime. The Campus Security Act also requires that both the accused and the accuser be informed of campus conduct proceedings involving a sexual assault.

## In-State and Out-of-State Tuition Classification

Tuition classification is governed by Colorado statutes and by judicial decisions that apply to all Colorado state-funded institutions and is subject to change without notice.

New students are classified as in-state or out-of-state residents for tuition purposes on the basis of information provided on their application for admission and other relevant information. Applicants may be required to submit evidence substantiating their claim of in-state eligibility.

Applicants and students who believe their classification is incorrect or who have become eligible for a change to in-state status must submit a petition with documentation in order to have their status changed. The necessary petition forms, deadlines for submission and explanation of the Colorado tuition classification statutes are available at [www.colorado.edu/registrar/state-tuition](http://www.colorado.edu/registrar/state-tuition) or the Office of the Registrar, Regent Administrative Center 101, University of Colorado Boulder, 20 UCB, Boulder, CO 80309-0020, phone **303-492-0907**, fax 303-492-8748, email

[tuitclass@colorado.edu](mailto:tuitclass@colorado.edu).)

## Basic Requirement for Establishing Colorado Residency

No person may establish domicile in Colorado solely for the purpose of obtaining in-state tuition benefits. An individual who seeks to establish domicile while registered as a student is presumed to establish Colorado domicile solely for tuition purposes unless there is clear and convincing evidence to the contrary.

Colorado in-state tuition classification requires domicile (legal residence) in Colorado for 12 consecutive months. Domicile is defined as a person's true, fixed and permanent home and place of habitation. To establish domicile, a person must reside in Colorado and demonstrate that Colorado is his/her permanent home.

In addition to establishing domicile in Colorado, a person must be either 22 years of age or older, married, a graduate student or an emancipated minor to begin the 12-month period. Unemancipated minors qualify for in-state status if their parents have been domiciled in Colorado for at least one year.

## Emancipation

An emancipated student must demonstrate total financial and residential independence. This requirement makes it extremely difficult for most undergraduates who do not have a parent domiciled in Colorado to qualify for classification as a resident student at the University of Colorado Boulder.

## Evidence of Domicile

Evidence of Colorado domicile includes actions that would be expected of any permanent resident. Factors that constitute evidence of domicile are:

- payment of Colorado state income tax and filing a tax return in Colorado
- Colorado driver's license or Colorado ID card
- Colorado vehicle registration
- voter registration in Colorado
- ownership and permanent occupancy of residential real property in Colorado
- permanent employment or acceptance of future employment in Colorado (note: employment offered by the university to students is not considered permanent)
- continued residence in Colorado while not enrolled as a student

No single factor constitutes proof of domicile. All factors, positive and negative, are considered. All of the listed factors are not necessary, but individuals should take action on those factors that are appropriate in their circumstance.

## Unemancipated Minors

Students as old as 22 may qualify for in-state tuition if either of their parents, regardless of custody, has been domiciled in Colorado for 12 consecutive months preceding the first day of class in a given semester, even if the student resides elsewhere. In certain circumstances student may qualify through their parents up to age 23.

Students lose eligibility for in-state tuition if they (or their parents, if the student is an unemancipated minor) maintain domicile outside Colorado for one year or more, unless the parents have lived in Colorado at least four years and meet other requirements.

Students who give false information to evade payment of out-of-state tuition or who fail to provide timely notice of their loss of in-state eligibility are subject to retroactive assessment of out-of-state tuition, as well as disciplinary and legal actions.

## In-State Status: Other Circumstances

Exceptions for the one-year domicile requirement exist for the following:

- Colorado National Guard members
- active duty military stationed in Colorado and their dependents in certain circumstances
- honorably discharged members of the U.S. Armed Forces and their dependents in certain circumstances
- returning active-duty military members
- Canadian military stationed in Colorado
- employees of companies moving to Colorado receiving government economic incentives
- children of new faculty members at Colorado state colleges and universities
- Western Regional Graduate Program enrollees in specific major fields of study
- U.S. citizens and U.S. permanent residents who are Colorado high school graduates or who obtain a Colorado GED and will have attended a Colorado high school for three years preceding enrollment at CU-Boulder
- students without lawful status who are Colorado high school graduates or who have obtained a Colorado GED and have attended a Colorado high school for three years preceding enrollment in CU-Boulder (other circumstances also apply; see [www.colorado.edu/registrar/state-tuition](http://www.colorado.edu/registrar/state-tuition))

For detailed explanations of the requirements for these exceptions, including spouse and child eligibility, go to [www.colorado.edu/registrar/state-tuition/exceptions-1-year-domicile](http://www.colorado.edu/registrar/state-tuition/exceptions-1-year-domicile).

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## Expenses

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### College Opportunity Fund (COF)

The College Opportunity Fund (COF), created by the Colorado Legislature, provides a stipend to eligible undergraduate students paying in-state tuition. The stipend pays a portion of total in-state tuition for eligible undergraduate students who attend a Colorado public institution or a participating private institution. Eligible undergraduate students must be admitted and enrolled at a participating institution to use the stipend for eligible undergraduate classes.

Students must apply for and authorize (two separate steps) the COF stipend in order to receive it. For instructions, see [www.colorado.edu/registrar/students/cof](http://www.colorado.edu/registrar/students/cof). An account is created with 145 available undergraduate hours.

COF-eligible students who exceed 145 eligible COF hours toward their degree may apply for additional semesters of eligibility. See [www.colorado.edu/registrar/students/cof/extensions](http://www.colorado.edu/registrar/students/cof/extensions).

Details of the COF program are determined by the Colorado Department of Higher Education (CDHE) and the College Assist Program. Updated details are available at [cof.college-assist.org](http://cof.college-assist.org).

### Confirmation Deposit

All new students (both in-state and out-of-state) must confirm their enrollment at the university by official notification and deposit of \$200. The deposit is nontransferable and must be paid by all students, regardless of financial aid awards. Students who have paid the deposit and who

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decide not to attend CU-Boulder forfeit their deposit. Students who submit deposits after enrollment levels have been reached will not be accepted, and their deposits will be returned.

The confirmation deposit is not credited toward tuition and fees. It is refunded when a student graduates or officially withdraws from CU-Boulder within established dates and guidelines after paying any outstanding university obligations. Students should update their direct deposit bank account information before they graduate or withdraw to be sure they receive their refund.

## Estimated Expenses

Expenses for students attending the University of Colorado Boulder vary, depending on housing (on or off campus), program of study, state residency (tuition classification), personal needs and individual interests.

It is difficult, therefore, to provide exact statements of total expenses. The following estimated costs per academic year were calculated for the range of full-time undergraduate students living on the Boulder campus during the 2015-16 academic year.

Tuition and fees for 2016–17 were not set at the time of publication. Check the Bursar's Office website for current tuition and fee rates: [bursar.colorado.edu/tuition-fees/tuition-and-fees-rate-sheets](http://bursar.colorado.edu/tuition-fees/tuition-and-fees-rate-sheets).

### Costs for 2015–16 Year at CU-Boulder

*The figures below are estimates based on a single undergraduate student enrolled full time for an academic year of two semesters. The difference in range depends upon student's major.*

#### **In-State Expenses (Resident for tuition purposes)**

Tuition and Fees: \$11,273-\$15,857

On-campus Room and Board (*based on double occupancy*): \$13,194

Books and Supplies: \$1,800

On-campus Estimated Total: \$26,267-\$30,851

#### **Out-of-State Expenses (Nonresident for tuition purposes)**

Tuition and Fees: \$34,307-\$37,313

On-campus Room and Board (*based on double occupancy*): \$13,194

Books and Supplies: \$1,800

On-campus Estimated Total: \$49,301-\$52,307

#### **International Expenses (International nonresident for tuition purposes)**

Tuition and Fees: \$35,351-\$38,897

On-campus Room and Board (*based on double occupancy*): \$13,194

Health Insurance: \$3,390

Books and Supplies: \$1,800

On-campus Estimated Total: \$54,025-\$57,571

#### *Notes*

1. Residency classification is determined by Colorado state law. The resident tuition amount assumes eligibility for, and authorization for the use of, the College Opportunity Fund (COF) stipend, which was \$75 per credit hour in 2015–16.

2. Special residential academic fees, program fees, course fees and transportation, medical and personal cost estimates are not included in the estimated total because costs can vary depending upon individual circumstances and spending habits.

Students planning to attend summer session should take into account estimated expenses

indicated on the [Summer Session website](#), available in early January.

In-state tuition is charged per credit hour. Out-of-state and international tuition is a flat rate, regardless of the number of credit hours.

In-state undergraduate students must apply for and authorize the College Opportunity Fund tuition stipend to help offset part of their tuition. See [www.cu.edu/ums/cof/faq.html](http://www.cu.edu/ums/cof/faq.html) and [cof.college-assist.org](http://cof.college-assist.org) for additional information.

Out-of-state students are guaranteed the same tuition rate for four years. Students first registering summer 2015 through spring 2016 are guaranteed the same tuition rate through summer 2019. See [www.colorado.edu/pba/budget/tuitionfees/guarantee.html](http://www.colorado.edu/pba/budget/tuitionfees/guarantee.html) for more information.

Zero or fractional credit is treated as one hour in assessing tuition and fees. Tuition for no-credit (NC) courses is the same as for courses taken for credit.

Students simultaneously enrolled in programs leading to two different degrees will be assessed tuition for the college or school with the higher tuition rate.

## Housing Security Deposit

All students who live in the residence halls are required to pay a one-time security deposit of \$300 (deposit is subject to change). This security deposit is held by Housing & Dining Services and is released to the tuition and fee account within 60 days after the expiration of the housing contract. Students who do not live in the residence hall for the entirety of the housing contract period or cancel their housing reservations forfeit the deposit.

The security deposit required for housing is in addition to the confirmation deposit required for admission to the university.

## Fees

### New Student Fee

The new student fee is a one-time nonrefundable fee assessed at the time of initial registration for students entering a degree program. Nondegree students who are admitted to degree status are charged the new student fee at the time they first register. It covers expenses for registration and degree services, New Student Welcome Programs, Buff OneCard, immunization management, Forever Buffs alumni membership and student support programs for international students. The fee varies depending upon degree and international status.

- Undergraduate students: \$182
- Graduate students: \$62
- International undergraduate students: \$500
- International graduate students: \$145

### Program and Course Fees

Instructional fees are charged on an individual basis to help offset the higher costs of specialized supplies and equipment unique to these programs and courses. Program and course fees for 2015–16 ranged from \$1–\$375 per fee. Visit [bursar.colorado.edu](http://bursar.colorado.edu) for a list of specific program and course fees. Lab courses not linked to a lecture course may also require payment of a course fee. In addition, certain colleges charge a fee for enrollment in that college,

even if the student is not currently taking courses that apply to their major.

## Late Registration Fees

Students in certain categories may be allowed to register late for a fall or spring semester if not registered in any classes as of the third Friday of the semester. Eligible students are assessed a \$100 late registration fee, which should not be confused with charges assessed for late payments of the university bill.

## Health Insurance Requirement

All students are required to have health insurance during their time at CU-Boulder. Students can elect coverage under their own insurance plan, through a family member or employer, or the university's Student Gold Health Insurance Plan.

## Automatic Enrollment in Student Gold Health Insurance

Students registered for six or more undergraduate credit hours or one or more graduate credit hours will be automatically enrolled in CU's Student Gold Health Insurance Plan and charged the semester premium every fall unless the selection is changed by the semester deadline.

Exceptions to automatic enrollment: new summer students, non-degree seeking Continuing Education, ACCESS, Time Out Program, Study Abroad and evening MBA program.

Students can add the Campus Care supplement to their existing health insurance for basic coverage on campus or waive both university plans by providing proof of health insurance by the semester deadline.

For more information, visit [www.colorado.edu/studentinsurance](http://www.colorado.edu/studentinsurance).

Note: Plans available through the health insurance marketplace meet CU's health insurance requirement. Colorado students may sign up at [Connect for Health Colorado](http://connectforhealthco.com) (<http://connectforhealthco.com>). Nonresident students may sign up through their home state health exchange or through the national website at [www.healthcare.gov](http://www.healthcare.gov).

## 2015–16 Mandatory Fees per Semester

### Activity Fee (managed by CU Student Government)

#### ***Undergraduate Students***

One class of 5 or fewer credit hours: \$48.01

One class of more than 5 credit hours: \$297.75

More than one class (any amount of credit hours): \$297.75

#### ***Graduate Students*** (Note 1)

Master's, beginning doctoral, doctoral thesis only, and law (status A, B, C, E): \$297.75

Doctoral candidate (status D): \$48.01

### Arts and Cultural Enrichment Fee

All students: \$10.00

### Athletic Fee

**Undergraduate Students:**

Credit hours of 3 or fewer: \$0.00

Credit hours of 4 or more: \$28.50

**Graduate Students:**

Master's, beginning doctoral, and law (status A, B, C): \$28.50

Doctoral candidate and doctoral thesis only (status D, E): \$0

**Capital Construction Fee**

All students:

Credit hours of 6 or fewer: \$85.00

Credit hours of 7 or more: \$170.00

**Career Services Fee**

All students except law and doctoral candidates: \$12.00

**Computing Fee**

All students:

Credit hours of 6 or fewer: \$33.62

Credit hours of 7 or more: \$67.24

**International Student Processing Fee (Immigration Compliance Fee)**

International students only: \$40

**Mental Health Resource Fee**

**Undergraduate students:**

One class of 5 or fewer credit hours: \$0.00

One class of more than 5 credit hours: \$21.14

More than one class (any amount of credit hours): \$21.14

**Graduate Students:**

Master's, beginning doctoral, doctoral thesis only, and law (status A, B, C, E): \$21.14

Doctoral candidate (status D): \$0

Doctoral candidate (status D) if enrolled in Student Gold Insurance or Wardenburg Campus Care: \$21.14

**Recreation Center Expansion Fee**

One class of 5 or fewer credit hours: \$85.28

One class of more than 5 credit hours: \$106.62

More than one class (any amount of credit hours): \$106.62

Doctoral candidate (status D): \$0.00

## Student Bus and Bike Programs Fee (Note 42)

All students: \$85.00

## Student Health Fee

### **Undergraduate Students:**

One class of 5 or fewer credit hours: \$0.00

One class of more than 5 credit hours: \$84.14

More than one class (any amount of credit hours): \$84.14

### **Graduate Students:**

Master's, beginning doctoral, doctoral thesis only, and law (status A, B, C, E): \$84.14

Doctoral candidate (status D): \$0

Doctoral candidates (status D) if enrolled in Student Gold Insurance or Wardenburg Campus Care: \$84.14

## Student Information System Fee

All students: \$7.00

### *Notes*

1. Graduate status is determined by the Graduate School. Additional Graduate Student Fees: Law Students are assessed a Graduation Fee (\$40). Law students except for professional masters (LLM) students are assessed a Law Student Services Fee (\$150). All graduate students are charged the United Government of Graduate Students Graduate Fee of \$5.50.
2. The student bus and bike program fee entitles students to unlimited free rides on local, regional and express bus routes.

For detailed student fee information, visit [bursar.colorado.edu](https://bursar.colorado.edu).

## Tuition and Fee Regulations

### Drop/Add Tuition Adjustment

Adjustment of tuition and fees is made on drop/add changes as published at [www.colorado.edu/registrar/calendars-schedules/academic-calendar](https://www.colorado.edu/registrar/calendars-schedules/academic-calendar).

### Tuition Classification

Students are classified as residents or nonresidents for tuition purposes on the basis of answers provided on their application for admission and other relevant information. For more information, go to [www.colorado.edu/registrar/state-tuition/criteria-establish-residency](https://www.colorado.edu/registrar/state-tuition/criteria-establish-residency).

## Students Registered on More than One Campus

Students registering for courses on more than one campus of the university during a single

semester pay tuition and fees to each campus at the rate appropriate to the number of credits for which they are registered on that campus. Students may be eligible to use the concurrent registration option, in which case they pay the tuition rate of their home campus for the total hours enrolled at all campuses.

## Nondegree Students

Nondegree students enrolled in undergraduate courses are assessed tuition at the undergraduate student rate. Nondegree students enrolled in graduate courses are assessed tuition at the graduate student rate. Nondegree students enrolled in both graduate and undergraduate courses are assessed tuition at the undergraduate student rate.

## University Employees and Dependents

CU-Boulder offers a tuition benefit to eligible employees which may be transferred to their eligible dependents. The benefit allows eligible employees to receive a waiver for up to nine credit hours of tuition (on a space available basis) per year or allows their dependents to receive a discount of 10 percent off of the student share of tuition (tuition less the College Opportunity Fund stipend). Employees and their dependents are responsible for paying all other mandatory fees and other related educational costs. The faculty/staff benefit year runs fall term through summer term.

If an employee chooses to use the benefit for their dependent, the benefit is *not* based on space-available or full-time status. Dependents can register for courses during the regular enrollment period and can be enrolled full time or part time. The employee cannot use the nine credit hour tuition waiver during an academic year in which a dependent utilizes the 10 percent discount for one or more semesters.

Anyone using the benefit must be officially admitted as a degree-seeking or nondegree student to the Boulder Main Campus. The benefit does not apply to Continuing Education courses.

For more information about the tuition benefit, including eligibility, deadlines, the administrative policy, admissions information and taxable income visit the [Employee Services website](#).

Specific information for Boulder Main Campus can be found through the [Bursar's Office](#).

## Concurrent Bachelor's/Master's Degree Programs

The Graduate School, in cooperation with the other colleges and schools, has instituted a concurrent bachelor's/master's degree option.

Students should talk with specific departments regarding programs offered and verification of the following statements:

1. Students who complete the requirements for the concurrent bachelor's/master's degree receive both degrees simultaneously.
2. Students admitted to concurrent programs may register for graduate courses before they receive a bachelor's degree.
3. Students admitted to bachelor's/master's programs will pay tuition according to their undergraduate/graduate status throughout the five to six years required to complete the concurrent bachelor's/master's degrees. Graduate students are assessed graduate tuition rates and if receiving financial aid are considered "independent" once reaching graduate status.

4. Students admitted to concurrent degree programs are regarded as undergraduate students for the purposes of receiving financial aid until they are advanced to graduate status. Students pursuing a concurrent bachelor's/master's degree are automatically changed to graduate status after the completion of 130 credit hours (or 145 credit hours for a student in the College of Engineering and Applied Science). All credits earned at CU (including incomplete or in-progress grades), as well as transfer and AP credit are included in the total credit-hour limit for undergraduate status.

## Approved Doctoral Candidates

A student who has passed the comprehensive exam and is admitted as an approved doctoral candidate is registered for five dissertation hours.

Students not making use of campus facilities may choose to register for three dissertation hours and will be considered part-time students.

Continuous registration for appropriate dissertation hours during fall and spring semesters is required until completion of the dissertation defense. During the semester of the dissertation defense, a student must be a full-time student, registered for five dissertation hours. A DMA student who has passed the comprehensive exam must maintain continuous registration by registering for DMA dissertation credits (courses 8200–8399) or TMUS 8029 through the semester in which the final dissertation exam or final exam is completed.

## Payment of Tuition and Fees

### Bill Distribution

Bills are available online before each semester begins, and after students have registered. For more information, visit [bursar.colorado.edu](http://bursar.colorado.edu) or the Summer Session website at [colorado.edu/summer/get-started/tuition-financial-aid/how-when-you-pay](http://colorado.edu/summer/get-started/tuition-financial-aid/how-when-you-pay). Students access their student account on MyCUInfo.

### University Bills

Bills are online only. Any student who completes registration agrees to pay CU-Boulder according to the payment terms documented at [bursar.colorado.edu](http://bursar.colorado.edu) under "Payments." Once a month, CU-Boulder emails students and authorized payers reminding them to view their student account for recent activity and to pay any amount due by the due date. The student account is available online for students and authorized payers to view account activity and print a PDF bill. It includes all charges and credits for tuition, fees, housing, financial aid and payment received. No bills are mailed.

Payment methods include:

- Online payment from credit or debit card (nonrefundable 2.75 percent fee applies)
- Online from traditional checking or savings account
- Cash
- Check (personal, certified, cashier's, traveler's, convenience checks or money orders). Include student's identification number on the check.
- Wire transfer
- Flywire for international payments

Payment can be delivered via the Internet, wire, overnight express, standard U.S. Postal

Service or dropped in one of two payment drop boxes located outside the north and south entrances of Regent Administrative Center. (See detailed information for all payment options at [bursar.colorado.edu](https://bursar.colorado.edu).)

Failure to receive the official email notification of the bill does not relieve any student of responsibility for payment by the published deadline. Adjustments made throughout the semester will appear immediately on the student account. Tuition and fee billing information is available at [bursar.colorado.edu](https://bursar.colorado.edu).

## Payment Plan

Students and family members who are authorized payers have the option to enroll in a payment plan. For more information, visit [bursar.colorado.edu](https://bursar.colorado.edu).

## Failure to Make Payment

Failure to make the required payment in accordance with the scheduled payment deadline will result in any or all of the following actions:

- Financial holds placed on the student account. Financial holds remain on student accounts until the balance is paid in full.
- Registration for future terms will not be allowed.
- No transcripts, diplomas or certification materials will be issued until the student's account is paid in full.
- The student will be responsible for full tuition and fees, as well as a finance charge (1 percent monthly on the unpaid balance) and a late charge per semester according to the following schedule:

Balance Due and Late Charge:

\$1.00-99.99: \$5

\$100.00-299.99: \$10

\$300.00-499.99: \$20

\$500.00-699.99: \$30

\$700.00-899.99: \$40

\$900.00 and over: \$50

- All past due accounts are referred to the university's Student Debt Management Department (SDM) for collection.
- Past due finance charges of one percent (1%) per month on the unpaid balance will be assessed. (The university will calculate the finance charge by applying the periodic rate of one percent (1%) per month [Annual Percentage Rate of 12%] to the unpaid balance amount less any payments or credits made.)
- Colorado law requires the university to place all delinquent accounts with a private collection agency. The SDM department places delinquent accounts after six months unless a university approved repayment agreement is signed and on file with SDM in the Bursar's Office. (Establishing a repayment agreement does not result in release of financial holds.)
- The student account may be referred to an outside collection agency and the delinquency may be reported to national credit bureaus.

Student accounts that are referred to an outside collection agency may incur collection agency costs, expenses and fees. Such collection costs, expenses and fees may include percentage-based fees charged to the university by the collection agency, including percentage-based fees of up to 30% of the debt collected. Any collection costs stated above are charged in addition to the principal, fees and interest due on the student's account.

- The student may be responsible for reasonable attorneys' fees and court costs associated with collecting or enforcing payment on the past due account as allowed under Colorado law.
- Pursuant to Colorado Revised Statutes (CRS) § 23-5-115, in the event the student defaults on the amount owed to the university, the university may certify to the Colorado Department of Revenue (DOR) information required for the recovery of past due debt.

## Returned Payment Policy

If your check or Internet payment is returned from your financial institution for any reason, regardless of the amount, it is considered nonpayment and nonpayment penalties will be applied. You are subject to a late payment charge, a one percent (1%) finance charge on the unpaid balance, and a financial hold will be placed on your student account preventing future registration. Accounts with repeated returned payment transactions will require payment with cash, certified (guaranteed) funds or money orders only. In addition to the amount due to the university, a \$20 fee will be assessed for each payment returned. A \$30 fee is assessed by NelNet Business Solutions for returned payment plan payments. If your student account remains unpaid and is referred to an outside collection agency, you may be responsible for collection agency costs, expenses and fees allowed under Colorado law and incurred by the university in such collection efforts. Collection costs, expenses and fees may include percentage-based fees charged to the university by the collection agency of up to 30% of the debt collected. Any collection costs stated above are charged in addition to the principal, fees and interest due on the student's account. Inquiries concerning returned payments should be directed to Student Billing in the Bursar's Office at 303-492-5381.

## Dispute Rights

To dispute tuition and mandatory fee charges, you must make a formal appeal to the Tuition Dispute Committee by the end of the semester (last day of finals). Disputes will only be considered under extenuating circumstances, such as university error, recent medical condition, immediate family emergency, recent unanticipated financial problems and verified non-attendance. Official documentation must be provided to substantiate the circumstances. You may obtain a dispute form at [bursar.colorado.edu/billing/tuition-dispute/](https://bursar.colorado.edu/billing/tuition-dispute/) or by contacting the Bursar's Office Student Billing Department, Regent Administrative Center, 43 UCB, Boulder, CO 80309-0043, **303-492-5381** or [bursar@colorado.edu](mailto:bursar@colorado.edu). If you disagree with the charges and fail to avail yourself of the dispute process by the end of the semester, you will have been deemed to have waived your right to dispute the charges. For additional information on the dispute process, visit [bursar.colorado.edu](https://bursar.colorado.edu).

## Withdrawal Policy Regarding Tuition and Fees

Students who pay the \$200 confirmation deposit and register for classes for any given semester are obligated to pay full tuition and fees for that semester, unless they officially withdraw from the university by published deadlines.

Tuition and fee obligations for students withdrawing from fall or spring semesters:

**Continuing students:** Students who withdraw during the full-refund periods will have their confirmation deposit refunded unless there are any outstanding charges.

**New and readmitted students:** New, readmitted and transfer students are not eligible for a

refund of the confirmation deposit.

Deadlines to withdraw with no financial penalty vary by semester but occur about ten days before the first day of instruction. Visit [www.colorado.edu/registrar/withdrawing-university](http://www.colorado.edu/registrar/withdrawing-university) for the refund and assessment schedule.

If students withdraw after the deadline to withdraw without being assessed a financial penalty, but before 11:59 p.m. on the third Wednesday of instruction, they are assessed a \$200 withdrawal processing fee. The confirmation deposit is automatically credited toward the withdrawal fee.

After the third Wednesday of instruction (the first drop deadline), there are three additional assessment periods.

- From the third Wednesday of instruction through the fifth Wednesday, students will be charged 40 percent of total tuition (not including the portion of tuition paid by College Opportunity Fund (COF) for in-state undergraduate students) and mandatory fees (CUSG student fees, athletic fee and capital construction fee).
- After the fifth Wednesday of instruction through the seventh Wednesday, students will be charged 60 percent of total tuition (not including the portion of tuition paid by COF for in-state undergraduate students) and mandatory fees (CUSG student fees, athletic fee and capital construction fee).
- After the seventh Wednesday of instruction, tuition will not be adjusted. In the case of extenuating circumstances (university error, recent medical condition, immediate family emergency, recent unanticipated financial problems or verification of non-attendance), students may dispute tuition and mandatory fee charges through the Bursar's Office. COF hours are expended and not refunded for withdrawals after the published deadline.

To comply with federal financial aid regulations, financial aid recipients' loan and scholarship awards may be adjusted.

Students should visit [www.colorado.edu/registrar](http://www.colorado.edu/registrar) for any changes, as the Board of Regents reserves the right to revise this schedule at any time. Refer to the [Summer Session website](#) for information on the withdrawal policy and refund schedule for summer terms.

Students who do not pay the full amount due the university at the time of withdrawal must make arrangements for payment with the Student Debt Management department in the Bursar's Office. All withdrawals are handled through the Office of the Registrar.

## Auditing

Individuals who have not been admitted to the university as degree-seeking or nondegree students, and who wish to attend regularly scheduled classes may do so by obtaining auditor's status. Auditors must receive permission and obtain a signature from course instructors during the first week of class to be formally added to the roster.

Audited courses will not appear on any transcript, formal or informal, as no credit is awarded. Registered auditors receive class instruction, D2L access and library privileges only. Being an auditor at the University of Colorado Boulder does not guarantee eligibility for regular degree or nondegree status.

Note: Admitted degree students, either enrolled or suspended, are not permitted to audit courses. If an admitted degree student is interested in participating in a class without receiving credit, the student must enroll in the course for no credit. Courses taken for no credit are assessed the same tuition rate as courses taken for credit.

## Community Auditors

Community members age 18-54 can register for the Community Auditors program through Continuing Education by completing the Community Auditor Registration Form available at [ce.colorado.edu/resources/topics/enrollment-community-auditor](http://ce.colorado.edu/resources/topics/enrollment-community-auditor). Contact [ceregistration@colorado.edu](mailto:ceregistration@colorado.edu) or call **303-492-5148** for more information.

Community auditors pay for three credit hours at the in-state undergraduate tuition rate in the College of Arts and Sciences. The cost is a flat rate and, with instructor permission, auditors may audit as many classes as desired. Non-refundable payment is due at the time of enrollment.

## Senior Auditors Program

Individuals 55 years and older can register for the Senior Auditors Program through the CU-Boulder Alumni Association and qualify for reduced rates. Registration and eligibility information is available at [www.cualum.org/services/senior-auditors](http://www.cualum.org/services/senior-auditors). Contact the Alumni Association at **303-492-8484** for more information about this program.

University Catalog 2016-2017

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## Tuition Tables

### Tuition per Semester, fall 2015 through spring 2016

*(For planning purposes only. Rates for 2016–17 were not available at time of publication. Tuition charged is affected by residency status, degree and number of credit hours. Dual degrees are charged at the higher of the two rates.) Tuition and fee rates are determined by the Board of Regents prior to fall of each academic year. Check the [Bursar's Office website](#) for the most current tuition rates. These rates apply to the Boulder campus only.*

### Undergraduate Tuition

#### IN-STATE Tuition

The state of Colorado provides direct funding to in-state undergraduate students through the **College Opportunity Fund (COF)**. In the Undergraduate Tuition table below, the amount shown in **boldface** was the in-state tuition for those receiving the COF stipend (\$75 per credit hour for academic year 2015–16). The amount in parentheses was the tuition for those who did not apply for the COF stipend. The COF stipend amount is subject to legislative change every year. See [Colorado Opportunity Fund](#) in this section. For undergraduate and graduate mandatory fees, see [Fees](#).

**For credit hours over 18, add \$75 per credit hour. COF remains the same.**

| Credit Hours | A&S/Environmental Design/Education | Business                | Engineering             | CMCI                    | Music                  |
|--------------|------------------------------------|-------------------------|-------------------------|-------------------------|------------------------|
| 1            | \$ (1,239) <b>1,164</b>            | \$ (1,812) <b>1,737</b> | \$ (1,614) <b>1,539</b> | \$ (1,428) <b>1,353</b> | \$(1,278) <b>1,203</b> |
| 2            | \$ (1,314) <b>1,164</b>            | \$ (1,887) <b>1,737</b> | \$ (1,689) <b>1,539</b> | \$ (1,503) <b>1,353</b> | \$(1,353) <b>1,203</b> |
| 3            | \$ (1,389) <b>1,164</b>            | \$ (1,962) <b>1,737</b> | \$ (1,764) <b>1,539</b> | \$ (1,578) <b>1,353</b> | \$(1,428) <b>1,203</b> |
| 4            | \$ (1,852) <b>1,552</b>            | \$ (2,616) <b>2,316</b> | \$ (2,352) <b>2,052</b> | \$ (2,104) <b>1,804</b> | \$(1,904) <b>1,604</b> |

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|    |                         |                         |                         |                         |                        |
|----|-------------------------|-------------------------|-------------------------|-------------------------|------------------------|
| 5  | \$ (2,315) <b>1,940</b> | \$ (3,270) <b>2,895</b> | \$ (2,940) <b>2,565</b> | \$ (2,630) <b>2,255</b> | \$(2,380) <b>2,005</b> |
| 6  | \$ (2,778) <b>2,328</b> | \$ (3,924) <b>3,474</b> | \$ (3,528) <b>3,078</b> | \$ (3,156) <b>2,706</b> | \$(2,856) <b>2,406</b> |
| 7  | \$ (3,241) <b>2,716</b> | \$ (4,578) <b>4,053</b> | \$ (4,116) <b>3,591</b> | \$ (3,682) <b>3,157</b> | \$(3,332) <b>2,807</b> |
| 8  | \$ (3,704) <b>3,104</b> | \$ (5,232) <b>4,632</b> | \$ (4,704) <b>4,104</b> | \$ (4,208) <b>3,608</b> | \$(3,808) <b>3,208</b> |
| 9  | \$ (4,167) <b>3,492</b> | \$ (5,886) <b>5,211</b> | \$ (5,292) <b>4,617</b> | \$ (4,734) <b>4,059</b> | \$(4,284) <b>3,609</b> |
| 10 | \$ (4,630) <b>3,880</b> | \$ (6,540) <b>5,790</b> | \$ (5,880) <b>5,130</b> | \$ (5,260) <b>4,510</b> | \$(4,760) <b>4,010</b> |
| 11 | \$ (5,093) <b>4,268</b> | \$ (7,194) <b>6,369</b> | \$ (6,468) <b>5,643</b> | \$ (5,786) <b>4,961</b> | \$(5,236) <b>4,411</b> |
| 12 | \$ (5,556) <b>4,656</b> | \$ (7,848) <b>6,948</b> | \$ (7,056) <b>6,156</b> | \$ (6,312) <b>5,412</b> | \$(5,712) <b>4,812</b> |
| 13 | \$ (5,631) <b>4,656</b> | \$ (7,923) <b>6,948</b> | \$ (7,131) <b>6,156</b> | \$ (6,387) <b>5,412</b> | \$(5,787) <b>4,812</b> |
| 14 | \$ (5,706) <b>4,656</b> | \$ (7,998) <b>6,948</b> | \$ (7,206) <b>6,156</b> | \$ (6,462) <b>5,412</b> | \$(5,862) <b>4,812</b> |
| 15 | \$ (5,781) <b>4,656</b> | \$ (8,073) <b>6,948</b> | \$ (7,281) <b>6,156</b> | \$ (6,537) <b>5,412</b> | \$(5,937) <b>4,812</b> |
| 16 | \$ (5,856) <b>4,656</b> | \$ (8,148) <b>6,948</b> | \$ (7,356) <b>6,156</b> | \$ (6,612) <b>5,412</b> | \$(6,012) <b>4,812</b> |
| 17 | \$ (5,931) <b>4,656</b> | \$ (8,223) <b>6,948</b> | \$ (7,431) <b>6,156</b> | \$ (6,687) <b>5,412</b> | \$(6,087) <b>4,812</b> |
| 18 | \$ (6,006) <b>4,656</b> | \$ (8,298) <b>6,948</b> | \$ (7,506) <b>6,156</b> | \$ (6,762) <b>5,412</b> | \$(6,162) <b>4,812</b> |

## OUT-OF-STATE Tuition

| <i>Group/First<br/>Enrolled</i> | <i>A&amp;S/Environmental<br/>Design/Education</i> | <i>Business</i> | <i>Engineering</i> | <i>CMCI</i> | <i>Music</i> |
|---------------------------------|---|-----------------|--------------------|-------------|--------------|
|---------------------------------|---|-----------------|--------------------|-------------|--------------|

|                             |          |          |          |          |          |
|-----------------------------|----------|----------|----------|----------|----------|
| A-H: spring 2013 or earlier | \$14,976 | \$16,731 | \$16,245 | \$15,129 | \$15,129 |
| I: summer 2013–spring 2014  | \$15,264 | \$16,902 | \$16,551 | \$15,417 | \$15,417 |
| J: summer 2014–spring 2015  | \$15,705 | \$17,208 | \$17,028 | \$15,867 | \$15,867 |
| K: summer 2015–spring 2016  | \$16,173 | \$17,676 | \$17,541 | \$16,923 | \$16,344 |

## INTERNATIONAL Tuition (undergraduate)

| <i>Group/First Enrolled</i> | <i>A&amp;S/Environmental Design/Education</i> | <i>Business</i> | <i>Engineering</i> | <i>CMCI</i> | <i>Music</i> |
|-----------------------------|---|-----------------|--------------------|-------------|--------------|
| A-H: spring 2013 or earlier | \$14,976                                      | \$16,731        | \$16,245           | \$15,129    | \$15,129     |
| I: summer 2013–spring 2014  | \$15,264                                      | \$16,902        | \$16,551           | \$15,417    | \$15,417     |
| J: summer 2014–spring 2015  | \$16,455                                      | \$17,958        | \$17,778           | \$16,617    | \$16,617     |
| K: summer 2015–spring 2016  | \$16,965                                      | \$18,468        | \$18,288           | \$17,673    | \$17,127     |

## Graduate Tuition

## Tuition Status

**Standard Graduate Student** (master's and beginning doctoral): **Grad Status A and C**

**Master's Candidate** (registered for candidate for degree only): **Grad Status B**

**Doctoral Candidate** (passed comps, registered for dissertation hours only): **Grad Status D**

**Doctoral Thesis Only** (not passed comps, registered for dissertation hours only): **Grad Status E**

**Law Student: Grad Status Law**

Tuition Table 1: IN-STATE Tuition, All Graduate Students

| <b>Credit Hours</b> | <b>A&amp;S/Environmental Design/Education/Music</b> | <b>Business Prof. MS</b> | <b>MBA</b> | <b>BUSN PhD</b> | <b>ENGR</b> | <b>ENGR Prof. MS</b> | <b>CMCI</b> | <b>LAW JD</b> | <b>LAW LLM</b> |
|---------------------|---|--------------------------|------------|-----------------|-------------|----------------------|-------------|---------------|----------------|
| 1                   | \$1,755   | \$936                    | \$2,895    | \$2,499         | \$2,280     | \$860                | \$2,004     | \$4,953       | \$1,061        |
| 2                   | \$1,755   | \$1,872                  | \$2,895    | \$2,499         | \$2,280     | \$1,720              | \$2,004     | \$4,953       | \$2,122        |
| 3                   | \$1,755   | \$2,808                  | \$2,895    | \$2,499         | \$2,280     | \$2,580              | \$2,004     | \$4,953       | \$3,183        |
| 4                   | \$2,340   | \$3,744                  | \$3,860    | \$3,332         | \$3,040     | \$3,440              | \$2,672     | \$6,604       | \$4,244        |
| 5                   | \$2,925   | \$4,680                  | \$4,825    | \$4,165         | \$3,800     | \$4,300              | \$3,340     | \$8,255       | \$5,305        |
| 6                   | \$3,510   | \$5,616                  | \$5,790    | \$4,998         | \$4,560     | \$5,160              | \$4,008     | \$9,906       | \$6,366        |
| 7                   | \$4,095   | \$6,552                  | \$6,755    | \$5,831         | \$5,320     | \$6,020              | \$4,676     | \$11,557      | \$7,427        |
| 8                   | \$4,680   | \$7,488                  | \$7,720    | \$6,664         | \$6,080     | \$6,880              | \$5,344     | \$13,208      | \$8,488        |
| 9+                  | \$5,265   | \$8,424*                 | \$8,685    | \$7,497         | \$6,840     | \$7,740***           | \$6,012     | \$14,859      | \$9,549**      |

\*Tuition for BUS PROF continues to increase by \$936 for each credit hour over nine.

\*\*Tuition for LAW LLM continues to increase by \$1,061 for each credit hour over nine.

\*\*\*Tuition for ENGR Prof. MS continues to increase by \$860 for each credit hour over nine.

Tuition Table 2: OUT-OF-STATE Tuition, Status A, C, E, and Law

| <b>Credit Hours</b> | <b>A&amp;S/Environmental Design/Education</b> | <b>MBA</b> | <b>Business Prof. MS</b> | <b>BUSN PhD</b> | <b>ENGR</b> | <b>ENGR Prof. MS</b> | <b>CMCI</b> | <b>Music</b> | <b>LAW JD</b> | <b>LAW LLM</b> |
|---------------------|---|------------|--------------------------|-----------------|-------------|----------------------|-------------|--------------|---------------|----------------|
| 1                   | \$4,638                                       | \$5,388    | \$1,311                  | \$5,202         | \$5,055     | \$990                | \$4,887     | \$4,689      | \$6,084       | \$1,304        |
| 2                   | \$4,638                                       | \$5,388    | \$2,622                  | \$5,202         | \$5,055     | \$1,980              | \$4,887     | \$4,689      | \$6,084       | \$2,608        |
| 3                   | \$4,638                                       | \$5,388    | \$3,933                  | \$5,202         | \$5,055     | \$2,970              | \$4,887     | \$4,689      | \$6,084       | \$3,912        |
| 4                   | \$6,184                                       | \$7,184    | \$5,244                  | \$6,936         | \$6,740     | \$3,960              | \$6,516     | \$6,252      | \$8,112       | \$5,216        |

|    |          |          |           |          |          |            |          |          |          |            |
|----|----------|----------|-----------|----------|----------|------------|----------|----------|----------|------------|
| 5  | \$7,730  | \$8,980  | \$6,555   | \$8,670  | \$8,425  | \$4,950    | \$8,145  | \$7,815  | \$10,140 | \$6,520    |
| 6  | \$9,276  | \$10,776 | \$7,866   | \$10,404 | \$10,110 | \$5,940    | \$9,774  | \$9,378  | \$12,168 | \$7,824    |
| 7  | \$10,822 | \$12,572 | \$9,177   | \$12,138 | \$11,795 | \$6,930    | \$11,403 | \$10,941 | \$14,196 | \$9,128    |
| 8  | \$12,368 | \$14,368 | \$10,488  | \$13,872 | \$13,480 | \$7,920    | \$13,032 | \$12,504 | \$16,224 | \$10,432   |
| 9+ | \$13,914 | \$16,164 | \$11,799* | \$15,606 | \$15,165 | \$8,910*** | \$14,661 | \$14,067 | \$18,252 | \$11,736** |

\*Tuition for BUS PROF continues to increase by \$1,311 for each credit hour over nine.

\*\*Tuition for LAW LLM continues to increase by \$1,304 for each credit hour over nine.

\*\*\*Tuition for ENGR Prof. MS continues to increase by \$990 for each credit hour over nine.

Tuition Table 3: OUT-OF-STATE Tuition, Status B and D

| <b>Credit Hours</b> | <b>A&amp;S/Environmental Design/Education</b> | <b>BUSN PhD</b> | <b>ENGR</b> | <b>CMCI</b> | <b>Music</b> |
|---------------------|---|-----------------|-------------|-------------|--------------|
| 1-3                 | \$2,783                                       | \$3,121         | \$3,003     | \$2,932     | \$2,813      |
| 4                   | \$3,710                                       | \$4,162         | \$4,044     | \$3,910     | \$3,571      |
| 5                   | \$4,638                                       | \$5,202         | \$5,055     | \$4,887     | \$4,689      |
| 6                   | \$5,566                                       | \$6,242         | \$6,066     | \$5,864     | \$5,627      |
| 7                   | \$6,493                                       | \$7,283         | \$7,077     | \$6,842     | \$6,565      |
| 8                   | \$7,421                                       | \$8,323         | \$8,088     | \$7,819     | \$7,502      |
| 9+                  | \$8,348                                       | \$9,364         | \$9,099     | \$8,797     | \$8,440      |

For current rates on tuition see [bursar.colorado.edu/tuition-fees/tuition-and-fees-rate-sheets](https://bursar.colorado.edu/tuition-fees/tuition-and-fees-rate-sheets).



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## Financial Aid

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The Office of Financial Aid's primary goal is to ensure that students who have been admitted to the university have access to the resources available to fund their education. CU-Boulder students receive financial aid each year from federal, state, university and private sources.

### Applying for Financial Aid

Students apply for financial aid by completing the Free Application for Federal Student Aid (FAFSA) at [www.fafsa.ed.gov](http://www.fafsa.ed.gov). Based on a federal formula, the FAFSA determines a student's eligibility for grants, work-study and loans, as well as some scholarships. Students must reapply for financial aid every year.

For financial aid for fall 2016, spring 2017, and summer 2017, the 2016–17 FAFSA must be submitted. Students should apply as soon as possible after January 1, 2016, as some funds are first-come, first-served.

The Office of Financial Aid receives the FAFSA results electronically if CU-Boulder is listed on the application (school code 001370). Students must be accepted to the university before their financial aid application will be considered.

### Eligibility

Financial aid eligibility is based on the results of the FAFSA and the cost to attend CU-Boulder.

The FAFSA application determines the Expected Family Contribution (EFC), a reference number schools use to best determine the family's financial situation. It's **not** the amount of money a family will pay for college, nor is it the amount of financial aid a student will receive.

Each year the Office of Financial Aid calculates the estimated cost of attendance including tuition, fee, room, board, books and supplies, transportation, medical and personal expenses. The EFC is subtracted from the cost of attendance to determine the student's financial need.

View more information and examples at: [www.colorado.edu/financialaid/cost](http://www.colorado.edu/financialaid/cost).

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## Financial Aid Awards

Most financial aid is awarded in April, but aid is offered as long as funds are available.

Freshman and transfer students applying for aid for the 2016–17 academic year are encouraged to submit their FAFSA applications and any additional documentation requested by March 1, 2016, in order to receive aid information in time to make an informed decision. Awards available to CU-Boulder students are listed below.

### Loans

Students submit the FAFSA to be considered for the following loan programs.

**Federal Direct Subsidized and Unsubsidized Loans.** Funds are awarded and disbursed by CU-Boulder. Undergraduate students may qualify for a combination of subsidized (i.e. federal government pays the interest) and unsubsidized loans. The interest rates for direct loans are determined annually. Annual limits depend on the year in school; freshmen can be awarded up to \$5,500; sophomores, \$6,500; and juniors and seniors, \$7,500. Independent students may borrow an additional amount of unsubsidized loans; freshmen and sophomores, \$4,000; juniors and seniors, \$5,000.

The maximum loan amount a graduate student can borrow is \$20,500. The loan is unsubsidized and the interest rate is 6.21 percent.

Interest on unsubsidized loans can be repaid while the student is in school. Repayment begins six months after the student graduates or ceases to be enrolled at least half-time (6 credit hours for undergraduates; 4 credit hours for graduates).

**Federal PLUS Loan.** This federal loan is available to graduate students and parents of dependent undergraduate students. The interest rate is fixed at 6.84 percent. Borrowers must complete a credit check. Note: Borrowing a PLUS loan will be regarded as parental support on in-state residency petitions for dependent students.

**For Parents:** Parents may request a deferment on payments until their student has finished with school. Borrowers must complete a credit check. Note: Borrowing a PLUS loan will be regarded as parental support on in-state residency petitions for dependent students.

**For Grad Students:** Repayment begins 6 months after student graduates, drops below 4 credit hours in a given semester or withdraws.

### Work-Study

Students should submit the FAFSA to be considered for work-study, since it is based on financial need. Work-study students earn their award by working for on-campus or approved off-campus agencies. Students may apply for a variety of jobs at competitive rates. Jobs can be found online through the student portal. Student Employment maintains a work-study waitlist for students not awarded work-study. For more information, visit: [www.colorado.edu/studentemployment/work-study/waitlist](http://www.colorado.edu/studentemployment/work-study/waitlist).

### Grants

Grants are awards that do not have to be repaid. Students submit the FAFSA to be considered for federal, state and institutional need-based grants (including Pell, SEOG, Colorado Responsibility Grant, etc.). For more information, visit [www.colorado.edu/financialaid/types-aid/undergraduate-grants](http://www.colorado.edu/financialaid/types-aid/undergraduate-grants).

### Scholarships

Donations from private individuals, corporations, foundations and the University of Colorado are

all sources for scholarships. Incoming students are automatically considered for some scholarships via their admissions application. For more available scholarship opportunities, visit [www.colorado.edu/scholarships](http://www.colorado.edu/scholarships).

## CU-Boulder Scholarship Application

Students may apply for scholarships offered by the Office of Financial Aid through the student portal beginning November 1 each year. Your FAFSA must be received no later than March 1 to be considered for scholarships with a financial need requirement. Some scholarships may have earlier deadlines. For more information, visit [www.colorado.edu/scholarships/cuboulder-scholarship-app](http://www.colorado.edu/scholarships/cuboulder-scholarship-app).

Prospective students do not need to wait for formal acceptance to CU-Boulder before applying for financial aid or scholarships.

Scholarships are highly competitive at CU-Boulder. The selection committee considers academic achievement, honors, leadership, school activities and service to the community. Students should also search for scholarship opportunities within their academic program, college, club or campus organization.

## Private External Scholarships

Students who receive a private scholarship from an organization outside the university must report the scholarship via the student portal. In addition, students are encouraged to write to their donors and express their gratitude.

When a scholarship donor does not specify how to disburse the funds, the financial aid office equally divides awards of \$1,000 or more between the fall and spring semesters. Private scholarships less than \$1,000 are applied in full to the current semester bill.

Donors should mail their checks, payable to the University of Colorado, with a cover letter to:

**University of Colorado Boulder,**  
**Office of Financial Aid,** ATTN: Scholarship Services  
77 UCB  
Boulder, CO 80309-0077

Donors should mail scholarship checks at least one month prior to the bill due date to avoid incurring late and service charges. If a student's scholarship check is not submitted before by the bill payment deadline, he or she should make other arrangements to pay the bill.

## Drug Conviction

In accordance with the Higher Education Reconciliation Act of 2005, students who have been convicted under federal or state law for possession or sale of a controlled substance will be suspended from Title IV aid eligibility if the offense occurred while the student was receiving Title IV aid.

If a student is convicted for possession, the ineligibility period begins as of the date of the conviction and is:

- first offense = one year
- second offense = two years
- third offense = indefinite

If a student is convicted for sale of an illegal substance, the ineligibility period begins as of the

date of the conviction and is:

- first offense = two years
- second offense = indefinite

A student may regain eligibility by successfully completing a drug rehabilitation program that complies with criteria established by the Department of Education. More information is available by calling the U.S. Department of Education at **1-800-433-3243**.

## Financial Aid Policies

### Satisfactory Academic Progress

Students who apply for financial aid at CU-Boulder are responsible for knowing and complying with the satisfactory academic progress policy. Briefly, the policy outlines the requirements to maintain satisfactory progress (i.e., minimum grade point average [GPA], completion rate, etc.), the consequences of failing to meet the requirements, and the process for appealing if the student loses eligibility. More information is available at:

[www.colorado.edu/financialaid/policies/satisfactory-academic-progress-sap-policy](http://www.colorado.edu/financialaid/policies/satisfactory-academic-progress-sap-policy).

### Study Abroad

Students must be enrolled in a CU-Boulder study abroad program to be eligible for financial aid through CU-Boulder's financial aid office. Students participating in a study abroad program through another university are not eligible.

### Withdrawing

If a student enrolls at CU-Boulder, receives financial aid, then withdraws, his or her financial aid is adjusted according to federal regulations. The student may owe a bill to the university after the financial aid is adjusted.

Visit [www.colorado.edu/financialaid/policies](http://www.colorado.edu/financialaid/policies) for more information regarding these policies and others.

## Other Resources

### Student Employment

Jobs provide students with income, work experience, and the opportunity to explore career options. Research studies indicate that students who work are as successful academically as those who do not. Student Employment posts an average of 800 part-time on-campus and off-campus jobs for students. In addition, an on-call temporary employment service allows students to register for occasional work including one-time child care, yardwork and clerical jobs.

### Student Employee Work Hours Policy

Undergraduate student employees are limited to working a maximum of 25 hours per week during the fall and spring semesters, and to 40 hours per week during the summer per the Student Hourly Employee Work Hours Policy.

The policy does not affect students working in non-University off-campus jobs, though we encourage students to prioritize their academics first when considering outside work commitments.

View more information about this policy and other student employment policies:

[www.colorado.edu/studentemployment/policies](http://www.colorado.edu/studentemployment/policies).

Visit Student Employment in Regent Administrative Center 205 or call **303-492-7349** for more information.

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# Housing

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## Application for Residence Hall Housing

New freshman and transfer students receive information from Housing & Dining Services about applying for accommodations after they have confirmed their intent to attend the university. Housing assignments are made on a first-come, first-served basis. The earlier applications are submitted, the better chance students have of being assigned to the residence hall of their choice. (Please note that Housing & Dining Services does not guarantee assignment to a particular building or program, type of accommodation or a specific roommate.)

*Note: Application for admission to the university and application for housing are two separate transactions. Application for housing does not guarantee admission to the university, nor does admission to the university guarantee that housing will be available. For information regarding admission notification and confirmation procedures, see the Undergraduate Admission section.*

A \$300 security deposit is required to apply for residence hall accommodations. (Deposit is subject to change.)

All housing contracts are for the full two-semester academic year or remainder thereof. An early termination of contract is subject to financial penalties as stated in the residence halls contract.

## Housing Security Deposit

All students who live in the residence halls are required to pay a one-time security deposit of \$300. This security deposit is held by Housing & Dining Services and is released to the tuition and fee account within 60 days after the expiration of the housing contract. Students who do not live in the residence hall for the entirety of the housing contract period or cancel their housing reservations forfeit the deposit.

The security deposit required for housing is in addition to the confirmation deposit required for admission to the university.

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## Residence Halls

Living on campus in a university residence hall is considered an important part of student life. Over 7,000 students are accommodated in single rooms, double rooms, multiple occupancy rooms and apartments in 24 residence halls. All halls are coeducational and range in sizes from 100 to 500 students. Each fall the residence halls provide a new home for over 6,000 entering freshmen. Subject to the availability of space, all freshmen are required to live in a residence hall for two academic semesters (a summer term does not count as an academic semester), unless they are married or live with parents and have permission to commute. Requests for permission to reside off campus for other reasons are considered on their merits, taking into account individual circumstances.

The residence halls provide a range of services and programs designed to support the intellectual, social and personal growth of single student residents. All residence halls, for example, offer tutoring services to residents at no cost. Some halls offer special facilities, such as an academic skills lab or a music room. A variety of academic and social programs are sponsored by residence hall and other university staff.

The residence hall dining service hours are planned to be convenient for most students' schedules. *Campus Dining Services provides healthy food choices to diverse students which emphasizes convenience, value and variety.* The dining program permits students (regardless of hall assignment) to eat in any residence hall dining center.

For more information about university housing options and/or permission to reside off campus, prospective students may contact Occupancy Management at [studenthousing@colorado.edu](mailto:studenthousing@colorado.edu), Center for Community, room S300, 159 UCB, Boulder, CO 80309-0159.

## Residential Academic Programs

A number of the residence halls are home to residential academic programs (RAPs), whereby students live in and take special classes in their hall that meet core curriculum and/or other course requirements. These special academic programs are described in the [College of Arts and Sciences](#) and [Other Academic Programs](#) sections. All of these programs charge additional \$850 fees per academic year. They include:

- **Baker RAP** is designed for freshmen and sophomores in the College of Arts and Sciences interested in the natural sciences and environmental studies.
- **CMCI/Communication RAP** in Buckingham Hall offers 200 first- and second-year students a program to explore many different areas of communication, ranging from processes of face-to-face interaction to the impact of media and technology on daily life.
- **Engineering Honors RAP** in Andrews Hall provides educational experiences that match the abilities and ambitions of some of the very best students at CU.
- **Farrand RAP** offers small seminar courses in the liberal arts taught by award-winning faculty selected to help create a close intellectual and social community. About 400 mostly first-year students from the College of Arts and Sciences participate. The program focuses on the study of the humanities within the larger frame of culture and society.
- **Global Engineering RAP** prepares engineering students for the new global conditions of the engineering professions through experiencing international culture, mastering a second language and gaining confidence with IT-driven international communication and collaboration.
- **Global Studies RAP** promotes the recognition of global interdependence, encourages the study of foreign languages and international affairs and emphasizes the value of

international education. This year-long program is housed in Arnett Hall and connects participants with a peer group of students who have similar interests and goals. The staff is knowledgeable about CU-Boulder's many international resources, and the faculty incorporate international work into their teaching and research.

- **Health Professions RAP**, located in Kittredge West, accommodates approximately 225 students. This community is ideal for students interested in exploring coursework and career options in the health professions such as practitioners, researchers or policymakers. Courses offered include a mix of natural science, social science and general education courses appropriate for first- and second-year students interested in study or careers related to health care or health care policy.
- **Honors RAP** is the residential component of the Honors Program of the College of Arts and Sciences. It promotes and sustains academic excellence within a lively community setting. Students take one, onsite, seminar-style three-hour course each semester. Beyond the classroom, Honors RAP offers a variety of co-curricular and student-led activities that enhance the learning experience. It is open to approximately 335 first-year and continuing honors-qualified students. Participants live in Smith Hall.
- **Leadership RAP** is dedicated to the study and practice of leadership for the purpose of educating culturally competent leaders who champion an ethic of civic and social responsibility. The Leadership RAP offers two studies programs: the **Ethnic Living and Learning Community Leadership Studies Program (ELLC)** and the **Chancellor's Leadership Studies Program (CLSP)**. Both these programs are housed in Kittredge Central.
- **Leeds Business RAP** (Leeds RAP) is a targeted community that is comprised exclusively of students who are business majors. Leeds RAP seeks to build individuals who are well-rounded, prepared, engaged and equipped to succeed in 21st century workplaces and take roles as global leaders. Located in Cheyenne Arapaho Hall, where students in the program develop supportive relationships with faculty and staff, including an in-house academic advisor, as well as with peer mentors.
- **Libby Arts RAP** (LRAP) is designed primarily for first- and second-year College of Arts and Sciences students interested in the arts. LRAP offers a curriculum in the arts, including visual arts, theatre and dance, film studies and writing. The program also offers a variety of courses that fulfill university core requirements from a number of disciplines including economics, art history and integrative physiology. In addition to small class sizes in a living and learning environment, co-curricular activities provide a sense of community and a unique opportunity to interact with faculty and LRAP advisors across art disciplines.
- **Sewall Residential Program** is a co-educational program for first- and second-year students enrolled in the College of Arts and Sciences or the Leeds School of Business who have an interest in the study of history and culture. Its award-winning faculty offer small seminar-style courses and a variety of co-curricular activities and outreach opportunities that emphasize the connections between modern culture and its historical roots.
- **Sustainable by Design Residential Academic Program** (SbD) offers unique interdisciplinary educational opportunities in a residential community setting. The program will help to develop students who are globally focused leaders, well-versed in both the technical and societal aspects of sustainable designs. Along with its program partner, Sustainability and Social Innovation (SSI), SbD creates a shared vocabulary and literacy to enable students to develop successful approaches to meeting emerging challenges to human society and the planet. Open to all majors.
- **Sustainability and Social Innovation** (SSI) includes interdisciplinary faculty and students interested in developing innovative, self-sustaining solutions for critical social environmental issues around the globe. Small courses emphasize collaborative problem-solving and hands-on projects. Core classes relevant to the SSI focus are available. Open to all majors.

## Living and Learning Communities

Living and Learning Communities (LLCs) also enhance the learning environment. Several communities offer themed housing without the formal connection to faculty found with the RAPs.

- **Active Living** offers students in Darley North a living community in which all participants strive to lead an intentionally active lifestyle. Events in the program inspire the holistic development of mind, body and spirit. Ultimately, Active Living participants aim to achieve academic success and fulfillment of their personal needs and goals.
- **Be First** is designed for freshman, first generation students, providing both academic and social events to help develop community and impart skills to create a successful college experience. By invitation only.
- **The Hallett CommUNITY** is a community that provides a safe space for students to talk and learn more about social justice issues through conferences, events and dialogue. This program partners with the Spectrum Living & Learning Community.
- **The Quadrangle Engineering and Sciences Living and Learning Community** is comprised of students studying engineering, applied science or mathematics who live in Aden, Brackett, Cockerell or Crosman halls. This program offers residents on-site tutoring, access to a computer lab configured to match that in engineering computer labs, enhanced academic support services, wireless computer access and calculus work groups in residence. An additional fee of \$130 per academic year was charged in 2015–16 to cover support activities (fee is subject to change).
- **Spectrum**, part of the Hallett CommUNITY LLC, offers a variety of social and educational activities including leadership opportunities. Spectrum is designed to provide a supportive place for individuals of all sexual identities including gay, lesbian, bisexual, transgender and queer people and their allies. The Spectrum living area has gender neutral bathrooms.
- **Transfer WEST** (Welcoming Exceptional Students in Transition) is a unique social, academic and resource community just for transfer students. Participants have previously attended other universities or colleges but are new to CU. The program hosts various social events and activities as well as academic advisement and career-oriented programs geared to help transfer students be successful at CU-Boulder.

## Room and Board Rates per Semester

Residence hall room and board rates per person, per semester, for the 2015–16 academic year were as follows:

19 meals/week and double room: \$6,597

19 meals/week and single room: \$7,601

Different meal plans are available. A modest rate increase should be expected for the 2016–17 year.

## Graduate & Family Housing

The university's Children's Center provides daycare for the children of family housing residents, staff and faculty. For information on applying to Graduate & Family Housing, visit their website at [housing.colorado.edu/residences/graduate-family](http://housing.colorado.edu/residences/graduate-family); write the Graduate & Family Housing Office, 1350 20th Street, #A10, University of Colorado Boulder, Boulder, CO 80302; call **303-492-6384**; or email [graduatefamilyhousing@colorado.edu](mailto:graduatefamilyhousing@colorado.edu).

## Off-Campus Housing & Neighborhood Relations

Off-Campus Housing & Neighborhood Relations (a service of CUSG) maintains listings of apartments, houses and rooms for rent in the Boulder area. Currently enrolled students may view listings and connect with potential roommates on Ralphie's List, CU's rental database at [offcampushousing.colorado.edu](http://offcampushousing.colorado.edu). The office also maintains a detailed list of apartments and property management companies available for download or pickup in the office.

The department has a staff attorney available on Tuesdays and Fridays to advise students about leases, security deposits, maintenance issues and roommate and landlord conflicts.

Office assistants will help students locate properties and answer questions about the surrounding neighborhoods.

During the spring semester, the office sponsors two off-campus housing fairs where landlords, property managers and related businesses offer their services to students in a tradeshow fashion.

For additional information, call **303-492-7053** or visit [offcampushousing.colorado.edu](http://offcampushousing.colorado.edu). Office hours are 8:00 a.m.–5:00 p.m., Monday–Friday. Summer hours are 7:30 a.m.–4:30 p.m.

Note: First-year students must receive written permission from Housing & Dining Services before obtaining off-campus accommodations for the fall and spring semesters of their first year, as well as for the summer session preceding their fall start date.

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## Registration

The Office of the Registrar website ([www.colorado.edu/registrar](http://www.colorado.edu/registrar)) has specific dates and deadlines that apply to the registration process. Students should also consult individual college and school sections of this catalog and their dean's office for additional information on special requirements and procedures. The following registration policies are intended to serve as general guidelines.

Students who require accommodations because of a disability should contact the Office of Disability Services, University of Colorado Boulder, 107 UCB, Boulder, CO 80309 or call **303-492-8671**.

## Confirmation Deposit

All new degree students pay a one-time \$200 confirmation deposit when they first confirm their intent to enroll at CU-Boulder.

Students must pay the deposit when they first confirm their intent to enroll at CU-Boulder and are not permitted to register until the university receives it.

Confirmation deposits are refunded to students upon graduation or official withdrawal from CU-Boulder within established dates and guidelines. All refunds are reduced by any outstanding financial obligations. Interest earned from confirmation deposits is used for student financial aid.

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Questions regarding the confirmation deposit policy should be directed to the Office of Admissions, Regent Administrative Center 125, **303-492-6301**.

## MyCUInfo

Student registration and other important information and services are available via the student portal, [MyCUInfo.colorado.edu](http://MyCUInfo.colorado.edu). Students access the MyCUInfo portal using a secure CU login name and IdentiKey password. More information and registration instructions are available on the Office of the Registrar site at [www.colorado.edu/registrar/students/registration](http://www.colorado.edu/registrar/students/registration).

## Registering for Classes

All CU-Boulder students register for classes via MyCUInfo. Students also use the MyCUInfo portal to check their assigned registration date and time, view any holds that may prevent registration (see "Holds"), see to-do lists and obtain advisor name and contact information.

New freshmen and transfer students receive their registration instructions and information during the New Student Welcome Experience. Continuing students are notified via email each semester of registration periods and requirements.

Registration instructions are also available on the Office of the Registrar website at [www.colorado.edu/registrar/students/registration/enroll](http://www.colorado.edu/registrar/students/registration/enroll).

## Drop/Add

Students can adjust their schedules by dropping and adding classes using the MyCUInfo portal or app. Specific drop and add deadlines for fall and spring semesters are listed on the Office of the Registrar website at [www.colorado.edu/registrar/students/academic-calendar](http://www.colorado.edu/registrar/students/academic-calendar).

Summer deadlines appear on the Summer Session website at [www.colorado.edu/summer/resources/calendars](http://www.colorado.edu/summer/resources/calendars).

For more information, visit the Office of the Registrar website at [www.colorado.edu/registrar/students/registration/enroll](http://www.colorado.edu/registrar/students/registration/enroll).

## Add Deadlines

- Students add classes via MyCUInfo during designated registration and schedule adjustment periods each term without needing approval.
- After this time period, students must contact the instructor or the instructor's department to add a class. After the add deadline has passed, students may only enroll in a class with their dean's permission in addition to instructor permission.

## Drop Deadlines

- No Record Drop: Students may drop individual classes via MyCUInfo with a refund and no record (no W grades) through the third Wednesday of the fall or spring semester (summer dates vary).
- Drop with Record: After the third Wednesday of the semester, students may continue to drop classes without instructor/advisor approval via MyCUInfo through Friday of the tenth week of the fall or spring semester (summer dates vary). However, tuition and fees are assessed and grades of W appear on the transcript.
- Late Drops: After the 10-week drop deadline, instructor and dean signatures are required to

drop a class. Some colleges may require additional approval or processes, such as petitioning the dean (students should check with their school or college). Class drops are generally not approved after this date except in extraordinary circumstances. Tuition and fees are assessed and grades of W appear on the transcript.

Students dropping all of their classes should refer to “Withdrawal Procedures” for more information.

## Credit/No Credit

Students who wish to take course work for no credit must indicate this at the time they register for classes or during the final drop/add period. Changes in credit registration are not permitted after the drop/add deadline in the summer or after the third Friday of the semester in the fall and spring. Tuition is the same whether or not credit is received in a course.

## Pass/Fail (P/F)

Students should refer to the college and school sections of this catalog to determine the number of pass/fail credit hours that may be taken in a given semester or credited toward a bachelor's degree. Exceptions to the pass/fail regulations are permitted for certain courses that are offered only on a pass/fail basis.

Students who wish to register for a class on a pass/fail basis should do so when registering for the class. The pass/fail option is only available for courses that allow a pass/fail option. Procedures for requesting pass/fail enrollment can be found on the Office of the Registrar's website or on the Summer Session website at [www.colorado.edu/summer/resources/now-youve-enrolled/adddrop-information-deadlines](http://www.colorado.edu/summer/resources/now-youve-enrolled/adddrop-information-deadlines). To change a class from graded to pass/fail, use the "EDIT class options" button in the student portal within the “Schedule” section within "Academics / Schedule." Changes to or from a pass/fail basis are not permitted after the third Friday of the semester in the fall and spring or after the drop/add deadline in the summer.

Grades of D- and above are considered passing grades. P grades do not affect student GPAs.

## Variable Credit

Select courses, such as independent study courses, are offered as variable credit. Students should consult their academic advisor and designate the number of credit hours they wish to receive for the class at the time of registration. Consult the [Courses section](#) or the Summer Session website at [www.colorado.edu/summer/courses](http://www.colorado.edu/summer/courses) for variable-credit hour ranges.

## Withdrawal Procedures

Students may officially withdraw from the university by submitting the Office of the Registrar's online [withdrawal form](#).

In all terms, students are not permitted to withdraw after the last day of regular classes (excluding final exams).

Failure to withdraw properly may result in a failing grade being recorded for every class, and liability for the full amount of tuition and fees for that term. For refund stipulations, see the withdrawal policy.

Rules for withdrawing may vary with each college and school. Students anticipating a

withdrawal should consult their advisor and/or dean's office, and read the withdrawal information on the Office of the Registrar website at [www.colorado.edu/registrar/students/withdraw-cu](http://www.colorado.edu/registrar/students/withdraw-cu).

Withdrawing students (including students applying for a graduate leave of absence) with Federal Perkins/NDSL loans must complete a loan exit interview and clear all outstanding financial balances before leaving the university. Failure to do so results in a hold on the student's record. This hold prevents receipt of a diploma or an academic transcript of work at the university and registration for future terms. Students can complete a loan exit interview by contacting University Student Loans & Debt Management in the Bursar's Office at **303-492-5571**, toll free at **800-925-9844** or TTY **303-492-3528**.

Undergraduate students who withdraw and then wish to return to the university have two semesters (plus summer) from their last graded semester to return to the university without having to reapply for admission. Graduate students can apply for an approved leave of absence. Details are available on the Office of the Registrar website at [www.colorado.edu/registrar/students/withdraw-cu](http://www.colorado.edu/registrar/students/withdraw-cu).

For more information, contact the Office of the Registrar, Regent Administrative Center 101, **303-492-6970**, or [withdraw@colorado.edu](mailto:withdraw@colorado.edu). For information about tuition and fee obligations for withdrawing students, see [Withdrawal Policy Regarding Tuition and Fees](#).

## Retroactive Withdrawal

In certain situations, colleges, schools and programs accept petitions for retroactive withdrawals from one or more completed semesters. Students must clearly demonstrate that they experienced extenuating circumstances beyond their control that prevented them from withdrawing by the established deadline (e.g., serious cases of injury). Such petitions require specific and detailed documentation from appropriate licensed professionals in order to be considered. Students who believe they have encountered life events that may make them eligible for a retroactive withdrawal should meet with their academic advisor before taking any action.

Retroactive withdrawals are seldom granted, and the review process may take several months. For petitions that are approved, grades of W will be recorded for all courses taken in the semester, irrespective of the original grade. Students who must withdraw within a given term due to extenuating circumstances should review the withdrawal information on the Office of the Registrar website at [www.colorado.edu/registrar/students/withdraw-cu/considerations](http://www.colorado.edu/registrar/students/withdraw-cu/considerations). Withdrawing students who have received financial aid should review the [Office of Financial Aid's withdrawal policy](#).

## Graduate Leave of Absence

Graduate students who wish to take a leave of absence from the university must submit an application and get approval from their department and school/college/program to avoid having to reapply.

Graduate students taking an approved leave of absence are allowed two inactive semesters (plus summer), and are guaranteed a place in their current college or school and in their current major when they return to the university. Students must not have any disciplinary holds and must be in good academic standing with the university. Students registered for the semester in which they plan to begin their leave of absence must formally withdraw. See the [Withdrawal Procedures](#) section above.

A nonrefundable \$50 program fee is required at the time of application.

An application and more information are available on the Office of the Registrar website at [www.colorado.edu/registrar/students/withdraw-cu/leave-of-absence](http://www.colorado.edu/registrar/students/withdraw-cu/leave-of-absence).

## Undergraduate Leave of Absence

Undergraduate students can take a leave of absence from the university for up to two consecutive semesters (plus summer) without having to reapply to CU-Boulder.

Eligible degree-seeking undergraduate students may maintain certain university benefits while taking leave from the university.

Some benefits (such as Recreation Center access and health insurance through Wardenburg Health Services) are only available for an additional fee.

Signing up for these elective benefits requires submitting an application and a nonrefundable \$50 administrative fee.

An application and more information are available on the Office of the Registrar website at [www.colorado.edu/registrar/students/withdraw-cu/leave-of-absence](http://www.colorado.edu/registrar/students/withdraw-cu/leave-of-absence).

## Other Registrations

### Concurrent Registration

CU-Boulder students may be allowed to register concurrently for up to two classes or 6 credit hours, whichever is greater, on another University of Colorado campus. Participating students must be enrolled for at least one class on the Boulder campus.

Graduate students should check with the Graduate School for exceptions to the home-campus registration requirement and limitations on credit hours at the host campus. Classes taken at other CU campuses must be required for graduation or unavailable on the Boulder campus in a given term, or the classes must conflict with another required class in which the student is enrolled.

Boulder students exercising this option pay tuition for their total credit hours at Boulder-campus rates. Concurrent registration forms and instructions are available on the Office of the Registrar website at [www.colorado.edu/registrar/students/registration/registration-programs](http://www.colorado.edu/registrar/students/registration/registration-programs).

Concurrent students will not be registered in classes at the host campus until the first day of classes at the host campus, and must adhere to the add/drop deadlines of that campus.

Boulder campus students who wish to take course work on another campus of the University of Colorado, but not through the concurrent registration program, may be able to register on that campus independent of Boulder-campus registration. However, they must apply for admission to and follow the registration procedures established by the other campus. Students should check with their dean's office for approval and course applicability to their degree program.

### Late Registration

Students in certain categories may be allowed to register late for a fall or spring semester if not registered in any classes as of the third Friday of the semester. Eligible students are assessed a \$100 late registration fee, which should not be confused with charges assessed for late payments of the university bill.

Graduate students registering as candidates for degree or for thesis hours must register by the

third Friday of classes in a fall or spring semester or be subject to the \$100 late registration fee, if late registration is held for their category. More information is available on the Office of the Registrar website at [www.colorado.edu/registrar/students/registration/enroll/drop-class](http://www.colorado.edu/registrar/students/registration/enroll/drop-class)

## Registration for Faculty and Staff

Please see [University Employees and Dependents](#).

## Graduation and Commencement

Students must apply for graduation through MyCUInfo before they intend to graduate. Instructions for applying and important deadlines are available on the Office of the Registrar website at [www.colorado.edu/registrar/students/graduation](http://www.colorado.edu/registrar/students/graduation). Individual colleges and schools may require additional processes for students completing their degrees.

A general commencement ceremony is held in May and is open to the public. No tickets are required. Students receiving a degree in August or December should check with their dean's office if they wish to attend the May ceremony. Many departments, colleges and schools have recognition ceremonies in fall and spring semesters. Details concerning the ceremony may be found online at [colorado.edu/commencement](http://colorado.edu/commencement).

Only doctoral candidates receive their diplomas at commencement. Diplomas are mailed to all other students approximately two months after the ceremony.

Graduating students with Federal Perkins/NDSL loans must complete a loan exit interview and clear all outstanding financial balances before leaving the university. Failure to do so results in a hold on the student's record. This hold prevents receipt of a diploma or an academic transcript of work at the university and registration for future terms. Students can complete a loan exit interview by contacting University Student Loans & Debt Management in the Bursar's Office at **303-492-5571**, toll free at **800-925-9844** or TTY **303-492-3528**.

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University of Colorado **Boulder**

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# Campus Policies

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## Academic Integrity

A university's intellectual reputation depends on maintaining the highest standards of intellectual honesty. Commitment to those standards is a responsibility of every student, faculty member and staff member on the University of Colorado Boulder campus.

## Honor Code

A student-run Honor Code was instituted on the Boulder campus in 2002. The intent of the Honor Code is to establish a community of trust in which students do not plagiarize, cheat or obtain unauthorized academic materials. An Honor Code Council collaborates with the colleges and schools in addressing allegations and instances of academic dishonesty and in assisting to educate all members of the university community on academic integrity issues.

Breaches of academic honesty include but are not limited to cheating, plagiarism and the unauthorized possession of examinations, papers and computer programs.

A student accused of academic dishonesty may either accept the accusation made by a faculty member or request a hearing before a student panel, which will make a decision on the accusation of academic dishonesty. In addition to academic sanctions imposed by the faculty, students found responsible for academic dishonesty also face consequences from the Honor Code Council including but not limited to Honor Code probation, education seminars concerning academic writing and ethics, suspension and expulsion from the university. More information about CU-Boulder's Honor Code may be found at [honorcode.colorado.edu](http://honorcode.colorado.edu).

The following terms are defined here for the benefit of all members of the university community.

- Academic Calendar
- Administration
- Academic Affairs
- Student Affairs
- Academic Records
- Expenses
- Tuition Tables
- Financial Aid
- Housing
- Registration
- Campus Policies**
- Degrees, Majors and Minors
- Glossary of Terms
- Campus Map

## Cheating

Cheating is defined as using unauthorized materials or receiving unauthorized assistance during an examination or other academic exercise. Examples of cheating include: copying the work of another student during an examination or other academic exercise or permitting another student to copy one's work; taking an examination for another student or allowing another student to take one's examination; possessing unauthorized notes, study sheets, examinations or other materials during an examination or other academic exercise; collaborating with another student during an academic exercise without the instructor's consent; using unauthorized technologies, such as calculators, computers and smart phones; and/or falsifying examination results.

## Plagiarism

Plagiarism is defined as the use of another's ideas or words without appropriate acknowledgment. Examples of plagiarism include: failing to use quotation marks when directly quoting from a source; failing to document distinctive ideas from a source; fabricating or inventing sources; and copying information from computer-based sources, i.e., the Internet.

## Unauthorized Possession or Disposition of Academic Materials

Unauthorized possession or disposition of academic materials may include: selling or purchasing examinations, papers, reports or other academic work; possessing unauthorized solutions, instruction manuals or texts; taking another student's academic work without permission; possessing examinations, papers, reports or other assignments not released by an instructor; and/or submitting the same paper for multiple classes without advance instructor authorization and approval.

## Academic Program Discontinuance

In the event a degree program is discontinued, students currently enrolled in the program have a four-year period in which to complete their degree requirements. This four-year period starts at the end of the academic year in which the Colorado Department of Higher Education (CDHE) takes action to discontinue the program. No new or returning students will be admitted into a discontinued degree program. Students not completing the degree requirements in the four-year period are not permitted to receive the discontinued degree. In such cases, credits accumulated may be applied to the overall number of credits required toward graduation, but the student must seek the advice of their college or school to determine how these credits might apply to a new degree program.

## Alcohol and Other Drugs

In order to create the best possible environment for teaching and learning, the University of Colorado Boulder affirms its support for a responsible campus policy that addresses the inappropriate use of alcohol and other drugs.

In compliance with the federal Drug Free Schools and Communities Act, the University of Colorado Boulder prohibits the unlawful manufacture, possession, use or distribution of a controlled substance (illicit drugs and alcohol) of any kind and in any amount. These prohibitions cover any individual's actions that are part of any university activities, including those occurring while on university property or in the conduct of university business away from the campus.

Information on policies, penalties, health effects and resources available to students and staff regarding alcohol and other drugs can be found online at [colorado.edu/aod](https://colorado.edu/aod). These policies are also described by various university offices in several publications:

- **Campus housing:** *A Guide to Residence Hall Living*, available at the Department of Housing. Contact Residence Life, **303-492-7260**. See also [housing.colorado.edu/policies-procedures/residence-hall-handbook](http://housing.colorado.edu/policies-procedures/residence-hall-handbook).
- **Student Conduct Code:** *Students' Rights and Responsibilities Regarding Standards of Conduct and Alcohol and Drug Policy*, available in the Office of Student Conduct, **303-492-5550**. See also the [Student Conduct Policies and Procedures](#) handbook.
- **Safety:** *Annual Security and Fire Safety Report*. See [www.colorado.edu/clery](http://www.colorado.edu/clery).
- **Student life:** *The Guide to Student Life*, distributed to new and continuing students. Resources online at <http://www.colorado.edu/students>.

Individual and group counseling for students with substance abuse concerns is available through the Counseling and Psychiatry Services department of Wardenburg Health Services (**303-492-5654** or **303-492-6766**).

## Colorado Creed

The Colorado Creed, developed by students in 2003, is a code of conduct and a lifestyle by which students at CU-Boulder live. The text of the Creed is:

As a member of the Boulder community and the University of Colorado, I agree to:

- Act with honor, integrity and accountability in my interactions with students, faculty, staff and neighbors.
- Respect the rights of others and accept our differences.
- Contribute to the greater good of this community.

I will strive to uphold these principles in all aspects of my collegiate experience and beyond.

For further information, go to [www.colorado.edu/creed](http://www.colorado.edu/creed).

## Copyright and Fair Use

The University of Colorado Boulder community respects the intellectual property of others, regardless of the medium by which it is transmitted. This is a cornerstone of academic integrity. We prohibit the use of unauthorized distribution of copyrighted material, which is subject to both civil and criminal penalties as well as university procedures.

Distributing copyrighted materials using peer-to-peer or file-sharing programs is illegal and the university uses technological solutions to deter this activity. Still, the university regularly receives notices of copyright violations and is required by law to take action. Common consequences include loss of network access and referral to the Office of Judicial Affairs. Guidance on campus fair use and copyright issues is provided at [uclibraries.colorado.edu/copyright](http://uclibraries.colorado.edu/copyright).

## Institutional Equity and Compliance, Office of

The University of Colorado Boulder is committed to maintaining a positive learning, working and living environment and does not discriminate on the basis of race, color, national origin, pregnancy, sex, age, disability, creed, religion, sexual orientation, gender identity, gender

expression, veteran status, political affiliation or political philosophy. The Office of Institutional Equity and Compliance investigates all claims alleging sexual misconduct, harassment and/or discrimination, or related retaliation by students, staff or faculty pursuant to the University of Colorado Sexual Misconduct Policy, the University of Colorado Boulder Policy on Discrimination and Harassment, and the University of Colorado Policy on Amorous Relationships. Investigations are conducted by neutral fact-finders who treat all parties involved with respect and dignity and refer them to appropriate support services as needed. The University is committed to taking appropriate action against those who violate these policies.

The Office of Institutional Equity and Compliance also provides directly, or assists with the coordination of, educational workshops and trainings for all members of our community designed to promote an inclusive environment and to prevent acts of discrimination, harassment or sexual misconduct.

For more information or copies of the policies and procedures, or to report an allegation of sexual misconduct or protected class discrimination or harassment, please call **303-492-2127** or visit the Institutional Equity and Compliance website at [colorado.edu/institutionalequity](http://colorado.edu/institutionalequity).

## Diversity

"At the University of Colorado Boulder we are committed to building a campus community in which diversity is a fundamental value. People are different and the differences among us are what we call diversity—a natural and enriching hallmark of life. Diversity includes, but is not limited to, ethnicity, race, gender, age, class, sexual orientation, religion, disability, veteran status, gender identity/expression, veteran status, political affiliation or political philosophy and health status. A climate of healthy diversity is one in which people value individual and group differences, respect the perspectives of others and communicate openly."

"Diversity is a key to inclusive excellence in education. A diverse learning environment better prepares all students for the world that awaits them. CU-Boulder is committed to enriching the lives of our students, faculty and staff by providing a diverse campus where the exchange of ideas, knowledge and perspectives is an active part of learning." —from the *Guidelines for Diversity Planning*

## Final Examinations

It is the policy of the University of Colorado Boulder to adhere to the final examination schedule as published in the online at the registrar's website ([registrar.colorado.edu](http://registrar.colorado.edu)) each semester. While it may be appropriate not to give a final in some cases, such as laboratory courses, seminars and colloquia, final examinations are integral parts of the instructional program and should be given in all other undergraduate courses. Unless notified otherwise in writing during the first week of classes, students should assume that an examination will be given.

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

1. The final examination in a course must be given as scheduled and not at other times, even if the faculty member and all students in a course agree to such a change.
2. The week of classes preceding the scheduled final examination period should be used primarily for continued instruction and may include the introduction of new material. No hourly examinations are to be given during the seven days preceding the start of the final examination period. However, lab practicums and seminar presentations may be scheduled during this week.

3. Individual students may be granted a variance from these policies, provided the instructor is satisfied that the exception is based on good and sufficient reasons, and that such an exception for an early or late examination will not prejudice the interests of other students in the course.
4. When students have three or more final examinations on the same day, they are entitled to arrange an alternative examination time for the last exam(s) scheduled on that day. When students have two final exams scheduled to meet at the same time, they are entitled to arrange an alternative examination time for the later course offered that day or week. Such arrangement must be made by the deadline to drop the course without dean and instructor permission in the tenth week of the semester. Students should make arrangements with the instructor of the affected course and are expected to provide evidence of these situations to qualify for exceptions.
5. This policy applies to all undergraduate students, including seniors. Graduating seniors are not exempted from final examinations. Such exemptions are inappropriate on both procedural and academic grounds.
6. The submission deadline of all grades for each semester is 90 hours after the conclusion of the final exam, minus Sundays and official designated university holidays.

## Personal Safety on Campus

While the University of Colorado Boulder is a relatively safe place to be, the campus is not a haven from community problems. Through the joint effort of various organizations on campus, CU is committed to providing ample safety resources for faculty, staff and students.

Specific efforts to promote safety on campus include the provision of adequate lighting, police protection, educational programs and special prevention programs, such as the CU NightRide escort services and laptop and bicycle registration programs.

In compliance with the Federal Clery Act, students and employees receive (at the start of the fall semester) information on campus security policies and programs, including crime statistics. The *Annual Security and Fire Safety Report* can be viewed at [www.colorado.edu/clery](http://www.colorado.edu/clery). In any emergency or life-threatening situation, always call **9-1-1**.

Members of the university community are encouraged to report any incident of threatening or harmful behavior to the University Police at **303-492-6666**. Other resources include the Office of Student Conduct at **303-492-5550**, the Ombuds Office at **303-492-5077**, and the CU-Boulder Alcohol and Other Drugs Program at **303-492-5703**.

Additional safety information can be found at [police.colorado.edu](http://police.colorado.edu) and [www.colorado.edu/safety](http://www.colorado.edu/safety). For information on crime alerts, trends and safety tips, see the CU Police social media pages at [www.twitter.com/cuboulderpolice](http://www.twitter.com/cuboulderpolice) and [www.facebook.com/cuboulderpolice](http://www.facebook.com/cuboulderpolice).

## Smoking

For student health and the health of our community, smoking is prohibited in all campus buildings and on all campus grounds.

At this time, the use of smoking products of any sort shall be prohibited on all university-owned and operated campus grounds both indoors and outdoors. This smoking ban does not apply to public rights-of-way (sidewalks, streets) on the perimeter of the campus.

"Smoking," as used in this policy, means smoking any substance, including but not limited to, tobacco, cloves or marijuana. "Smoking Products" include, but are not limited to, all cigarette

products (cigarettes, bidis, kreteks, e-cigarettes, etc.) and all smoke-producing products (cigars, pipes, hookahs, etc.). University-owned and operated campus grounds include, but are not limited to: all outdoor common and educational areas; all university buildings; university-owned on-campus housing; campus sidewalks; campus parking lots; recreational areas; outdoor stadiums; and university-owned and leased vehicles (regardless of location). In keeping with university policy, the sale, distribution and sampling of all tobacco products and tobacco-related merchandise is prohibited on all university-owned and operated property and at university-sponsored events. Littering campus with remains of smoking products is prohibited.

This policy applies to all employees, students, visitors, contractors and externally affiliated individuals or companies renting university-owned space on university-owned and operated property campus grounds.

Those employees who wish to stop smoking may call the Employee Assistance Program (**303-492-3020**) for information on available programs. Additional smoking policy information can be found at [www.colorado.edu/smokefree/](http://www.colorado.edu/smokefree/).

## Student Email

All CU students receive an email account from the university, which is an official means of sending information to students. Students are responsible for maintaining this CU email address. The official email address can be used by professors to contact students and provide course-related information. Administrative offices, such as the Office of the Registrar, use official email addresses to contact students and provide important information. Students are responsible for frequently checking their official CU email address. For more information on the student email policy, visit [www.colorado.edu/policies/student-e-mail-policy](http://www.colorado.edu/policies/student-e-mail-policy) or call the IT Service Center at **303-735-HELP** or email them at [HELP@colorado.edu](mailto:HELP@colorado.edu). To learn more about student email accounts, visit [www.colorado.edu/oit/email](http://www.colorado.edu/oit/email).

## Student Conduct and Conflict Resolution

### Student Conduct Code

The purpose of the Office of Student Conduct and Conflict Resolution is to support community safety, student growth and success by helping students:

- Reflect on decisions
- Be accountable for their actions
- Make decisions in congruence with community standards of conduct

### Clarification of Values

1. The student will understand the effect of their behavior on others.
2. The student will demonstrate ethical development, will comply with institutional policy and will commit no further violations of policy.
3. The student will gain understanding of the institutional values reflected in institutional policies.
4. The student will gain a better understanding of the importance of personal integrity. Through our process the student will be asked to reflect on their beliefs, ethics and values. The student will be able to articulate their personal ethics and values, will act in congruence with those ethics and values, and will make decisions that reflect their beliefs.
5. The student will contribute positively to the university community and beyond.

6. The student will gain a better understanding of the consequences and potential consequences of their personal actions and will learn the purposes of institutional policies.
7. The student will employ critical thinking in problem solving and ultimately obtain a degree.

## Authority

Article 7, Part B, of the Laws of the Regents requires each campus to develop a student code of conduct. The Office of Student Conduct is authorized to establish and administer this policy. Any questions regarding interpretation of this code or any of its provisions should be directed to the vice chancellor for student affairs or his/her designee for final determination. Questions regarding behavioral problems should be directed to the Office of Student Conduct, University of Colorado Boulder, 10 UCB, Boulder, CO 80309; phone 303-492-5550.

## Jurisdiction

This policy governs:

- Student conduct that occurs on or as it relates to university property, or at official functions and university-sponsored programs conducted away from the campus. University property is defined as land, buildings and facilities in possession of or owned, used or controlled by the university or funded by university budgets.
- Student conduct that occurs off university property is subject to this policy if it: (1) adversely affects the health, safety or security of any member of the university community or the mission of the university; or (2) involves any records or documents of the university. For purposes of this policy, the university's mission is broadly defined to include both its academic goals and the importance of developing civic responsibility in its students.

## Student Conduct Process

Informal Resolution:

- This process may generally include, but is not limited to, a meeting with a conduct officer, completion of the agreement, and/or participation in the Restorative Justice program as is referenced in H.5.
- During the meeting, if the conduct officer determines that the informal resolution process may be appropriate, the conduct officer will offer it as an option to the student and address any questions the student may have about the process. If the student accepts responsibility for the alleged prohibited conduct and agrees to and completes the agreement developed during the meeting, then the OSC will consider the matter to be resolved informally.

Formal Resolution:

- This process generally includes written notice of the factual allegations and alleged violations of the Student Conduct Code, the opportunity to meet with the conduct officer to address the allegations and provide information to the conduct officer, the conduct officer reviewing the allegations and making factual and violation determinations based on the preponderance of the evidence, and written notice to the student of the conduct officer's determinations.

All students residing in Housing & Dining Services facilities are subject to Residence Hall policies or any policy properly communicated through Housing and Dining Services staff. See Residence Hall Policies at <https://housing.colorado.edu/policies-procedures/residence-hall-handbook> for more information

Proceedings initiated under this policy are separate from civil or criminal proceedings that may relate to the same incident. Investigations or conduct proceedings by the university are not

postponed while criminal or civil proceedings are pending, unless otherwise determined by the conduct officer.

The unexcused failure of a student to appear and/or respond to the conduct process does not prevent the university from proceeding with the conduct process.

Cases involving sexual misconduct (including sexual assault, sexual harassment, intimate partner violence and gender/sex-based stalking), protected class discrimination and harassment and any related retaliation are subject to the Office of Institutional Equity and Compliance Process and Procedures <http://www.colorado.edu/institutionalequity/policies>. For more information, contact the Office of Institutional Equity & Compliance at (303) 492-2127 or [www.colorado.edu/institutionalequity](http://www.colorado.edu/institutionalequity).

Excerpts from the Colorado Revised Statutes regarding hazing, ethnic intimidation and riots are also presented. Colorado law prohibits persons convicted of rioting from enrolling in state-supported universities/colleges for 12 months following the date of a conviction.

For information about classroom behavior, see the following website:  
[www.colorado.edu/policies/classbehavior.html](http://www.colorado.edu/policies/classbehavior.html).

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## Degrees, Majors and Minors

Students at CU-Boulder may consider pursuing double degrees, concurrent degrees or additional majors or minors.

### Double Degrees

A double degree can be two different degrees from the same college or school (e.g., a BA and BFA from the College of Arts and Sciences), **or** two degrees from different colleges or schools (e.g., a BA from the College of Arts and Sciences and a BS from the College of Engineering and Applied Science). Enrolled students who wish to add a double degree program are encouraged to speak with their current academic advisor and an academic advisor in the degree program they wish to add in order to determine requirements and procedures for adding a double degree. In order to earn a double degree:

- students must meet all individual degree requirements as currently written
- students must receive signoff approval from the academic adviser for each degree area
- both degrees must be confirmed at the same graduation date (i.e., the degrees must be awarded concurrently; they cannot be awarded sequentially).

### Concurrent Degrees

Concurrent degrees are five-year combined baccalaureate and master's degree programs, such as the Bachelor of Arts/Master of Arts (BA/MA). These programs are designed as a single integrated curriculum in which the student is earning two degrees; they are not stand-alone degrees.

### Additional Majors

Students pursuing a bachelor's degree in their college or school may graduate with more than one major (e.g. economics and French) within the degree (e.g. BA) by completing all requirements for each major. A minimum of 120 total credit hours is required for a degree with additional majors.

### Minors

Students earning a bachelor's degree may participate in a minor program. These optional programs are offered in a number of undergraduate colleges, schools and programs.

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## Glossary of Terms

The following are terms students commonly encounter throughout their time at CU-Boulder.

**Academic advisor** A professional staff or faculty member who assists students in identifying, developing and attaining their educational, personal and career goals (see also departmental advisor).

**Bursar's Office** Coordinates the billing, payments and refunds from student accounts, including tuition, fees and residence hall expenses. ([bursar.colorado.edu](http://bursar.colorado.edu))

**Catalog** The online *University of Colorado Boulder Catalog* provides definitive information on university academic and administrative policies, degree requirements and course descriptions. This website IS the main catalog. For archives of previous editions of the *University of Colorado Boulder Catalog* or other CU-Boulder types of catalogs, click the buttons on this site's homepage.

**Corequisite** A course that is required to be taken simultaneously with another course.

**Core curriculum** Requirements in the College of Arts and Sciences in various skill and content areas. The skills areas are: foreign language; quantitative reasoning and mathematical skills (QRMS); and written communication. The content areas are: historical context; human diversity; United States context; literature and the arts; contemporary societies; ideals and values; and natural science.

**Course reservation** The Course Reservation Program helps undergraduate degree-seeking students get the courses they need to graduate. The Course Reservation Program allows eligible students who have been wait-listed for a course but did not get into the course, to reserve enrollment in that course the next time it is offered.

([www.colorado.edu/registrar/withdrawing-university](http://www.colorado.edu/registrar/withdrawing-university))

**Course schedule** Consists of all courses for which a student has registered in a single academic term.

**Course section number** This three or four character identifier refers to a specific section of a course offering and its specific meeting pattern and location. Programs that use four character alphanumeric coding generally have limited enrollments.

**Credit hours (semester hours/credits/hours/units)** Credit earned for the successful completion of a course in an academic term.

**Degree (vs. major)** A major is the area of study within the larger college degree program. For example, students may earn a bachelor of arts (BA) degree in the College of Arts and Sciences, with a major in sociology.

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**Degree audit** A web-based tool that displays a student's progress toward graduation. It tracks students' various degree requirements, and lists courses that fulfill each requirement students still need. Degree audits may be viewed via MyCUinfo.

**Departmental advisor** A professional staff or faculty member who advises declared majors in one or more academic departments.

**Disability Services (DS)** Provides students with disabilities the tools, reasonable accommodations and support services to participate fully in the academic environment. DS works cooperatively with students as they develop self-awareness and independence, learn self-advocacy and create a network of resources. Their services are based on evaluation of each individual's diagnostic/assessment information. DS addresses students' needs and concerns on a case-by-case basis. Emphasis is placed on developing strategies so that students feel empowered and self-reliant. **303-492-8671** ([disabilityservices.colorado.edu](http://disabilityservices.colorado.edu))

**Double degree** Two different degrees earned within a college or school (e.g., a BA and a BFA from the College of Arts and Sciences) or from two degrees earned from different schools or colleges (e.g., a BA from the College of Arts and Sciences and a BS from the College of Engineering and Applied Science). As of January 2013, requirements for double degrees have changed. See [Degrees, Majors and Minors](#) for more information.

**Double major** Two declared majors within one degree program. For example, a student in the College of Arts and Sciences with a double major in history and philosophy will earn one bachelor of arts degree.

**Drop/add** Period after registration during which a student can add or drop courses and change credit designations without instructor signatures.  
([registrar.colorado.edu/students/registration/registration\\_packet/drop\\_add.html](http://registrar.colorado.edu/students/registration/registration_packet/drop_add.html))

**Elective hours** Hours students choose to take out of interest. Elective hours are credit hours that students need toward graduation that are not used to fulfill other requirements.

**Enrollment Appointment (registration time)** Designated time for a student to start registering for courses. Generally designed so that seniors register first, followed by juniors, sophomores and freshmen. Students can locate their enrollment appointment time on the MyCUinfo portal.

**FAFSA (Free Application for Federal Student Aid)** Annual federal financial aid application, located at [www.fafsa.ed.gov](http://www.fafsa.ed.gov).

**FERPA (Family Educational Rights and Privacy Act of 1974)** A federal law designed to protect the privacy of education records, to establish the right of students to inspect and review their education records and to provide guidelines for protection from inaccurate and misleading data.

**Final exams** Students may find the final exam schedule on the registrar's office website each fall and spring semester. Most exams are listed by class meeting time. If students have three or more final exams scheduled on the same day, they are entitled to arrange an alternative exam time for the last exam or exams scheduled on that day. To qualify for rescheduling final exam times, students must provide evidence that they have three or more exams on the same day, and arrangements must be made with their instructor no later than the end of the sixth week of the semester. ([registrar.colorado.edu](http://registrar.colorado.edu))

**"Full-time" status** To be considered a full-time student, undergraduate students must be registered for a minimum of 12 credit hours in a single fall or spring term. "Full-time" status may affect eligibility regarding housing, tuition, health insurance, etc.

**General education requirements (core curriculum)** Refers to those requirements that apply

to all students within a particular college (such as the College of Arts and Sciences or Leeds School of Business) regardless of major. Such requirements, in addition to major requirements, must be fulfilled at the time of graduation.

**GPA (grade point average)** The overall CU GPA is computed as follows: the credit hours and credit points are totaled for all courses; then the total credit points are divided by the total credit hours. Transfer work is not calculated into your CU GPA.

**Holds** A hold can prevent a student from registering, returning to school, obtaining an official transcript or receiving their diploma. Students can check their registration status for any holds and follow up with the originating office about how to have them released.

**Honor code** The honor code at the University of Colorado Boulder exists to secure for students an environment in which all individuals have responsibility for, and are appropriately recognized for, their individual academic and personal achievements.  
([honorcode.colorado.edu](http://honorcode.colorado.edu))

**IdentiKey** Automatically assigned to all incoming students, an IdentiKey account consists of a student's CU login name and a unique password. New students need to activate their accounts via MyCUinfo. For help, call **303-735-4357**.

**Linked activity** A course that has at least two components that are linked together; a lecture and a lab, for example, or a lecture and a recitation. Where a course has a linked activity, students select the lecture first and then select a corresponding lab or recitation.

**Lower division or upper division** Courses numbered 1000–2999 are lower division. Courses numbered 3000–4999 are upper division.

**Major (vs. degree)** A specific area of concentrated study, usually within one department. Required major credit hours vary.

**Major restriction** A restriction placed on certain courses in order to ensure that students with a particular major have access to those courses.

**MAPS (minimum academic preparation standards)** Admission requirements for all students graduating from high school. MAPS deficiencies must be completed after starting at CU-Boulder through course work or equivalency tests.

**Matriculation date** Serves as the official date of initial registration as a degree-seeking student.

**MyCUinfo** Student web portal serving as the official source for information on everything from registration and billing to final exams and student employment. ([MyCUinfo.colorado.edu](http://MyCUinfo.colorado.edu))

**Open option** Major category in the College of Arts and Sciences and the College of Engineering and Applied Science for lower-division students who have not yet declared a major.

**Pre-law** If a student is thinking about attending law school after graduating from CU, the pre-law advisor at the Pre-Professional Advising Office can help them achieve their goals. Each year, several hundred CU graduates are accepted by law schools across the nation. A pre-law advisor can help a student determine, first, if law school is the right choice, and then help determine a student's path through undergraduate preparation and the application process. No specific prerequisites are required to apply to law school. Students are expected to complete the requirements for an undergraduate major and to get involved in campus activities and take advantage of leadership opportunities.

**Prerequisite** A course that is required to be taken before taking a more advanced course.

**Recitation** A small discussion class, usually led by a teaching assistant, that clarifies lecture information and offers individualized attention. Attendance in recitations is generally required.

**Registrar's Office** Assists students in the processes of registration and offers services such as transcript distribution, enrollment verification and withdrawal. ([registrar.colorado.edu](http://registrar.colorado.edu))

**SID (student identification number)** SIDs are assigned to all students. SIDs are system-generated and unique, and they are used as the primary student identifier on campus.

**Student Academic Services Center (SASC)** The Student Academic Services Center provides eligible students with comprehensive academic support services designed to improve their learning potential and reach educational goals. The center helps students develop effective academic strategies for college courses and obtain tutoring when necessary. **303-492-3842** ([www.colorado.edu/SASC](http://www.colorado.edu/SASC))

**Syllabus** Course outline provided by the course instructor that lists course requirements, grading criteria, course content, expectations and other relevant course information.

**Upper division or lower division** Courses numbered 1000–2999 are lower division. Courses numbered 3000–4999 are upper division.

**Wait lists** Throughout the registration and drop/add periods, if a student is eligible to take a course but finds it is full, the student may put their name on a wait list. As spaces open in a course, students may be automatically enrolled in the class. Students are responsible for monitoring if they have been enrolled in a course from the wait list. If a student does not attend a course in which they have been enrolled, they will receive an *F* grade for that course.

**Withdrawal** A formal leave from all a student's classes for a given term at the university. ([registrar.colorado.edu/students/withdraw.html](http://registrar.colorado.edu/students/withdraw.html))

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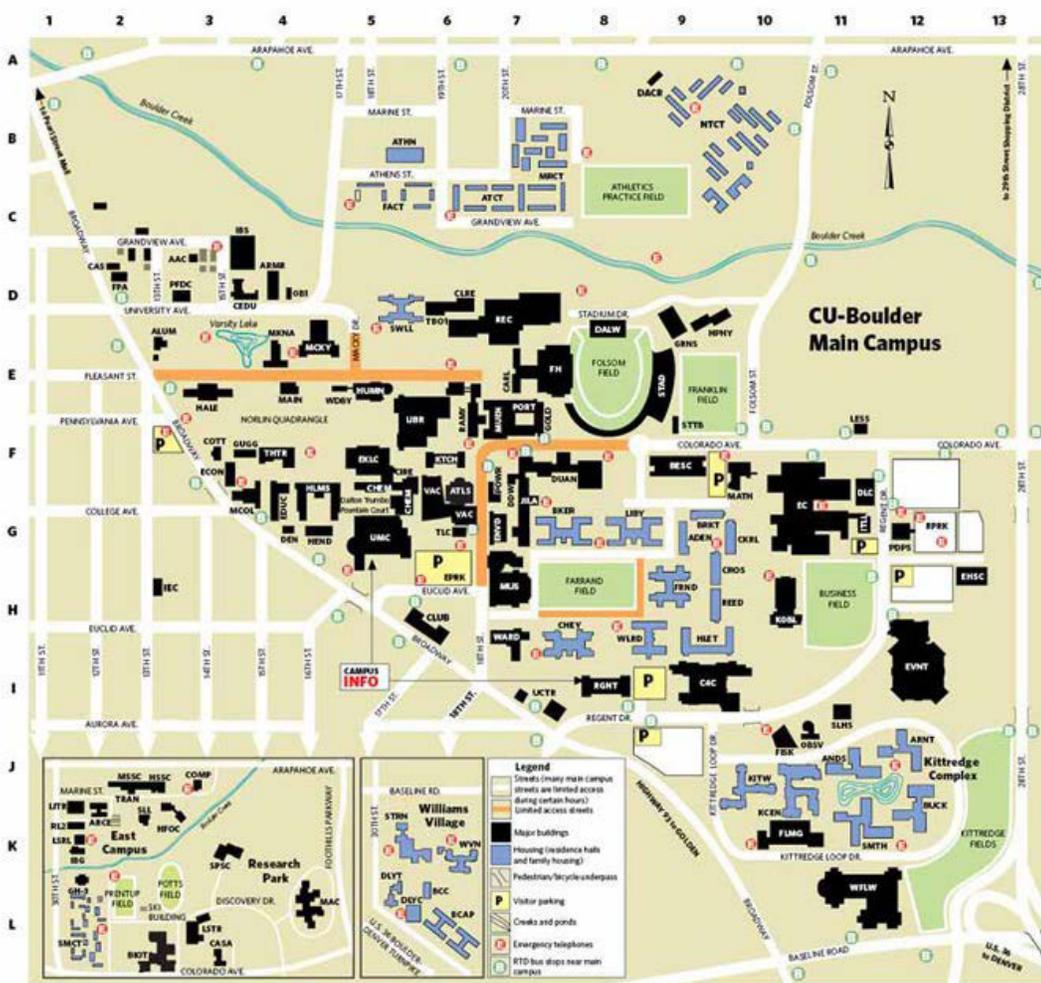
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## Campus Map



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**Need a Place to Park?** Campus parking maps are available at Parking and Transportation Services, 1050 Regent Drive. View online at [www.colorado.edu/pts/maps](http://www.colorado.edu/pts/maps).

## University Buildings & Facilities

|             |   |
|-------------|---|
| <b>AAC</b>  | Academic Advising Center; SIT (Students in Transition) <b>C-3</b>   |
| <b>ARCE</b> | Administrative and Research Center (East Campus) <b>J-2</b>   |
| <b>ARMR</b> | Armory <b>D-4</b>   |
| <b>FPA</b>  | Arts and Sciences Finance and Payroll Administration <b>D-2</b>   |
| <b>OB1</b>  | Arts and Sciences Office Building 1 <b>D-4</b>  |
| <b>ATLS</b> | ATLAS Center, Roser (Alliance for Technology, Learning, and Society) <b>G-6</b>   |
| <b>FH</b>   | Balch Fieldhouse <b>E-7</b>   |
| <b>BESC</b> | Benson Earth Sciences <b>F-9</b>  |
| <b>BIOT</b> | Biotechnology Building, Jennie Smoly Caruthers <b>L-2</b>   |
| <b>MCDL</b> | Bruce Curtis Building (Museum Collections) <b>G-3</b>   |
| <b>CARL</b> | Carlson Gymnasium <b>E-7</b>  |
| <b>CAS</b>  | Center for Asian Studies <b>D-2</b>   |
| <b>CASA</b> | Center for Astrophysics and Space Astronomy <b>L-3</b>  |
| <b>C4C</b>  | Center for Community <b>I-9</b>   |
|             | • Charlotte York Irey Theatre (in University Theatre Building) <b>F-4</b>   |
| <b>DACR</b> | Children's Center: Main Offices <b>A-9</b>  |
| <b>CIRE</b> | CIRES (Cooperative Institute for Research in Environmental Sciences) <b>F-5</b>   |
| <b>CLRE</b> | Clare Small Arts and Sciences <b>D-6</b>  |
| <b>COMP</b> | Computing Center <b>J-3</b>   |
| <b>CEDU</b> | Continuing Education Building <b>D-4</b>  |
| <b>EVNT</b> | Coors Events/Conference Center / Basketball-Volleyball Practice Facility <b>I-12</b>  |
| <b>CHEM</b> | Cristol Chemistry and Biochemistry <b>G-5</b>   |
| <b>DALW</b> | Dal Ward Athletic Center <b>D-8</b>   |
| <b>DEN</b>  | Denison Arts and Sciences <b>G-4</b>  |
| <b>DLC</b>  | Discovery Learning Center <b>F-11</b>   |
| <b>DDW</b>  | Duane D-Wing <b>F-7</b>   |
|             | • Duane Physical Laboratories (includes Duane Physics and Astrophysics, Duane D-Wing, Gamow Tower, and JILA) <b>F-7</b>                     |
| <b>DUAN</b> | Duane Physics and Astrophysics <b>F-7</b>   |
| <b>HUMN</b> | Eaton Humanities Building <b>E-5</b>  |
| <b>ECON</b> | Economics Building <b>F-3</b>   |
| <b>EDUC</b> | Education Building <b>G-4</b>   |
| <b>EKLC</b> | Ekeley Sciences Building <b>F-5</b>   |
| <b>EC</b>   | Engineering Center <b>F-11</b>  |
| <b>ENVD</b> | Environmental Design <b>G-7</b>   |
| <b>EHSC</b> | Environmental Health and Safety Center <b>H-13</b>  |
| <b>EPRK</b> | Euclid Avenue AutoPark <b>G-6</b>   |
| <b>FISK</b> | Fiske Planetarium and Science Center <b>J-10</b>  |
| <b>FLMG</b> | Fleming Building <b>K-10</b>  |
|             | • Folsom Field <b>E-8</b>   |
|             | • Gamow Tower (in Duane Physics and Astrophysics) <b>F-7</b>  |
| <b>COTT</b> | Gates Woodruff Women's Studies Cottage <b>F-3</b>   |
| <b>GOLD</b> | Gold Biosciences Building (MCD Biology) <b>E-7</b>  |
| <b>GRNS</b> | Grounds and Service Center <b>D-9</b>   |
| <b>GUGG</b> | Guggenheim Geography <b>F-3</b>   |
| <b>HALE</b> | Hale Science <b>E-3</b>   |
| <b>HPHY</b> | Health Physics Laboratory <b>D-9</b>  |
| <b>HLMS</b> | Hellems Arts and Sciences (includes Mary Rippon Outdoor Theatre) <b>G-4</b>   |
| <b>HEND</b> | Henderson Building (Museum of Natural History) <b>G-4</b>   |
| <b>HSMC</b> | Housing System Maintenance Center <b>K-3</b>  |
| <b>HSSC</b> | Housing System Service Center <b>J-2</b>  |
| <b>MUS</b>  | Imig Music Building <b>H-7</b>  |
| <b>IBG</b>  | Institute for Behavioral Genetics <b>K-1</b>  |
| <b>IBS</b>  | Institute of Behavioral Science <b>C-3</b>  |
| <b>ITLL</b> | Integrated Teaching and Learning Laboratory <b>G-11</b>   |
| <b>IEC</b>  | International English Center <b>G-2</b>   |
|             | • Jennie Smoly Caruthers Biotechnology Building (see Biotechnology Building) <b>L-2</b>   |
| <b>JILA</b> | JILA <b>G-7</b>   |
| <b>KTCH</b> | Ketchum Arts and Sciences <b>F-6</b>  |
| <b>KOBL</b> | Koelbel Building (Business, Leeds School of) <b>H-10</b>  |
| <b>ALUM</b> | Koenig Alumni Center <b>E-2</b>   |
| <b>LSTR</b> | LASP Space Technology Research Center <b>L-3</b>  |
| <b>LESS</b> | Lesser House <b>F-11</b>  |
| <b>LSRL</b> | Life Sciences Research Laboratory, RL4 <b>K-1</b>   |
|             | • Life Sciences Laboratories Complex (includes Gold Biosciences, Muenzinger Psychology, Porter Biosciences, and Ramaley Biology) <b>E-7</b> |
| <b>MAC</b>  | MacAllister Research Center <b>L-4</b>  |
| <b>MCKY</b> | Mackay Auditorium <b>D-4</b>  |
| <b>MSSC</b> | Marine Street Science Center, Research Laboratory, RL6 <b>J-2</b>   |
|             | • Mary Rippon Outdoor Theatre (at Hellems Arts and Sciences) <b>G-4</b>   |

|             |   |
|-------------|---|
| <b>MATH</b> | Mathematics Building <b>F-10</b>  |
| <b>MKNA</b> | McKenna Languages <b>E-4</b>  |
| <b>MUEN</b> | Muenzinger Psychology <b>E-7</b>  |
| <b>LIBR</b> | Norlin Library <b>E-6</b>   |
| <b>MAIN</b> | Old Main <b>E-4</b>   |
| <b>PFDC</b> | Page Foundation Center <b>D-3</b>   |
| <b>PDP5</b> | Police and Parking Services <b>G-12</b>                                       |
| <b>PORT</b> | Porter Biosciences <b>E-7</b>   |
| <b>POWR</b> | Power House <b>F-6</b>  |
| <b>RAMY</b> | Ramaley Biology <b>E-6</b>  |
| <b>RGNT</b> | Regent Administrative Center <b>I-8</b>                                       |
| <b>RPRK</b> | Regent Drive AutoPark <b>G-12, J-9</b>  |
| <b>RL2</b>  | Research Laboratory, RL2 <b>K-1</b>   |
| <b>GH-3</b> | Research Park Greenhouse <b>K-1</b>   |
| <b>LITR</b> | Rose Litman Research Laboratory, RLI <b>J-1</b>                               |
|             | • Roser ATLAS Center (see ATLAS Center) <b>G-6</b>                            |
| <b>OSBV</b> | Sommers-Bausch Observatory <b>I-11</b>  |
| <b>SLL</b>  | Science Learning Laboratory <b>K-2</b>  |
| <b>SPSC</b> | Space Science <b>K-3</b>  |
| <b>SLHS</b> | Speech, Language, and Hearing Sciences <b>I-11</b>                            |
| <b>STAD</b> | Stadium Building <b>E-8</b>   |
| <b>STTB</b> | Stadium Ticket Building <b>F-9</b>  |
| <b>RENT</b> | Student Recreation Center <b>D-7</b>  |
| <b>TLC</b>  | Technology Learning Center <b>G-6</b>   |
| <b>TBO1</b> | Temporary Building No. 1 <b>D-6</b>   |
| <b>TRAN</b> | Transportation Center <b>J-2</b>  |
| <b>UCTR</b> | University Administrative Center and Annex <b>I-7</b>                         |
| <b>CLUB</b> | University Club <b>H-6</b>  |
| <b>UMC</b>  | University Memorial Center <b>G-5</b>   |
| <b>THTR</b> | University Theatre Building (includes Charlotte York Irey Theatre) <b>F-4</b> |
| <b>VAC</b>  | Visual Arts Complex <b>G-6</b>  |
| <b>WARD</b> | Wardenburg Health Center <b>H-7</b>   |
| <b>WLFL</b> | Wolf Law Building <b>L-11</b>   |
| <b>WDBY</b> | Woodbury Arts and Sciences <b>E-5</b>   |

## University Housing

|             |  |
|-------------|--|
| <b>ADEN</b> | Aden Hall (Engineering Quad) <b>G-9</b>  |
| <b>ANDS</b> | Andrews Hall (Kittredge Complex) <b>J-11</b>   |
| <b>ARNT</b> | Arnett Hall (Kittredge Complex) <b>J-12</b>  |
| <b>ATCT</b> | Athens Court <b>C-7</b>  |
| <b>ATHN</b> | Athens North Hall <b>B-6</b>   |
| <b>BKER</b> | Baker Hall <b>G-7</b>  |
| <b>BCAP</b> | Bear Creek Apartments (near Williams Village) <b>L-6</b>   |
| <b>BCC</b>  | Bear Creek Commons (Williams Village) <b>L-5</b>   |
| <b>BRKT</b> | Brackett Hall (Engineering Quad) <b>G-9</b>  |
| <b>BUCK</b> | Buckingham Hall (Kittredge Complex) <b>K-12</b>  |
| <b>CHEY</b> | Cheyenne Arapaho Hall <b>H-7</b>   |
| <b>CKRL</b> | Cockerell Hall (Engineering Quad) <b>G-10</b>  |
| <b>CROS</b> | Crosman Hall (Engineering Quad) <b>G-10</b>  |
| <b>DLYC</b> | Darley Commons (Williams Village) <b>L-6</b>   |
| <b>DLYT</b> | Darley Towers (Williams Village) <b>K-5</b>  |
|             | • Engineering Quad (includes Aden, Brackett, Cockerell, and Crosman Halls)                                     |
| <b>FACT</b> | Faculty Staff Court <b>C-5</b>   |
| <b>FRND</b> | Farrand Hall <b>H-9</b>  |
| <b>HLET</b> | Hallett Hall <b>H-9</b>  |
|             | • Kittredge Complex (includes Andrews, Arnett, Buckingham, Kittredge Central, Kittredge West, and Smith Halls) |
| <b>KCEN</b> | Kittredge Central Hall (Kittredge Complex) <b>J-11</b>   |
| <b>KITW</b> | Kittredge West Hall (Kittredge Complex) <b>J-10</b>  |
| <b>LIBY</b> | Libby Hall <b>G-8</b>  |
| <b>MRCT</b> | Marine Court <b>B-7</b>  |
| <b>NTCT</b> | Newton Court <b>B-9</b>  |
| <b>REED</b> | Reed Hall <b>H-10</b>  |
| <b>SWLL</b> | Sewall Hall <b>D-5</b>   |
| <b>SMCT</b> | Smiley Court <b>L-1</b>  |
| <b>SMTH</b> | Smith Hall (Kittredge Complex) <b>K-11</b>   |
| <b>STRN</b> | Stearns Towers (Williams Village) <b>K-6</b>   |
| <b>WLRD</b> | Willard Hall <b>H-8</b>  |
|             | • Williams Village (includes Darley Commons, Darley Towers, Stearns Towers, and Williams Village North Hall)   |
| <b>WVN</b>  | Williams Village North Hall (Williams Village) <b>K-6</b>  |



|                          |                     |                          |                    |           |         |
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## Programs of Study

The university's programs of study listed below are organized by school or college; then program name (or major); then degrees, certificates or minors when available. Names in blue link to the department or program page.

The university offers degree programs at the bachelor's, master's and doctoral levels, and a juris doctor degree from the law school. It also offers certificate programs at the undergraduate, graduate and professional levels, and a variety of additional academic programs. The latest approved degrees may be found at the Office of Planning, Budget and Analysis website: [www.colorado.edu/pba/degrees/approve/OfficialCatalogApprovedDegreesList2015-16.htm](http://www.colorado.edu/pba/degrees/approve/OfficialCatalogApprovedDegreesList2015-16.htm).

CU-Boulder also provides dual-degree, double-degree, concurrent degrees and interdisciplinary programs. Details may be found through the specific program of study in this catalog or by contacting the sponsoring department.

Note: In the tables below, the designation (MS) or (MA) indicates master's degree offered as part of the PhD program only. The IBA is the International Bachelor of Arts degree.

### Arts & Sciences, College of

|  |   |
|--|---|
| <b>Actuarial Studies and Quantitative Finance</b><br><a href="#">Actuarial Studies Certificate</a><br><a href="#">Quantitative Finance Certificate</a>   | <a href="#">certificate</a><br><a href="#">certificate</a>  |
| <b>Anthropology</b>  | <a href="#">BA, IBA, MA, PhD, minor</a>   |
| <b>Applied Mathematics</b> ( <i>see also College of Engineering &amp; Applied Science below</i> )  | <a href="#">MS, PhD, minor</a>  |
| <b>Art and Art History</b><br><a href="#">Art History</a><br><a href="#">Art Practices</a>   | <a href="#">BA, MA</a><br><a href="#">BA, BFA, MFA, minor</a>   |
| <b>Asian Languages and Civilizations</b><br><a href="#">Chinese</a><br><a href="#">Japanese</a><br><a href="#">South Asian Languages and Civilizations</a><br><a href="#">Middle Eastern and Islamic Studies</a> | <a href="#">MA, PhD</a><br><a href="#">BA, minor</a><br><a href="#">BA, minor</a><br><a href="#">certificate</a><br><a href="#">certificate</a> |
| <b>Asian Studies</b>   | <a href="#">BA, minor</a>   |
| <b>Astrophysical and Planetary Sciences</b><br><a href="#">Astronomy</a>   | <a href="#">(MS), PhD, minor</a><br><a href="#">BA, IBA</a>   |
| <b>Atmospheric and Oceanic Sciences</b>  | <a href="#">MS, PhD, minor</a>  |
| <b>British and Irish Studies</b>   | <a href="#">certificate</a>   |

|  |   |
|--|---|
| <b>Central and East European Studies</b>   | certificate   |
| <b>Chemistry and Biochemistry</b><br>Biochemistry<br>Chemistry<br>Chemical Physics   | BA, IBA, (MS), PhD, minor<br>BA, IBA, (MS), PhD, minor<br>PhD |
| <b>Classics</b>  | BA, MA, PhD, minor  |
| <b>Cognitive Science</b>   | PhD (joint only)  |
| <b>Comparative Literature</b>  | MA  |
| <b>Computer Science</b> ( <i>see also Engineering &amp; Applied Science below</i> )  | BA  |
| <b>Distributed Studies</b>   | BA  |
| <b>Ecology and Evolutionary Biology</b>  | BA, IBA, MA, PhD, minor                                       |
| <b>Economics</b>   | BA, (MA), PhD, minor  |
| <b>English</b><br>Creative Writing   | BA, MA, PhD, minor<br>MFA, minor                              |
| <b>Environmental Studies</b>   | BA, IBA, MS, PhD  |
| Masters of the Environment   | MENV  |
| <b>Ethnic Studies</b><br>Comparative Ethnic Studies  | BA, minor<br>PhD  |
| <b>Film Studies</b>  | BA, BFA, MFA (through Art and Art History), minor             |
| <b>French and Italian</b><br>French<br>Italian   | BA, MA, PhD, minor<br>BA, minor                               |
| <b>Geography</b>   | BA, IBA, MA, PhD, minor                                       |
| <b>Geological Sciences</b><br>Geology<br>Geophysics  | BA, IBA, MS, PhD, minor<br>PhD                                |
| <b>Germanic and Slavic Languages and Literatures</b><br>German Studies<br>Nordic Studies (Scandinavian)<br>Russian Studies | BA, MA, PhD, minor<br>minor<br>BA, MA, minor                  |
| <b>History</b>   | BA, MA, PhD, minor  |
| <b>Honors</b>  |   |
| <b>Humanities</b>  | BA, minor   |
| <b>Integrative Physiology</b>  | BA, IBA, MS, PhD  |
| <b>International Affairs</b>   | BA, certificate   |

|   |   |
|---|---|
| <b>Jewish Studies</b><br>Hebrew and Israel Studies  | BA, minor<br>minor                      |
| <b>Lesbian, Gay, Bisexual, Transgender and Queer Studies</b>                                      | certificate                             |
| <b>Linguistics</b>  | BA, MA, PhD, minor                      |
| <b>Mathematics</b>  | BA, MA, PhD, minor                      |
| <b>Molecular, Cellular and Developmental Biology</b>  | BA, IBA, (MA), PhD                      |
| <b>Museum and Field Studies</b><br>Museology  | MS<br>certificate                       |
| <b>Neuroscience</b>   | PhD (joint only)                        |
| <b>Peace and Conflict Studies</b>   | certificate                             |
| <b>Philosophy</b>   | BA, MA, PhD, minor                      |
| <b>Physics</b><br>Engineering Physics ( <i>see also Engineering &amp; Applied Science below</i> ) | BA, IBA, (MS), PhD, minor<br>BS         |
| <b>Political Science</b>  | BA, (MA), PhD, minor                    |
| <b>Psychology and Neuroscience</b><br>Psychology<br>Neuroscience                                  | BA, IBA, (MA), PhD<br>BA, certificate   |
| <b>Religious Studies</b>  | BA, MA, minor                           |
| <b>Sociology</b>  | BA, (MA), PhD, minor                    |
| <b>Spanish and Portuguese</b><br>Spanish<br>Portuguese  | BA, MA, PhD, minor<br>minor             |
| <b>Speech, Language and Hearing Sciences</b><br>Audiology   | BA, IBA, MA, PhD<br>AudD                |
| <b>Theatre and Dance</b><br>Theatre<br>Dance  | BA, BFA, MA, PhD<br>BA, BFA, MFA, minor |
| <b>Western American Studies</b>   | certificate                             |
| <b>Western Civilization Studies</b>   | certificate                             |
| <b>Women and Gender Studies</b>   | BA, minor, certificate                  |
| <b>Writing and Rhetoric, Program for</b>  |   |

## Business, Leeds School of

|                                |   |
|--------------------------------|---|
| <b>Business Administration</b> | BS, MS, MBA, PhD, minor,<br>certificate |
| <b>Business Analytics</b>      | MS                                      |

|                                |    |
|--------------------------------|----|
| <b>Finance</b>                 | MS |
| <b>Real Estate</b>             | MS |
| <b>Supply Chain Management</b> | MS |

## Education, School of

|  |  |
|--|--|
| <b>Curriculum and Instruction</b>                      | MA, MA + licensure, PhD                    |
| <b>Elementary and Secondary Teacher Education</b>      | undergraduate licensure, post-BA licensure |
| <b>Education</b>                                       | minor                                      |
| <b>Educational-Psychological Studies</b>               | MA, PhD                                    |
| <b>Research and Evaluation Methodology</b>             | PhD  |
| <b>Social, Multicultural and Bilingual Foundations</b> | MA, PhD                                    |
| <b>INVST Community Studies</b>                         |  |

## Engineering & Applied Science, College of

|   |                              |
|---|------------------------------|
| <b>Aerospace Engineering Sciences</b>   | BS, MS, PhD, certificate     |
| <b>Applied Mathematics</b> <i>(see also College of Arts &amp; Sciences above)</i> | BS                           |
| <b>Architectural Engineering</b>  | BS, ME, MS, PhD              |
| <b>Chemical and Biological Engineering</b>  | BS                           |
| <b>Chemical Engineering</b>   | BS, ME, MS, PhD              |
| <b>Civil Engineering</b>  | BS, ME, MS, PhD              |
| <b>Computer Science</b> <i>(see also College of Arts &amp; Sciences above)</i>    | BS, ME, MS, PhD              |
| <b>Electrical and Computer Engineering</b>  | BS                           |
| <b>Electrical Engineering</b>   | BS, ME, MS, PhD, certificate |
| <b>Engineering Management</b>   | ME, certificate              |
| <b>Engineering Physics</b> <i>(see also College of Arts &amp; Sciences above)</i> | BS                           |
| <b>Environmental Engineering</b>  | BS, ME, MS, PhD              |
| <b>Engineering Plus</b>   | BS                           |
| <b>Materials Science and Engineering</b>  | MS, PhD                      |
| <b>Mechanical Engineering</b>   | BS, ME, MS, PhD              |

|   |                          |
|---|--------------------------|
| <b>Technology, Arts and Media (ATLAS Institute)</b> | BS<br>MS, PhD            |
| <b>Telecommunications</b>                           | ME, MS, PhD, certificate |

## Environmental Design, Program in

|   |                           |
|---|---------------------------|
| <b>Environmental Design</b> (Architecture, Landscape Architecture, Design and Planning) | BEnvd, minor, certificate |
|---|---------------------------|

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|  |             |
|--|-------------|
| <b>Communication</b>                                 | BA, MA, PhD |
| <b>Emergent Technologies and Media Art Practices</b> | PhD         |
| <b>Information Science</b>                           | BS, PhD     |
| <b>Interdisciplinary Documentary Media Practices</b> | MFA         |
| <b>Intermedia Art, Writing and Performance</b>       | PhD         |
| <b>Journalism</b>                                    | BA, MA      |
| <b>Media Production</b>                              | BA          |
| <b>Media and Public Engagement</b>                   | MA          |
| <b>Media Research and Practice</b>                   | PhD         |
| <b>Media Studies</b>                                 | BA          |
| <b>Strategic Communication</b>                       | BS          |
| <b>Strategic Communication Design</b>                | MA          |

## Law School

|                              |           |
|------------------------------|-----------|
| <b>Law</b><br>Master of Laws | JD<br>LLM |
| Master of Studies in Law     | MSL       |

## Music, College of

|                              |                                |
|------------------------------|--------------------------------|
| <b>Music</b>                 | BAMus                          |
| Music Education              | BMusEd, MMusEd, PhD            |
| Music Theory                 | MMus                           |
| Musicology                   | BMus, PhD                      |
| Music Composition            | BMus, MMus, DMusA              |
| Music Performance            | BMus, MMus, DMusA, certificate |
| Music Performance & Pedagogy | MMus, DMusA                    |
| Jazz Studies                 | BMus, DMusA                    |
| Conducting                   | MMus, DMusA                    |

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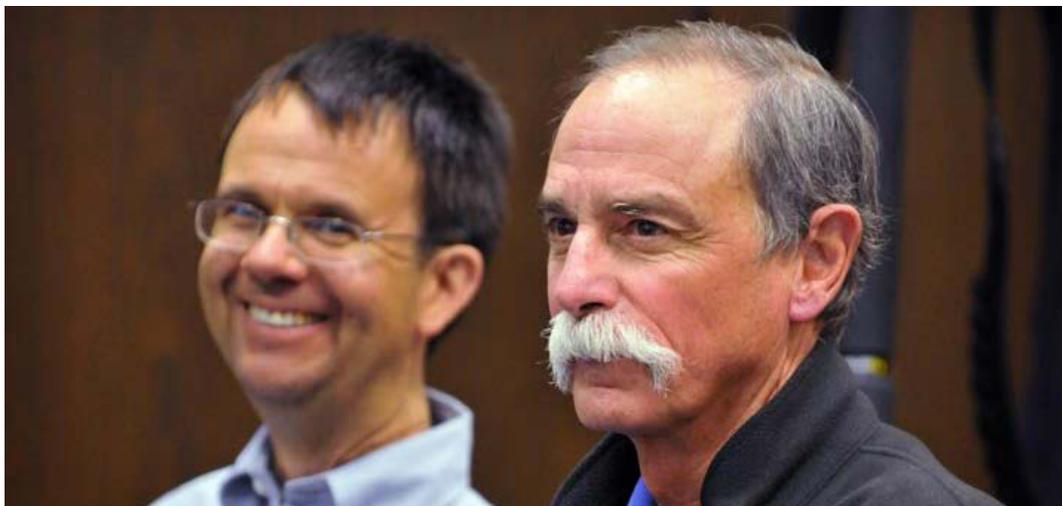
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## College of Arts & Sciences



**Steven R. Leigh, dean**

275 UCB • phone: 303-492-7294 • fax: 303-492-4944  
college website: [www.colorado.edu/artssciences](http://www.colorado.edu/artssciences)

The College of Arts & Sciences is the liberal arts college at CU-Boulder. Its mission is to provide an outstanding liberal arts education for its undergraduates, cutting-edge graduate education and world-class research, scholarship and creative work. In addition to gaining the knowledge and skills of their areas of study, students learn how new information is acquired and can participate in original research and creative work with individual faculty members.

The college offers a wide variety of fields of study, with nearly 50 undergraduate majors. The environment and advantages of a small liberal arts college are created through “academic neighborhoods” in which students can meet and interact with other students and faculty in small group settings. In addition, more than 60 percent of undergraduate classes are small, with 25 or fewer students.

As the liberal arts college of CU-Boulder, the College of Arts and Sciences has several goals in the education of its students:

- Educate students for careers and a productive life. Arts and sciences students gain the most current knowledge and skills in their major fields of study. In addition, they learn how to acquire new skills to contend with—and lead—the changes that will occur in the decades to come. Education for a productive life also requires that students learn how to analyze situations, solve problems and speak and write effectively.
- Provide students with a well-rounded education. Arts and sciences students acquire a broad knowledge and an integrated understanding of art and music, great literary works, philosophy, history and politics, the social world, science and technology. They learn how to

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critically evaluate and think about morals, ethics and values. The core curriculum and breadth requirements give students a broad, liberal-arts education that develops the whole person, not just the specialist.

- Educate citizens who can think for themselves, understand the rapidly changing world and make wise choices within a democratic system.
- Impart a love of learning so that students can continue to grow throughout life.
- Teach ways of thinking about and approaching new problems. For some students, this will enable them to further advance knowledge and scholarship in the academy. For all students, this is important for enriching their lives.
- Prepare students to help enrich the lives of others. Arts and sciences graduates become lifelong resources for their families, neighbors, friends and co-workers.

The college is also dedicated to outstanding graduate education. Advanced degrees are offered by nearly every academic department in the college, and the PhD is offered in approximately 30 different disciplines. In addition, an increasing number of departments offer combined bachelor's/master's degrees that can be earned in five years. Graduate training focuses on teaching and research careers as well as on professional careers in the public and private sector.

The strength of the College of Arts and Sciences comes from its outstanding faculty. In addition to being dedicated teachers, they are active scholars in disciplines throughout the arts and humanities, social and behavioral sciences, biological sciences and physical and mathematical sciences. They are the recipients of numerous national awards and honors for their research, scholarship and creative work. Faculty and staff of the College of Arts and Sciences join together to create an intellectual community of students and scholars to discover, critically examine, integrate, preserve and transmit knowledge, wisdom and values.

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## Academic Excellence

### Dean's List

Students in the College of Arts and Sciences who have completed at least 12 credit hours of CU-Boulder course work for a letter grade in any single semester with a term GPA of 3.75 or better are included on the dean's list and receive a notation on their transcript and a letter from the dean.

### Graduation with Honors

The award of honors at graduation—*cum laude*, *magna cum laude*, or *summa cum laude*—is determined by the Honors Program of the college and is based on several criteria, including the quality of original scholarly work. Honors are not conferred on a graduate simply by virtue of high grades. Students pursuing multiple majors or multiple degrees must complete their honors program and defend their thesis by the published deadline for the term/year in which their first major or first degree is conferred. Students intending to pursue honors must register with the Honors Program by the deadlines published on the Honors Program website. Honors requirements must be complete prior to graduation. Students “walking” in May but graduating in August must complete honors requirements, including defending the thesis, by the Honors Program deadline for May graduation. Interested students should consult the Honors Program listing in this catalog or contact the Honors Program in Norlin Library.

### Graduation with Distinction

Students will graduate “With Distinction” if they have at least 30 credit hours completed at the University of Colorado Boulder and have a grade point average of 3.75 or higher for all course work completed at the University of Colorado. The average includes all grades except *P*.

### Phi Beta Kappa

Phi Beta Kappa is the nation's oldest and most prestigious honor society. The CU-Boulder chapter was established in 1904. Upper-division students whose undergraduate academic records fulfill certain requirements are eligible for election to membership in recognition of outstanding scholastic achievement in the liberal arts and sciences. Students are notified by mail of their nomination; students do not apply for Phi Beta Kappa membership.

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# Academic Standards

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## Good Academic Standing

Good academic standing in the college requires a cumulative grade point average of 2.00 (C) or above in all University of Colorado work. Grades earned at another institution are not used in calculating the grade point average at the University of Colorado (this includes courses taken at Metropolitan State University on the Denver campus). However, grades earned in another school or college within the University of Colorado system are used in determining a student's scholastic standing and progress toward the degree in the College of Arts and Sciences.

## Academic Alerts

Students who complete their first semester on campus, whether they are a freshman or a new transfer student, with a grade point average that is below 2.00 are placed on academic alert. Academic alert is a warning. Students on academic alert who earn a term grade point average of 2.00 or higher during their alert semester are allowed a second semester to achieve the required cumulative grade point average of at least a 2.00. Students who earn below a 2.00 term grade point average during their alert semester will be suspended.

## Academic Probation

Continuing students whose cumulative grade point average falls below 2.00 are placed on probation. Those students who enroll in any term in the calendar year, excluding summers, after being placed on probation are expected to raise their grade point to a 2.00 or above overall by the end of that term. Neither CU-Boulder's summer session (including Maymester and Augmester) nor enrollment through Boulder evening courses counts as a probationary semester. Students are not dismissed at the end of the summer term.

Students placed on academic probation who elect to remain out of school for a full calendar year can return to the university with a two-semester window to achieve the required cumulative GPA of 2.00 or above. Students on probation who return after a hiatus of one year are placed on a second probation at the end of the semester in which they return if their cumulative grade-

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point average remains below 2.00 and are dismissed from the university if they do not achieve a minimum 2.00 cumulative grade-point average by the end of the semester following the imposition of the second probation.

## Scholastic Suspension

Continuing students who still have a cumulative average below 2.00 after their semester of probation will be suspended and will not be able to register for University of Colorado daytime courses on any campus during any academic year, August to May. Students suspended from the college are eligible for readmission when they have achieved a cumulative 2.00 average by virtue of work done during the University of Colorado's summer term (any of the three campuses) and/or through the Division of Continuing Education and Professional Studies (Boulder evening or correspondence courses). Students who choose to enroll in continuing education courses to restore their good standing must maintain a 2.50 GPA or above in each term in continuing education or be suspended from both day classes and continuing education classes. They also may return as transfer students when they have overcome their deficiencies by enrolling at another institution (i.e., by achieving an overall 2.00 average in the University of Colorado work plus all work taken elsewhere since dismissal). These transfer grades are used only for the purpose of readmission and do not remain in the University of Colorado cumulative grade-point average. Suspended students pursuing this latter option have two semesters after readmission to bring their University of Colorado grade point average up to 2.00 or they are suspended again.

## Academic Ethics

A university's intellectual reputation depends on the maintenance of the highest standards of intellectual honesty. Commitment to those standards is a responsibility of every student and faculty member at the University of Colorado. Cheating; plagiarism; illegal possession and distribution of examinations or answers to specific questions; alterations, forgery or falsification of official records; presenting someone else's work as one's own; or performing work or taking an examination for another student are examples of acts that may lead to suspension or expulsion. Reported acts of academic dishonesty must be referred to the Honor Council. The policies and procedures governing acts of academic dishonesty can be found on the Web at [honorcode.colorado.edu](http://honorcode.colorado.edu).

## Appeals and Petitions

The College of Arts and Sciences does not waive degree requirements or excuse students from completing degree requirements. Petitions for exceptions to the academic policies stated here may be submitted to the Appeals Committee on Academic Rules and Policies. Such petitions will be considered only if they meet all three of the following conditions:

1. The student must document that she/he has made every effort to fulfill the policy or requirement as defined and must demonstrate that no other options exist for fulfilling the requirement as defined in this catalog.
2. The student must document that she/he is prevented from fulfilling the policy or meeting the requirement as defined here for compelling reasons beyond the student's control.
3. The student must demonstrate to the satisfaction of the faculty committee that she/he has fulfilled or will fulfill the intent of the policy or the requirement through an appropriate alternative.

Students who believe that their circumstances meet the conditions to submit a petition must first consult with their academic advisor. If the advisor offers options for meeting the requirement or

policy as defined here, the student must pursue those options and should not submit a petition.

The Appeals Committee on Academic Rules and Policies is located in the Office of Academic and Curricular Affairs.

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# General Credit & Enrollment

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## Transfer Credit

Work from another accredited institution of higher education that has been completed with a grade of C- (1.70) or better may be transferred to the University of Colorado. Categories of transfer course work not accepted by the university are described in the [Transfer Course Work Not Accepted by the University](#) section in Undergraduate Admission.

All courses transferred from junior and community colleges carry lower-division credit. Courses transferred from four-year institutions generally carry credits at the level at which they were taught at the previous institution, but can be subject to review on a course-by-course basis.

## Colorado Student Bill of Rights

In the interests of promoting timely graduation and facilitating the transfer of students among the institutions of higher education in the state of Colorado, the College of Arts and Sciences and the University of Colorado Boulder adhere to the Student Bill of Rights as presented in Colorado Statute 23-1-125.

- **23-1-125. Commission directive - student bill of rights - degree requirements - implementation of core courses - competency test - prior learning**

(1) Student bill of rights. The general assembly hereby finds that students enrolled in public institutions of higher education shall have the following rights:

(a) Students should be able to complete their associate of arts and associate of science degree programs in no more than sixty credit hours or their baccalaureate programs in no more than one hundred twenty credit hours unless there are additional degree requirements recognized by the commission;

(b) A student can sign a two-year or four-year graduation agreement that formalizes a plan for that student to obtain a degree in two or four years, unless there are additional degree requirements recognized by the commission;

(c) Students have a right to clear and concise information concerning which courses must be

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completed successfully to complete their degrees;

(d) Students have a right to know which courses are transferable among the state public two-year and four-year institutions of higher education;

(e) Students, upon completion of core general education courses, regardless of the delivery method, should have those courses satisfy the core course requirements of all Colorado public institutions of higher education;

(f) Students have a right to know if courses from one or more public higher education institutions satisfy the student's degree requirements;

(g) A student's credit for the completion of the core requirements and core courses shall not expire for ten years from the date of initial enrollment and shall be transferrable.

## Statewide Guaranteed Transfer of General Education Courses

As of fall 2003, the two-year and four-year transfer articulation agreements among Colorado institutions of higher education were replaced by a statewide guaranteed transfer of approved general education courses taken at any Colorado public institution of higher education. Under the statewide guaranteed transfer program, up to 31–33 credits of successfully (C- or better) completed course work will automatically transfer and apply towards graduation requirements at the receiving institution. The course work must be drawn from the list of approved guaranteed transfer courses and must meet the distribution requirements of the guaranteed transfer program. Further information about the statewide transfer program, including the list of approved courses and distribution requirements, can be found at the website of the Colorado Department of Higher Education, [higherred.colorado.gov/Academics/Transfers/Students.html](http://higherred.colorado.gov/Academics/Transfers/Students.html).

As of fall 2006, a student graduating with an associate of arts or an associate of science degree from a Colorado community college and entering the College of Arts and Sciences is exempt from the written communication requirement and the lower-division component of the core curriculum. Note that students are still subject to the MAPS requirement. Additional information on the evaluation of transfer credit of Colorado community college course work and its application in select arts and sciences major programs can also be found at [www.colorado.edu/artssciences/prospective-students](http://www.colorado.edu/artssciences/prospective-students).

Students are required to follow the graduation requirements listed in this catalog at the time of their initial entry onto the Boulder campus.

## Attendance

Successful work in the College of Arts and Sciences is dependent upon regular attendance in all classes. Students who are unavoidably absent should make arrangements with instructors to make up the work missed. Failure to attend regularly may result in receipt of an *F* in a course. Students who, for illness or other legitimate reason, miss a final examination must notify the instructor or the Academic Advising Center no later than the end of the day on which the examination is given. Failure to do so may result in receipt of an *F* in the course.

## Credit Policies

### Advanced Placement Program

See [Undergraduate Admission](#) and the [Advanced Placement Table](#).

### International Baccalaureate

Any student admitted to a University of Colorado campus after June 30, 2003, who has graduated from high school having successfully completed an International Baccalaureate (IB) diploma, program will be granted 24 semester hours of college credit. No tuition will be charged for these credits. These credits will be granted, however, only if the student receives a score of 4 or better on an examination administered as part of the IB diploma program.

In addition, college credit is granted for International Baccalaureate examinations at the higher level with a score of 4 or better. For specific equivalencies, contact the Office of Admissions at **303-492-2458** or visit [www.ibo.org](http://www.ibo.org).

## College-Level Examination Program (CLEP)

The College of Arts and Sciences accepts a limited number of hours of CLEP credit from subject (not general) examinations toward its bachelor's degree programs (see Undergraduate Admission for subjects accepted). In addition, certain CLEP examinations may be used to meet the minimum academic preparation standards (MAPS) for admission to the university. No more than 30 total credit hours of CLEP will apply, nor may CLEP credit be used in the final 30 credit hours presented for a degree.

CLEP tests are administered through Career Services, **303-492-5854**.

## Cooperative Education/Internships

Students in the College of Arts and Sciences may receive up to nine credit hours for a department-sponsored cooperative education program or internship. A maximum of six of the nine internship credits can be taken in the same department. Each internship project must be approved by the chair or associate chair of the department awarding the credit before the student enrolls in the course in order for the student to receive credit. Students are encouraged to contact their major department office or Career Services for information regarding the possibility of enrolling in a cooperative education program in their major. Many internships are graded on a *pass/fail* basis only. Participation in an internship with mandatory *pass/fail* grading does not affect the total credit hours of *pass/fail* a student may apply toward a degree. Some departments further restrict the use of internship credit toward meeting major requirements.

For further information on internship credit, visit [advising.colorado.edu](http://advising.colorado.edu).

## Credit/No Credit

Credit/no credit changes must occur during the schedule adjustment periods.

## Credit Taken as a Nondegree Student

Once a student has been admitted to a degree program, credits from the Division of Continuing Education such as ACCESS, Boulder evening credit courses and CU-Boulder correspondence classes may be eligible to be applied toward the degree. Students will receive initial advising during orientation once they have been accepted to a degree program in the College of Arts and Sciences.

## Credit Taken Outside the College of Arts and Sciences

Students may apply a total of 30 credit hours from the other colleges and schools at CU-Boulder as well as specified ROTC and President's Leadership Class courses toward the fulfillment of requirements for the BA and BFA degrees. Within these 30 total hours, up to eight credit hours in activities courses (applied music and ensembles) may be used. Transferred courses that were taught by departments considered to be outside the College of Arts and Sciences are counted as part of the allowed 30 hours. If a course has been approved to meet a core curriculum requirement and the course is taught outside the College of Arts and Sciences, the credit for this course will not be included as part of the 30 semester hour limitation.

## Cross-Listed Courses

Courses that are cross-listed in two or more departments are credited in the department in which the student has the most semester hours, irrespective of the department in which the student formally enrolled for the course.

## Foreign Language Courses

Students must receive a grade of C or better to enroll in the next level of a language sequence in Arabic, Chinese, Farsi, Hindi, Indonesian, Japanese and Korean. Students must receive a grade of C- or better to enroll in the next level of a language sequence in American Sign Language, Danish, Finnish, French, German, Greek, Hebrew, Italian, Latin, Norwegian, Portuguese, Russian, Spanish and Swedish. Students will not receive credit for a lower level course after credit has been given for a higher level course in the same sequence. For example, students who have passed a 2000-level class will not receive credit for a 1000-level class in the same sequence. This rule applies to the following languages: American Sign Language, Arabic, Chinese, Farsi, French, German, Greek, Hebrew, Hindi, Indonesian, Italian, Japanese, Korean, Latin, Norwegian, Polish, Portuguese, Russian, Spanish and Swedish. Consult each department for specific restrictions, requirements and prerequisites.

Undergraduate introductory language courses (numbered at the 1000 and 2000 level) are designed for non-native speakers. Fluent speakers of a language are prohibited from enrolling in introductory courses in the language and can be dropped from these courses by the department or by the course instructor. Fluent speakers should consult the department website and this catalog or consult with the course instructor or department language coordinator about eligibility to enroll in upper-division language courses (numbered at the 3000 and 4000 level) before enrolling in such courses. Departments can exclude fluent speakers from upper-division language courses based on course content and/or instructional resources. Speakers who have not formally studied the language but have spoken the language in their home should consult with the associate chair of the language department or the department language coordinator about appropriate placement before enrolling in a language course.

Some classes offered by foreign language departments are taught in English and require no knowledge of foreign language. Read specific course descriptions and check with the departments.

## Incomplete Grades

An *I* grade is given at the discretion of the course instructor only when a student has satisfactorily completed a substantial portion of a course and, for reasons beyond the student's control, is prevented from completing all work for the course within the term. Incomplete grades must be requested by the student and should not be awarded by the instructor for non-attendance. (In the case of non-attendance, the instructor should award the student the grade(s) earned.) If an incomplete grade is given, the instructor is required to document the reasons/grounds for the awarding of the incomplete grade, the specific work and conditions for completion of the course and the time frame within which the course work must be completed. The maximum time the instructor can allow for the completion of the course work and subsequent award of a course grade is one year from the end of the term the course was taken. After one year, if no final grade is awarded, the *I* will change to the grade of *F*. A copy of the Incomplete Agreement (forms are available from the dean's office) signed by the student and instructor and accompanied by documentation of the extenuating circumstances that resulted in the awarding of an incomplete should be filed with the Assistant Dean's Office and with the instructor's department office, and a copy should be given to the student.

## Independent Learning

A maximum of 30 credit hours of correspondence/online learning work may count toward the

degree. Arts and sciences courses offered by the CU-Boulder Division of Continuing Education carry resident credit.

## Independent Study

With departmental approval, students may register for independent study during the normal registration periods for each semester. Students may not register for more than 6 credit hours of independent study credit during any term. No more than 8 credit hours of independent study taken in a single department or program can be applied toward the total hours needed for graduation. A maximum of 16 hours of independent study may count toward the degree. The minimum expectation for each semester hour of credit is 25 hours of work.

A student may not use independent study projects to fulfill the college's general education requirements. Some departments further restrict the use of independent study hours toward meeting major requirements.

## Required Hours Outside the Major

To complete the BA degree, students are required to complete a minimum of 75 credit hours outside their major department. Exceptions are:

- Students who complete designated departmental honors courses in their major and/or in honors thesis credit can reduce the 75 credit hours required outside the major department by a corresponding number of credits, up to a maximum of six.
- Students completing the bachelor of fine arts degree must complete a minimum of 53 credit hours outside of their major department.

## *Pass/Fail*

Students in the College of Arts and Sciences may not use the *pass/fail* option for courses taken to fulfill general education (core) requirements, courses used to satisfy the foreign language requirement, courses used to fulfill the Minimum Academic Preparation Standards (MAPS), courses used to complete minor requirements or courses used to complete the minimum requirements for the major. A grade of *F* when earned in a course taken *pass/fail* will calculate into the GPA as a failing grade.

Students may take elective courses *pass/fail*, to a maximum of 6 credit hours. Courses offered only on a mandatory *pass/fail* basis are excluded from the maximum allowed. **The *pass/fail* option may be used only for elective credit.**

## Repetition of Courses

If a student takes a course for credit more than once, all grades are calculated into the grade point average. However, the course is only counted toward graduation once, unless a course description specifically states that it can be taken more than once for credit.

## ROTC Credit

The ROTC courses listed below have been certified as acceptable college-level course work by the faculty of the College of Arts and Sciences or by other colleges and schools on the Boulder campus. These courses are counted as elective credit toward the degree, subject to the 30-semester-hour limitation on course work taken outside the college for students in the BA and BFA programs. Courses not included on this list do not count toward any degree requirements. Transfer ROTC course work must be evaluated as equivalent to course work on this list to count toward degree requirements.

- AIRR 3010 and 3020

AIRR 4010 and 4020

- MILR 1011 and 1021
- MILR 2031 and 2041 (students may not receive credit for either course if they have credit in OPMG 3000)
- MILR 4072 and 4082
- NAVR 2020
- NAVR 3030
- NAVR 3040
- NAVR 3101
- NAVR 4010 and 4020
- NAVR 4030
- NAVR 4101

## Withdrawal

See the General Information section of the catalog for specific [withdrawal procedures](#) and universitywide policies.

Students in the College of Arts and Sciences who withdraw two semesters in a row will have a dean's stop placed on their registration. Summer session is not counted as a regular semester. They will not be permitted to return to CU-Boulder before one full academic year has elapsed (not including their semester of withdrawal). Arts and sciences students may withdraw from all classes for a term until the last day that classes are taught by requesting withdrawal in the Office of the Registrar. Students cannot withdraw after classes have ended for a term.

These policies also apply to arts and sciences students who are enrolled in continuing education courses.

## Readmission

Arts and sciences students who request readmission to the college are always readmitted to their major of record at the time they last attended the university. Readmitted students who desire to pursue a major different from their major of record must follow the college's process for declaring a new major (explained on the Academic Advising Center website, [www.colorado.edu/artssciences/aacforstudents](http://www.colorado.edu/artssciences/aacforstudents)) after they have been readmitted.

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# Undergraduate Degree Requirements

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Students are subject to the general degree requirements in effect at the time they first enter the Boulder campus of the University of Colorado and are subject to the major requirements in force at the time they declare the major. Arts and sciences students have 10 years to complete the requirements for a declared major. If the 10-year limit is exceeded, the student may be required to satisfy current major requirements. Students pursuing a major degree program identified for discontinuation by decision of the Board of Regents and the Colorado Commission on Higher Education have four years from the formal announcement of discontinuation to complete the degree program and graduate. The requirements, rules and policies stated here apply to all students first entering the Boulder campus during the 2014–15 academic year.

Students must complete a degree within 10 years. If it has been more than 10 years since matriculation into the College of Arts and Sciences and no degree has been completed, students may be subject to new curricula in place at the time of reenrollment. Please see the Minimum Major Requirements section for additional information on major requirements. Students may contact the Academic Advising Center for further assistance.

## Academic Advising

Students in the college are expected to assume responsibility for planning their academic program in conjunction with their academic advisor in accordance with college rules and policies and with departmental major requirements. Any questions concerning these provisions are to be directed to the student's academic advisor or to the Academic Advising Center.

The college cannot assume responsibility for problems resulting from students failing to follow the policies stated in the catalog or from incorrect advice given by someone other than an appropriate staff member of the college.

## Advising

Academic advising is an integral part of undergraduate education.

Academic Advisors are professional staff members who guide students to identify, develop, pursue and attain meaningful educational and personal goals. Advising is more than the sharing

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of information about academic courses and programs. Students are ultimately responsible for choosing appropriate courses, for registering accurately and for meeting all degree requirements. However, academic advisors have an expertise in navigating the entire curriculum, which helps them to personalize students' academic experiences and ensure the integrity of a liberal arts education.

**Center for First-year Students.** All new first-year students entering the college are advised in the Center for First-year Students, where they receive assistance in making a successful transition to the Boulder campus, are oriented to the academic expectations of the college and are supported in confirming their choice of major or in selecting an appropriate major.

In addition, through the Center for First-year Students, the Academic Advising Center provides comprehensive advising services to students who are undecided about their major or who are thinking of changing their major to another CU-Boulder college or school.

**Advising Beyond the First Year.** All students who have confirmed their major of choice by the end of their first year are advised during their second year and beyond by professional advisors in their disciplinary area.

**Preprofessional Advising Program.** The advising center also provides preprofessional advising for all students who are preparing to pursue the study of law, medicine or other professional health fields. The Preprofessional Advising Program provides in-depth individual advising on preparation for these professional programs, provides workshops to prepare students for the application process and offers guidance in arranging professional internships and shadowing opportunities.

## Responsibilities of Students and Advisors

Within the advising system on the Boulder campus, both students and advisors have responsibilities.

### Students are responsible for:

- knowing the requirements of their particular academic program, selecting courses that meet those requirements in an appropriate time frame, registering accurately and monitoring their progress toward graduation;
- consulting with their academic advisor regularly throughout their academic career, so as to avoid seeking advising only during busy registration periods;
- being prepared for advising sessions (for example, by bringing in a list of questions or concerns, having a tentative schedule in mind and/or being prepared to discuss interests and goals with their advisor);
- knowing and adhering to published academic deadlines;
- monitoring their position on registration waitlists; and
- reading their CU email on a weekly basis.

### Advisors are responsible for:

- helping students clarify their values, goals and abilities;
- helping students understand the nature and purpose of a college education;
- providing accurate information about educational options, requirements, policies and procedures;
- helping students plan educational programs consistent with the requirements of their degree program and with their goals, interests and abilities;

- assisting students in the continual monitoring and evaluation of their educational progress; and
- helping students locate and integrate the many resources of the university to meet their unique educational needs and aspirations.

## Four-Year Graduation

The College of Arts and Sciences has adopted a set of guidelines to define the conditions under which a student should expect to graduate in four years. More information is available through the Academic Advising Center and major program and departmental offices.

The University of Colorado Boulder guarantees that if the scheduling of essential courses is found to have prevented a student in the College of Arts and Sciences from completing all course work necessary for a BA or BFA degree from the university by the end of the student's eighth consecutive fall and spring semester, the college will provide tuition plus any course fees for all courses required for completion of the degree requirements. Students must satisfy all the conditions described below to be eligible for this guarantee.

This guarantee extends to all students who enrolled the summer of 1994 or after into the College of Arts and Sciences as first-semester freshmen without MAPS deficiencies and who satisfy all the requirements described below. This guarantee cannot be extended to include completion of a second major, a double degree, a minor, a teaching certificate or other certificate program. Some CU-Boulder study abroad programs may not provide a sufficient range of courses to allow students to meet the requirements and thus students who participate in study abroad are not included in this guarantee.

## Four-Year Guarantee Requirements

1. Students should enroll in University of Colorado Boulder course work for eight consecutive fall and spring semesters.
2. No fewer than 60 credit hours of applicable course work should be completed with passing grades by the end of the second year (24 calendar months), 90 hours by the end of the third year (36 calendar months) and 120 hours by the end of the fourth year. Students should enroll in and pass an average of 15 credit hours each semester.
3. A minimum of 30 credit hours of college core-curriculum courses should be completed by the end of the second year, including college core-curriculum courses that also meet major requirements. All remaining college core-curriculum requirements must be fulfilled by the end of the eighth semester.
4. Students should complete 45 upper-division hours by the end of the eighth semester of study.
5. A GPA of at least 2.00 must be earned each semester.
6. Grades of C- or better in all course work required for the major should be earned, and students should have a cumulative GPA of 2.00 in all major course work attempted.
7. A recommended plan of study must be started toward the major no later than the start of the second semester of study (see note below for exceptions) and thereafter students must make adequate progress toward completing the major (defined by each major). A statement of adequate progress is available from the major or departmental office at the time the major is declared.
8. The major must be declared no later than the start of the second semester of study (see note below for exceptions), and students must remain in that major until graduation.
9. Students should meet with their assigned primary advisor each semester.

10. Students must register each semester within one week of the assigned registration time.
11. Students should avoid taking courses that are in conflict with the written advice of their assigned primary advisor.
12. Students should adhere to the General Credit and Enrollment Policies and Minimum Major Requirements listed in the Arts and Sciences section.
13. Courses in conflict with major or college core curriculum requirements should be avoided.
14. The student should apply online to graduate no later than the beginning of the seventh semester of study (see Graduation Deadlines section).
15. Documentation should be kept proving that these requirements were satisfied (e.g., records of advising meetings attended, advising records and instructions, etc.).

The recommended plan of study for the following majors must be started in the first semester of study to be eligible for this guarantee: BA in biochemistry; chemistry; ecology and evolutionary biology; Japanese; integrative physiology; molecular, cellular and developmental biology; geology; physics; and all majors that require foreign language course work when student proficiency falls below the entry-level language course of that major. Students seeking a BFA in dance or theatre must start the recommended plan of study for the corresponding BA program in the first semester of study and qualify for admission into the BFA program by the end of the third semester. Students seeking a BFA in film studies or fine arts must start the recommended plan of study for the corresponding BA program in the first semester of study and qualify for admission into the BFA program by the end of the fourth semester. If a student changes majors, the primary advisor, in consultation with the College of Arts and Sciences assistant dean's office, will review the courses taken to date to determine whether the college will continue to extend the four-year guarantee.

## General Graduation Requirements

Arts and sciences students must fulfill the following requirements for graduation:

1. Pass a total of 120 hours.
2. Maintain a 2.00 (C) grade point average in all University of Colorado work and a 2.00 (C) in all major course work attempted. (Some majors may require a higher minimum grade point average.)
3. Pass 45 credit hours of upper-division work (courses numbered in the 3000s and 4000s).
4. Arts and sciences students must complete a minimum of 45 credit hours in University of Colorado courses on the Boulder campus. Of these 45 credits, a minimum of 30 credits must be in arts and sciences upper-division credit hours completed as a matriculated student in the College of Arts and Sciences at the University of Colorado Boulder and at least 12 of these upper-division hours must be in the major. A maximum of 6 credit hours taken at other University of Colorado campuses (UC Denver and CU-Colorado Springs) can be counted toward the minimum 45 credits required on the Boulder campus. Courses taken while on CU-Boulder study abroad programs, through CU-Boulder continuing education or CU-Boulder correspondence courses are considered to be in residence.
5. For the bachelor of arts degree, students must complete a minimum of 75 hours outside their major department. Students who complete designated departmental honors courses in their major department and/or in honors thesis credit can reduce the 75 hours required outside the major department by a corresponding number of credits, up to a maximum of 6.
6. For the bachelor of fine arts degree, students must complete a minimum of 53 credit hours outside of their major.
7. Complete a major offered by the College of Arts and Sciences. Students are subject to the

major requirements in force when they declare the major. See the sections Majors and Other Areas of Interest and Minimum Major Requirements in this section.

8. Complete the general education (college core curriculum) and MAPS requirements with the following limitations:

- Although a single course may be listed in more than one core area, a student may use it to meet only one area requirement.
- Neither independent study nor pass/fail courses may be used to meet MAPS -deficiencies, core requirements, minor requirements or the minimum major requirements.
- A single course may be used to meet both MAPS and core requirements as long as the course is applicable to both requirements. For example, a student admitted with a MAPS deficiency in English composition may take WRTG 1150, First-Year Writing and Rhetoric, to satisfy both the MAPS requirement and the core curriculum lower-division written communication requirement.

This policy only applies to college level course work (CU or accepted transfer credit). If a student is exempt from a given core area, this does not exempt the student from fulfilling a MAPS deficiency in that area. A description of the College of Arts and Sciences MAPS requirements can be found in the General Information section.

After fall 2010, the Minimum Academic Preparation Standards for mathematics for the College of Arts and Sciences is four units including two of algebra, one of geometry, and one of college preparatory math such as trigonometry, analytic geometry or elementary functions. This applies to students graduating from high school in spring 2010 and after.

If it has been more than 10 years since matriculation into the College of Arts and Sciences and no degree has been completed, students may be subject to new curricula in place at time of reenrollment. See the Minimum Major Requirements section for additional information on major requirements. Students may contact the Academic Advising Center for further assistance.

## Core Curriculum

The mainstay of the general education requirements is the College of Arts and Sciences core curriculum. The core curriculum requirements are divided into two parts: skills acquisition and content areas of study. The following sections provide descriptions of the individual requirement areas, their underlying educational philosophies and goals and the list of approved courses. The updated list of approved core courses is located on the college's website at [www.colorado.edu/ArtsSciences/students/undergraduates/core\\_curriculum.html](http://www.colorado.edu/ArtsSciences/students/undergraduates/core_curriculum.html).

## Exemptions

Selected majors and the ecology and evolutionary biology minor are exempt from portions of the core curriculum, as core course work is considered equivalent to course work in the major. Students who graduate with more than one exempt major may apply their exemptions cumulatively.

## Skills Acquisition

These requirements are designed to assure that each student has attained a minimum level of competency in each of the areas listed: foreign language, quantitative reasoning and mathematical skills and written communication.

Although a single course may appear in several areas, students may use it to meet only one core requirement.

**1. Foreign Language.** All students are required to demonstrate, while in high school, third-level proficiency in a single modern or classical foreign language. Students who have not met this requirement at the time of matriculation will have a MAPS deficiency. They may make up the deficiency only by passing an appropriate third-semester college course or by passing a CU-Boulder approved proficiency examination. Students who take approved CU-Boulder course work to fulfill this requirement must take the course for a letter grade and receive a passing grade of *D-* or higher.

Students who are under the core curriculum, but not subject to MAPS, must complete the foreign language requirement to meet degree requirements.

Questions about placement should be referred to the appropriate foreign language department.

The goal of the language requirement is to encourage students to confront the structure, formal and semantic, of another language, significant and difficult works in that language and one or more aspects of the culture lived in that language. This enables students to understand their own language and culture better, analyze texts more clearly and effectively and appreciate more vividly the dangers and limitations of using a translated document. The language requirement is a general education requirement and so concentrates on reading. In some languages other abilities may be emphasized as well. Understanding what it means to read a significant text in its original language is essential for general education according to the standards of this university.

CU-Boulder courses that satisfy this requirement include the following:

- ARAB 2110-5 Intermediate Arabic 1\*
- CHIN 2110-5 Intermediate Chinese 1
- DANE 2010-4 Intermediate Danish 1-DILS
- FINN 2010-4 Intermediate Finnish 1-DILS
- FREN 2110-3 Second-Year French Grammar Review and Reading 1\*
- FRSI 2110-4 Intermediate Farsi 1 (formerly FRSI 2010)
- GREK 3113-3 Intermediate Classical Greek 1 (formerly CLAS 3113)
- GRMN 2010-4 Intermediate German 1\*
- GRMN 2030-5 Intensive Intermediate German
- HEBR 2110 (3-4) Intermediate Modern Hebrew I\*
- HIND 2110-5 Intermediate Hindi 1 (formerly HNDI 2010)
- INDO 2010-4 Intermediate Indonesian 1
- ITAL 2110-3 Intermediate Italian Reading, Grammar and Composition 1\*
- JPNS 2110-5 Intermediate Japanese 1
- KREN 2110-5 Second-Year Intermediate Korean 1
- LATN 2114-4 Intermediate Latin 1\* (formerly CLASS 2114)
- NORW 2110-4 Second-Year Norwegian Reading and Conversation 1\*
- PORT 2110-3 Second-Year Portuguese 1\*
- RUSS 2010-4 Second-Year Russian 1\*
- SLHS 2325-4 American Sign Language 3
- SPAN 2110-3 Second-Year Spanish 1\*
- SPAN 2150-5 Intensive Second-Year Spanish\*

- SWED 2010-4 Intermediate Swedish 1-DILS\*

\*NOTE: This course is approved for the Colorado statewide guaranteed transfer program. Further information about the statewide guaranteed transfer program can be found at the website of the Colorado Commission on Higher Education, [highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html](http://highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html).

**2. Quantitative Reasoning and Mathematical Skills (QRMS) (3–6 semester hours).** Liberally educated people should be able to think at a certain level of abstraction and to manipulate symbols. This requirement has two principal objectives. The first is to provide students with the analytical tools used in core curriculum courses and in their major areas of study. The second is to help students acquire the reasoning skills necessary to assess adequately the data which will confront them in their daily lives. Students completing this requirement should be able to: construct a logical argument based on the rules of inference; analyze, present and interpret numerical data; estimate orders of magnitude as well as obtain exact results when appropriate; and apply mathematical methods to solve problems in their university work and in their daily lives.

Students can fulfill the requirement by passing one of the courses or sequences of courses listed below or by passing the CU-Boulder QRMS proficiency exam. Students who take approved CU-Boulder course work to fulfill this requirement must take the course for a letter grade and receive a passing grade of *D-* or higher.

- ECEN 1500-3 Sustainable Energy
- ECON 1078-3 Mathematical Tools for Economists 1
- ECON 1088-3 Mathematical Tools for Economists 2
- MATH 1012-3 Quantitative Reasoning and Mathematical Skills\*
- MATH 1110-3 and 1120-3 Mathematics for Elementary Educators 1 and 2
- MATH 1130-3 Mathematics from the Visual Arts
- MATH 1150-4 Precalculus Mathematics\*
- MATH 1310-5 Calculus, Systems, and Modeling
- MATH 1410-3 Mathematics for Secondary Educators\*
- MATH 2380-3 Mathematics for the Environment\*
- PHYS 1010-3 Physics of Everyday Life 1
- PHYS 1020-4 Physics of Everyday Life 2
- PHYS 1220-3 Physics for Future Presidents
- PSCI 2075-3 Quantitative Research Methods
- PSCI 3105-3 Designing Social Inquiry
- Any 3-credit math module: MATH 1011-3, MATH 1071-3, or MATH 1081-3.
- Any 3 credits of mathematics courses numbered MATH 1300\* and above or applied mathematics courses numbered APPM 1350\* and above.

\*NOTE: This course is approved for the Colorado statewide guaranteed transfer program. Further information about the statewide guaranteed transfer program can be found at the website of the Colorado Commission on Higher Education, [highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html](http://highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html).

**3. Written Communication (3 lower-division and 3 upper-division semester hours).**

Writing is a skill fundamental to all intellectual endeavors. While some college courses require more writing than others, good writing is recognized as a necessary means of communication in every scholarly discipline. The core curriculum promotes the principle that ideas do not exist

apart from language, and thus content cannot be isolated from style. For ideas to flourish, they must be expressed clearly and gracefully, so that readers take pleasure while taking instruction. Students may meet the lower-division component of this requirement by first passing one of the approved lower-division courses or by receiving a score of 4 or 5 on the English Language and Composition Advanced Placement exam. Students may then complete the upper-division component of this requirement by passing one of the approved upper-division courses or by passing the written communication proficiency exam. Students who take approved CU-Boulder course work to fulfill this requirement must take the course for a letter grade and receive a passing grade of *D-* or higher.

### Lower-division Courses

- ARSC 1080-4 College Writing and Research
- ARSC 1150-3 Writing in Arts and Sciences\*
- CLAS 1020-3 Argument from Evidence: Critical Writing about the Ancient World
- EBIO 1950-3 College Writing for the Sciences
- ENGL 1001-3 Freshman Writing Seminar
- ENVS 1150-3 First Year Writing for Environmental Studies
- IPHY 1950-3 Introduction to Scientific Writing in Integrative Physiology
- PHIL 1500-3 Reading, Writing and Reasoning
- WRTG 1100-4 Extended First-Year Writing and Rhetoric\*
- WRTG 1150-3 First-Year Writing and Rhetoric\*
- WRTG 1250-3 Advanced First-Year Writing and Rhetoric\*

\*NOTE: This course is approved for the Colorado statewide guaranteed transfer program. Further information about the statewide guaranteed transfer program can be found at the website of the Colorado Commission on Higher Education, [highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html](http://highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html).

### Upper-division Courses

- ARSC 3100-3 Multicultural Perspective and Academic Discourse
- CHIN/JPNS 3200-3 Advanced Writing on Topics in Chinese and Japanese Literature and Civilization
- EBIO 3940-3 Written Communication in the Sciences
- ENVS 3020-3 Advanced Writing in Environmental Studies
- GEOL 3090-3 Developing Scientific Writing Skills
- HIST 3020-3 Historical Thinking and Writing
- HONR 3220-3 Advanced Honors Writing Workshop\*
- IPHY 3700-3 Scientific Writing in Integrative Physiology
- ITAL 3025-3 Advanced Composition 2: Introduction to Literary Writing
- PHIL 3480-3 Critical Thinking and Writing in Philosophy
- PHYS 3050-3 Writing in Physics: Problem Solving and Rhetoric\*
- RLST 3020-3 Advanced Writing in Religious Studies
- SOCY 4010-3 Sociology Capstone Course: Professional Writing
- SPAN 3010-3 Advanced Rhetoric and Composition

- WMST 3800-3 Advanced Writing in Feminist Studies
- WRTG 3007-3 Writing in the Visual Arts\*
- WRTG/NRLN 3020-3 Topics in Writing
- WRTG 3030-3 Writing on Science and Society\*
- WRTG 3035-3 Technical Communication and Design\*
- WRTG 3040-3 Writing on Business and Society

\*NOTE: This course is approved for the Colorado statewide guaranteed transfer program. Further information about the statewide guaranteed transfer program can be found at the website of the Colorado Commission on Higher Education, [highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html](http://highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html).

## Content Areas of Study

**4. Historical Context (3 semester hours).** Courses that fulfill this requirement enable students to study historical problems or issues and to develop an understanding of earlier ideas, institutions and cultures.

Courses explore the times and circumstances in which social, intellectual, artistic or other developments occurred. The purpose of this exploration is to analyze subjects in their context, that is, to investigate both the processes and the meanings of change. Among the educational aims of these courses are the following: to contribute to historical perspectives that may help to clarify issues that arise today or will arise tomorrow, to arouse the curiosity of students concerning historical conditions that may be relevant to subjects studied in other courses and to expand the imagination by generating an awareness of the diverse ways in which our common humanity has expressed itself.

Students may choose to meet this 3-hour requirement by passing any course listed below. Students who take approved CU-Boulder course work to fulfill this requirement must take the course for a letter grade and receive a passing grade of *D-* or higher.

- ANTH 1180-3 Maritime People: Fishers and Seafarers
- ANTH 1190-3 Origins of Ancient Civilizations
- ANTH 2200-3 The Archaeology of Human History
- ANTH/CLAS 3009-3 Modern Issues, Ancient Times
- ARAB 3230-3 Islamic Culture and Iberian Peninsula
- ARTH/CLAS 1509-4 Trash and Treasure, Temples and Tombs: Art and Archaeology of the Ancient World
- ARTH/CLAS 3019-3 Pompeii and the Cities of Vesuvius
- CEES /HIST 1626-3 Introduction to Central and East European Studies\* (formerly CEES/HIST 2002)
- CLAS 1030/PHIL 1010-3 Introduction to Western Philosophy: Ancient\*
- CLAS/HIST 1051-3 The World of Ancient Greeks\*
- CLAS/HIST 1061-3 The Rise and Fall of Ancient Rome\*
- CLAS 1140-3 Bread and Circuses: Society and Culture in the Roman World\*
- ECON 4514-3 Economic History of Europe
- ENGL 3164-3 History and Literature of Georgian Britain
- ENGL 4113-3 History and Culture of Medieval England

GRMN 2301-3 Inside Nazi Germany: Politics, Culture and Everyday Life in the Third Reich

- HIST 1011-3 Greeks, Romans, Kings and Crusaders: European History to 1600 (formerly HIST 1010)
- HIST 1012-3 Empire, Revolution and Global War: European History since 1600 (formerly HIST 1020)
- HIST 1018-3 Introduction to Early Latin American History to 1810
- HIST 1028-3 Introduction to Modern Latin American History Since 1800 (formerly HIST 1038)
- HIST 1113-3 Introduction to British History to 1660 (formerly HIST 2103)
- HIST 1123-3 Introduction to British History since 1660 (formerly HIST 2123)
- HIST 1218-3 Introduction to Sub-Saharan African History to 1800 (formerly HIST 1208)
- HIST 1228-3 Introduction to Sub-Saharan African History since 1800
- HIST 1308-3 Introduction to Middle Eastern History
- HIST 1438-3 Introduction to Korean History
- HIST 1518-3 Introduction to South Asian History to 1757
- HIST 1528-3 Introduction to South Asian History since 1757 (formerly HIST 1408)
- HIST 1618-3 Introduction to Chinese History to 1644 (formerly HIST 1608)
- HIST 1628-3 Introduction to Modern Chinese History since 1644
- HIST 1708-3 Introduction to Japanese History\*
- HIST/JWST 1818-3 Introduction to Jewish History: Bible to 1492
- HIST/JWST 1828-3 Introduction to Jewish History since 1492 (formerly HIST/JWST/GSLL 1108)
- HIST 2100-3 Revolution in History
- HIST 2110-3 History of Early Modern Societies (1450-1700) (formerly HIST 2112)
- HIST 2170-3 History of Christianity 1: To the Reformation
- HIST 2220-3 History of War and Society (formerly HIST 2222)
- HIST 2629-3 China in World History
- HIST 4190/IAFS 3500-3 French Connections: Contemporary France and America in Historical Context
- HONR 2251-3 Introduction to the Bible
- IAFS/JWST 3650-3 History of Arab-Israeli Conflict
- JWST/RLST 3100-3 Judaism
- LIBB 1700-3 The History of Communication from Caves to Cyberspace
- PHIL 1020-3 Introduction to Western Philosophy: Modern\*
- PHIL 3000-3 History of Ancient Philosophy
- PHIL 3010-3 History of Modern Philosophy
- PHIL 3410-3 History of Science: Ancients to Newton
- PHIL 3430-3 History of Science: Newton to Einstein
- RLST 3000-3 The Christian Tradition
- RUSS 2211-3 Introduction to Russian Culture

- RUSS 2221-3 Introduction to Modern Russian Culture
- RUSS 2222-3 Sports and the Cold War
- RUSS 2471-3 Women in Russian Culture: From Folklore to the 19th Century\*
- RUSS 3601-3 Russian Culture Past and Present
- RUSS 4301-3 American-Russian Cultural Relations
- RUSS 4481-3 Rogues to Revolutionaries: Russian Rebels, Past and Present
- SCAN 2202-3 The Vikings

\*NOTE: This course is approved for the Colorado statewide guaranteed transfer program. Further information about the statewide guaranteed transfer program can be found at the website of the Colorado Commission on Higher Education, [highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html](http://highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html).

**5. Human Diversity (3 semester hours).** Courses fulfilling this requirement increase the student's understanding of the world's diversity and pluralism through the study of two broad and interrelated areas: (1) the nature and meaning of diversity and the experience of marginalized groups; and (2) cultures other than those of Europe and the United States. This requirement explicitly identifies an awareness and understanding of pluralism as essential to a liberal education.

**(1) Gender, Ethnic and Social Diversity.** Courses in this area are designed to expand the range of each student's understanding of the experience of individuals and groups who, because of such fundamental components of identity as race, ethnicity, gender or other characteristics, have been historically marginalized by society and placed outside of the mainstream. Generally courses will explore the ways in which marginalization has occurred and the reasons for this marginalization. The intent is to expand understanding of these social groups with the goal of identifying the way social categories shape human thought and experience.

**(2) Non-Western Cultures.** These courses are designed to expand the range of the student's understanding of cultures that are not derived principally from the western experience. A comparative perspective introduces students to the commonality and diversity of cultural responses to universal human problems. Each course seeks to cultivate insight into and respect for diversity by requiring students to explore a cultural world quite different from their own.

Courses satisfying this requirement are intended to portray culture in the most integrated sense, including aspects of material adaptation, social pattern, ideas and values and aesthetic achievement.

Students are required to pass 3 hours of course work from any course listed below. Students who take approved CU-Boulder course work to fulfill this requirement must take the course for a letter grade and receive a passing grade of *D-* or higher. Students who graduate with a major in ethnic studies are exempt from completing the human diversity requirement.

- ANTH 1100-3 Exploring a Non-Western Culture: The Tamils
- ANTH 1105-3 Exploring a Non-Western Culture: Tibet
- ANTH 1115-3 The Caribbean in Post-Colonial Perspective
- ANTH 1120/ETHN 1123-3 Exploring a Non-Western Culture: Hopi and Navajo (formerly AIST 1125/ANTH 1120)
- ANTH 1135-3 Exploring a Non-Western Culture: TBA
- ANTH 1140-3 Exploring a Non-Western Culture: The Maya
- ANTH 1145-3 Exploring a Non-Western Culture: The Aztecs

- ANTH 1150-3 Exploring a Non-Western Culture: Regional Cultures of Africa
- ANTH 1160-3 The Ancient Egyptian Civilization
- ANTH 1170-3 Exploring Culture and Gender through Film
- ANTH 2100-3 Introduction to Cultural Anthropology
- ARAB 1011-3 Introduction to Arab and Islamic Civilizations
- ARSC 3001-3 Social Engagement and Human Rights: The South Africa Model
- ARTH 3209-3 Art, Culture, and Gender Diversity, 1400–1600: Renaissance Art Out of the Canon
- ARTH/CLAS 4269-3 Art and Archaeology of the Ancient Near East
- ARTH/WMST 4769-3 Gender Studies in Early Modern Visual Culture
- ASIA 2000-3 Gateway to Modern Asia: Exploring Regional Connections
- ASTR 2000-3 Ancient Astronomies of the World
- CHIN 1012-4 Introduction to Chinese Civilization
- CLAS/WMST 2100-3 Gender and Sexuality in Ancient Greece
- CLAS/WMST 2110-3 Gender and Sexuality in Ancient Rome\*
- COMM 2400-3 Discourse, Culture, and Identities\*
- COMM 3410-3 Intercultural Communication
- ECON 4626-3 Economics of Inequality and Discrimination
- EDUC 3013-(3-4) School and Society
- ENGL/WMST 1260-3 Introduction to Women's Literature
- ENGL 1800-3 American Ethnic Literatures
- ENGL/JWST 3677-3 Jewish-American Literature
- ETHN 1022-3 Introduction to Africana Studies (formerly ETHN 2002)
- ETHN 1023-3 Introduction to American Indian Studies (formerly ETHN 2003)
- ETHN 1025-3 Introduction to Asian American Studies (formerly AAST 1015)
- ETHN 2013-3 Critical Issues in Native North America (formerly AIST 2015)
- ETHN 2215-3 The Japanese American Experience (formerly AAST 2210)
- ETHN 2232-3 Contemporary African American Social Movements (formerly BLST 2200)
- ETHN 2242-3 African American Social and Political Thought (formerly BLST 2210)\*
- ETHN 2432/HIST 2437-3 African American History (formerly BLST/HIST 2437)
- ETHN 2536-3 Survey of Chicana and Chicano History and Culture (formerly CHST/HIST 2537)
- ETHN 2546-3 Chicana and Chicano Fine Arts and Humanities (formerly ETHN 1036)
- ETHN 3136/WMST 3135-3 Chicana Feminisms and Knowledges (formerly CHST/WMST 3135)
- ETHN 3201/INVS/LDSP 3100 (3-4) Multicultural Leadership: Theories, Principles and Practices (formerly ETHN 3200/INVS 3100)
- ETHN 3213/WMST 3210-3 American Indian Women (formerly AIST/WMST 3210)
- ETHN 3671-3 People of Color and Social Movements (formerly ETHN 3675)
- FILM 3013-3 Women and Film

- FREN/ITAL 1400-3 Medieval/Renaissance Women Writers in Italy and France\*
- FREN 1950-3 French Feminisms
- FREN 3800-3 France and the Muslim World
- GEOG/WMST 3672-3 Gender and Global Economy
- GEOG 3822-3 Geography of China
- GRMN/JWST 3501-3 Jewish-German Writers: Enlightenment to Present Day
- GRMN/WMST 3601-3 German Women Writers
- GRMN/WMST 4301-3 Gender, Race and Immigration in Germany and Europe
- GSLL/JWST 2350-3 Introduction to Jewish Culture
- HEBR/JWST 3202-3 Women, Gender and Sexuality in Jewish Texts and Traditions (formerly HEBR/JSWT 2350)
- HIND 1011-3 Introduction to South Asian Civilizations
- HIND 3811-3 The Power of the Word: Subversive and Censored 20th Century Indo-Pakistani Literature (formerly HNDI 3811)
- HIST 2616-3 History of Gender in America\*
- HONR 1810-3 Honors Diversity Seminar
- HONR/WMST 3004-3 Women in Education
- HONR 3270-3 Journey Motifs in Women's Literature
- HONR 4025-3 Heroines and Heroic Tradition
- HUMN 2145-3 African America in the Arts
- HUMN/ITAL 4150-3 Boccaccio's Decameron: Tales of Sex and Death in the Middle Ages
- HUMN/ITAL 4730-3 Italian Feminisms: Culture, Theory and Narratives of Difference
- IAFS/GSLL/JWST 3600-3 Global Secular Jewish Societies
- INVS/EDUC 2919-3 Renewing Democracy in Communities and Schools
- IAFS/JWST/RLST 3530-3 Jews and Muslims: The Multiethnic History of Istanbul
- ITAL 4300-3 Multiculturalism in Italy
- JPNS 1012-4 Introduction to Japanese Civilization
- KREN 1011-3 Introduction to Korean Civilization
- LGBT 2000/WMST 2030-3 Introduction to Lesbian, Gay, Bisexual and Transgender Studies\*
- LIBB 1600-3 Gender and Film\*
- LING 1020-3 Languages of the World
- LING 2400-3 Language and Gender\*
- LING 3220-3 American Indian Languages in Social-Cultural Context
- MUEL 2772-3 World Musics
- MUEL 2782-3 World Musics: Africa, Europe and the Americas
- PHIL 2270-3 Philosophy and Race
- PHIL/WMST 2290-3 Philosophy and Women
- PSCI 3101-3 Black Politics
- PSCI 3301/WMST 3300-3 Gender, Sexuality and U.S. Law

- PSCI 4131-3 Latinos and the U.S. Political System
- PSYC/WMST 2700-3 Psychology of Contemporary American Women
- RLST 2612-3 Yoga: Ancient and Modern
- RLST 2700-3 American Indian Religious Traditions\*
- RLST/WMST 2800-3 Women and Religion\*
- RUSS/WMST 4471-3 Women in 20th-21st Century Russian Culture
- SCAN 3206-3 Nordic Colonialisms
- SCAN/WMST 3208-3 Women in Nordic Society: Modern States of Welfare
- SOCY/WMST 1016-3 Sex, Gender and Society 1\*
- SOCY/WMST 3012-3 Women and Development
- SPAN 3270-3 Barcelona: Understanding Local and Immigrant Cultures
- WMST 2000-3 Introduction to Feminist Studies
- WMST 2020-3 Femininities, Masculinities and Alternatives
- WMST 2050-3 Gender, Sexuality and Popular Culture
- WMST 2200-3 Women, Literature and the Arts
- WMST 3670-3 Gender, Race, Sexuality and Global Migration

\*NOTE: This course is approved for the Colorado statewide guaranteed transfer program. Further information about the statewide guaranteed transfer program can be found at the website of the Colorado Commission on Higher Education, [higher.ed.colorado.gov/Academics/Transfers/gtPathways/curriculum.html](http://higher.ed.colorado.gov/Academics/Transfers/gtPathways/curriculum.html).

**6. United States Context (3 semester hours).** Courses fulfilling the United States Context requirement explore important aspects of culture and society in the United States. They stimulate critical thinking and an awareness of the place of the United States in the world by promoting an understanding of the world views that the environment, culture, history and values of the United States have fostered. They are required to include some discussion of the realities and issues related to matters of ethnic and racial diversity that characterize the nation's ongoing experience. These courses familiarize students with the United States and enable them to evaluate it critically.

These courses teach an appreciation of United States culture while inviting students to ask probing questions about values and ideals that are understood to be an integral part of the United States. Some of the questions that might be addressed in these courses are: How have citizens and other residents of the United States derived a sense of identity from geography, language, politics and the arts? How do people in the United States view and influence the world beyond the nation's borders? How have the rights and responsibilities of citizenship changed over time? How have U.S. citizens and residents in the United States dealt with opposing values? Completing this requirement, students will develop both a better understanding of the United States, present and past, and a considerable interest in the nation's future.

This 3-hour requirement may be fulfilled by passing any course listed below. Students who take approved CU-Boulder course work to fulfill this requirement must take the course for a letter grade and receive a passing grade of *D-* or higher.

- ANTH 3170-3 America: An Anthropological Perspective
- ARTH 3509-3 American Art
- BAKR 1500-3 Colorado: History, Ecology, and Environment

- \*CAMW 2001-3 The American West
- ECON 4524-3 Economic History of the U.S.
- EDUC 2125-3 History of American Public Education
- ENGL 2115-3 American Frontiers
- ETHN 2004-3 Themes in American Culture 1 (formerly AMST 2000)
- ETHN 2013-3 Critical Issues in Native North America (formerly AIST 2015)
- ETHN 2014-3 Themes in American Culture 2 (formerly AMST 2010)
- ETHN 2432/HIST 2437-3 African American History (formerly BLST/HIST 2437)
- ETHN 2536-3 Survey of Chicana and Chicano History and Culture (formerly CHST/HIST 2537)
- ETHN 3015-3 Asian Pacific American Communities (formerly AAST 3013)
- ETHN 4504-3 Ethnic-American Autobiography (formerly AMST 4500)
- HIST 1015-3 American History to 1865\*
- HIST 1025-3 American History since 1865\*
- HIST 2015-3 Themes in Early American History\*
- HIST 2126-3 Issues in Modern U.S. Politics and Foreign Relations
- HIST 2166-3 The Vietnam Wars
- HIST 2516-3 America through Baseball
- HIST 2636/WMST 2400-3 Women of Color and Activism\*
- HUMN 2145-3 African America in the Arts
- INVS 1523-3 Civic Engagement: Democracy as a Tool for Social Change\*
- ITAL 4350-3 Wops and Dons to Movers and Shakers: The Italian-American Experience
- LIBB 2800-3 Horror Films and American Culture
- LING 1000-3 Language in U.S. Society
- MUEL 2752-3 Music in American Culture
- PHIL 1200-3 Philosophy and Society\*
- PHIL 2220-3 Philosophy and Law
- PSCI 1101-3 Introduction to American Politics\*
- PSCI 3011-3 The American Presidency and the Executive Branch
- PSCI 3021-3 U.S. Campaigns and Elections
- PSCI 3054-3 American Political Thought
- PSCI 3061-3 State Government and Politics
- PSCI 3071-3 Urban Politics
- PSCI 3163-3 American Foreign Policy
- PSCI 3274-3 Capitalism and its Critics (formerly PSCI 3171)
- RLST 2500-3 Religion in the United States\*
- RLST 3050-3 Religion and Literature in America
- RUSS 4301-3 American-Russian Cultural Relations
- SOCY 1021-3 U.S. Race and Ethnic Relations\*

- SOCY/WMST 3016-3 Marriage and the Family in U.S. Society
- SOCY 3151-3 Self in Modern Society
- WMST 3900-3 Asian American Women

\*NOTE: This course is approved for the Colorado statewide guaranteed transfer program. Further information about the statewide guaranteed transfer program can be found at the website of the Colorado Commission on Higher Education, [highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html](http://highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html).

**7. Literature and the Arts (6 semester hours, 3 of which must be upper-division).** These courses promote a better understanding of fundamental aesthetic and cultural issues. They sharpen critical and analytical abilities so that students may develop a deeper appreciation of works of art. The goal of this requirement is to enhance the student's ability to read critically, to understand the elements of art and to grasp something of the complex relations between artist and public, and between art work and cultural matrix. The emphasis in courses which fulfill this requirement is on works that are generally recognized as central to and significant for one's cultural literacy and thereby enhance the student's understanding of our literary and artistic heritage.

Courses stress literary works as well as the history and criticism of literature and the arts. They may utilize creative projects as a means of arriving at a better understanding of the art form, but students may not use studio or performance classes to satisfy this requirement.

Students are required to pass 6 hours of course work in literature and the arts, of which at least 3 hours must be upper-division. Students who take approved CU-Boulder course work to fulfill this requirement must take the course for a letter grade and receive a passing grade of *D-* or higher.

If students graduate with a major dealing in depth with literature and the arts (Chinese, classics, dance, English, fine arts, French, Germanic studies, humanities, Italian, Japanese, Portuguese, Russian, Spanish or theatre), they are exempt from this requirement.

Courses offered at CU-Boulder that satisfy this requirement include the following:

#### Lower-division Courses

- ARTH 1300-3 History of World Art 1\*
- ARTH 1400-3 History of World Art 2\*
- ARTH/CLAS 1509-4 Trash and Treasure, Temples and Tombs: Art and Archaeology of the Ancient World
- ARTH/CLAS 2039-3 Greek Art and Archaeology
- ARTH/CLAS 2049-3 Roman Art and Architecture
- ARTH 1709-3 Freshmen Seminar: Critical Introduction to Art History
- ARTH 2409-3 Introduction to Asian Arts\*
- CHIN 1051-3 Masterpieces of Chinese Literature in Translation
- CHIN 2441-3 Film and the Dynamics of Chinese Culture\*
- CLAS 1100-3 Greek Mythology
- CLAS 1110-3 Gods, Monsters and Mortals: Literature of Ancient Greece
- CLAS 1115-3 Masterpieces of Greek Literature in Translation
- CLAS 1120-3 Power and Passion: Literature of Ancient Rome

COMR 1800-3 Visual Literacy: Images and Ideologies

- DNCE 1017-3 Dance and Popular Culture
- DNCE 1027-3 Introduction to Dance and Culture (formerly DNCE 1029)
- ENGL 1220-3 From Gothic to Horror
- ENGL 1230-3 Environmental Literature
- ENGL 1420-3 Poetry
- ENGL 1500-3 Masterpieces of British Literature
- ENGL 1600-3 Masterpieces of American Literature
- FARR 2002-3 Literature of Lifewriting
- FREN 1200-3 Medieval Epic Through Game of Thrones
- FREN 1610-3 How to Be French 1: "The Ancien Regime"
- FREN 1620-3 How to Be French 2: "Modernity"
- FREN 1880-3 The Zombie and the Ghost of Slavery
- FREN 1900-3 Modern Paris in Literature, Photographs, Paintings and Movies
- GRMN 1602-3 Metropolis and Modernity
- GRMN 2501-3 20th Century German Short Story
- GRMN 2503-3 Fairy Tales of Germany\*
- \*GRMN/HUMN 2601-3 Kafka and the Kafkaesque\*
- HEBR/JWST 2551-3 Modern Jewish Literature
- HONR 2860-3 The Figure of Socrates
- HUMN 1110-3 Introduction to Humanities: Literature 1
- HUMN 1120-3 Introduction to Humanities: Literature 2
- HUMN 1210-3 Introduction to Humanities: Art and Music 1
- HUMN 1220-3 Introduction to Humanities: Art and Music 2
- HUMN 2100-3 Arts, Culture and Media
- ITAL 1600-3 Strategies of Fear: Introduction to Italian Fantastic Literature
- JPNS 1051-3 Masterpieces of Japanese Literature in Translation
- MUEL 1832-3 Appreciation of Music
- MUEL 2852-3 Music in the Rock Era
- MUEL 2862-3 American Film Musical, 1926–1954
- RUSS 2231-3 Fairy Tales of Russia\*
- RUSS 2241-3 The Vampire in Literature and the Visual Arts
- RUSS 2251-3 Knights and Amazons: Superheroes in Russian Epics and Film
- RUSS 2261-3 The Russian Short Story
- SCAN 1202-3 Tolkien's Nordic Sources and *The Lord of the Rings*
- SPAN 1000-3 Cultural Difference through Hispanic Literature\*
- THTR 1009-3 Introduction to Theatre\*
- THTR 1011-3 Development of Theatre 1: Global Theatre Origins\*

## WMST 2200-3 Women, Literature and the Arts

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**Upper-division Courses**

- ARAB 3231-3 In the Footsteps of Travelers: Travel Writing in Arabic Literature
- ARTH 4329-3 Modern Art 1
- ARTH 4759-3 17th Century Art and the Concept of the Baroque
- CHIN/HUMN 3341-3 Literature and Popular Culture in Modern China
- CHIN 3351-3 Reality and Dream in Traditional Chinese Literature
- CLAS/HUMN 4110-3 Greek and Roman Epic
- CLAS/HUMN 4120-3 Greek and Roman Tragedy
- CLAS/HUMN 4130-3 Greek and Roman Comedy
- DNCE 4017-3 History and Philosophy of Dance
- DNCE 4037-3 Looking at Dance (formerly DNCE 3027)
- ENGL 3000-3 Shakespeare for Nonmajors
- ENGL 3060-3 Modern and Contemporary Literature for Nonmajors
- ENGL 3300-3 Literary London
- FILM/RUSS 3211-3 History of Russian Cinema
- FILM 3402-3 European Film and Culture
- FILM/HUMN 3660-3 The Postmodern
- FILM/HUMN 4135-3 Art and Psychoanalysis
- FREN 3200-3 Introduction to Literary Theory and Advanced Critical Analysis
- FREN 4300-3 Theatre and Modernity in 17th Century France
- GRMN 3502-3 Literature in the Age of Goethe
- GRMN/HUMN 3702-3 Dada and Surrealist Literature
- GRMN/HUMN 3802-3 Politics and Culture in Berlin, 1900–1933
- GRMN/HUMN 4504-3 Goethe's *Faust*
- HEBR/JWST 4203-3 Israeli Literature: Exile, Nation, Home
- HEBR/JWST 4301-3 Venice: The Cradle of European Jewish Culture
- HIND 3851-3 Devotional Literature in South Asia
- HUMN 4170-3 Fiction and Reality: Literature, Science and Culture
- HUMN/ITAL 4140-3 The Age of Dante: Readings from *The Divine Comedy*
- HUMN/ITAL 4150-3 Boccaccio's Decameron: Tales of Sex and Death in the Middle Ages
- HUMN/RUSS 4811-3 19th Century Russian Literature in Translation
- HUMN/RUSS 4821-3 20th Century Russian Literature and Art
- ITAL 4145-3 The Age of Dante in Italian
- ITAL 4147-3 Visualizing Dante's *Inferno*: A Global Seminar in Florence, Italy

- ITAL 4600-3 Once Upon a Time in Italy
- MUEL 3822-3 Words and Music
- MUEL 3832-3 Music in Literature
- RUSS 3241-3 Red Star Trek: Russian Science Fiction Between Utopia and Dystopia
- RUSS 4831-3 Contemporary Russian Literature
- SCAN 3202-3 Old Norse Mythology
- SCAN 3203-3 19th and 20th Century Nordic Literature
- SCAN 3204-3 Medieval Icelandic Sagas
- SCAN 3205-3 Scandinavian Folk Narrative
- SCAN 3506-3 Scandinavian Drama
- SPAN 3260-3 Late 19th and 20th Century Argentine Narrative
- SPAN 3800-3 Latin American Literature In Translation
- THTR 3011-3 Development of American Musical Theatre

**8. Natural Science (13 semester hours, including a two-course sequence and a laboratory or field experience).** These courses study the nature of matter, life and the universe. They enhance literacy and knowledge of one or more scientific disciplines, and enhance those reasoning and observing skills that are necessary to evaluate issues with scientific content. Courses are designed to demonstrate that science is not a static list of facts, but a dynamic process that leads to knowledge. This process is one of subtle interplay between observation, experimentation and theory, enabling students to develop a critical view toward the conclusions and interpretations obtained through the scientific process.

Through a combination of lecture courses and laboratory or field experiences, students gain hands-on experience with scientific research. They develop observational skills of measurement and data interpretation and learn the relevance of these skills to the formation and testing of scientific hypotheses.

The goal of this requirement is to enable students to understand the current state of knowledge in at least one scientific discipline, with specific reference to important past discoveries and the directions of current development; to gain experience in scientific observation and measurement, in organizing and quantifying results, in drawing conclusions from data and in understanding the uncertainties and limitations of the results; and to acquire sufficient general scientific vocabulary and methodology to find additional information about scientific issues, to evaluate it critically and to make informed decisions.

The natural science requirement, which consists of passing 13 hours of approved natural science course work, includes one two-semester sequence of courses and at least 1 credit hour of an associated lab or field experience. No more than two lower-division courses may be taken from any single department (1-credit-hour lab/field experience courses are excepted). To fulfill the natural science core requirement the lab/field experience courses must be affiliated with a natural science lecture course. Students who take approved CU-Boulder course work to fulfill this requirement must take the course for a letter grade and receive a passing grade of *D-* or higher.

Students who graduate with a major in the natural sciences (astrophysical and planetary sciences, biochemistry, chemistry, ecology and evolutionary biology, geology, integrative physiology, molecular, cellular and developmental biology or physics) or students who graduate with a minor in ecology and evolutionary biology are exempt from completing the natural science requirement.

Courses offered at CU-Boulder that satisfy this requirement include the following:

### Two-semester Sequences

*(Note: Although not recommended, the first semester of a sequence may be taken as a single course. Also, some sequences have included, corequisite or optional laboratories.)*

- ANTH 2010-3\* and 2020-3 Introduction to Physical Anthropology 1 and 2\* (optional labs ANTH 2030\*, 2040\*)
- ASTR 1000-3 and 1020-4 The Solar System, and Introductory Astronomy 2 (sequence does not include a lab) (ASTR 1000 formerly ASTR 1110)
- ASTR 1010-4 and 1020-3 Introductory Astronomy 1 and 2 (lab included in ASTR 1010)
- ASTR 1030-4\* and 1040-4 Accelerated Introductory Astronomy 1 and 2\* (lab included in ASTR 1030)
- ATOC 1050-3\* and 1060-3 Weather and the Atmosphere and Our Changing Environment: El Niño, Ozone and Climate (optional lab ATOC 1070\*)
- CHEM 1011-3\* and 1031-4 Environmental Chemistry 1 and 2 (lab included in CHEM 1031)
- CHEM 1113-4 and 1133-4 General Chemistry 1 and 2 (corequisite labs CHEM 1114 and 1134)
- CHEM 1251-5 and 1271-5 General Chemistry 1 and 2 for Chemistry and Biochemistry Majors (lab included)
- EBIO 1030-3 and 1040-3 Biology: A Human Approach 1 and 2 (optional lab EBIO 1050)
- EBIO 1210-3\* and 1220-3 General Biology 1 and 2\* (optional labs EBIO 1230, 1240)
- GEOG 1001-4\* and 1011-4 Environmental Systems 1 and 2: Climate and Vegetation, Landscapes and Water\* (lab included)
- GEOL 1010-3\* and \*1020-3 Introduction to Geology and Introduction to Earth History (optional lab \*GEOL 1030)
- GEOL 1010-3\* and 1040-3 Introduction to Geology and Geology of Colorado (optional lab \*GEOL 1030)
- GEOL 1010-3\* and 1060-3 Introduction to Geology and Global Change—An Earth Science Perspective (optional lab \*GEOL 1030)
- MCDB 1030-3\* and 1041-3 Molecules, Plagues and People, and Fundamentals of Human Genetics\* (corequisite lab MCDB 1043)
- MCDB 1150-3\* and 2150-3 Introduction to Cell and Molecular Biology, and Principles of Genetics\* (optional labs MCDB 1151\*, 2151\*)
- PHYS 1010-3\* and 1020-4 Physics of Everyday Life 1 and 2\* (lab included in PHYS 1020)
- PHYS 1110-4\* and 1120-4 General Physics 1 and 2\* (optional lab PHYS 1140\*)
- PHYS 2010-5\* and 2020-5 General Physics 1 and 2\* (lab included)

\*NOTE: This course is approved for the Colorado statewide guaranteed transfer program. Further information about the statewide guaranteed transfer program can be found at the website of the Colorado Commission on Higher Education, [higher.ed.colorado.gov/Academics/Transfers/gtPathways/curriculum.html](http://higher.ed.colorado.gov/Academics/Transfers/gtPathways/curriculum.html).

### Nonsequence Courses

- ANTH 3000-3 Primate Behavior
- ANTH 3010-3 The Human Animal

- AREN 2110-3 Thermodynamics
- ASTR 1200-3 Stars and Galaxies (formerly ASTR 1120)
- ASTR 2000-3 Ancient Astronomies of the World
- ASTR 2010-3 Modern Cosmology: Origin and Structure of the Universe
- ASTR 2020-3 Space Astronomy and Exploration
- ASTR 2030-3 Black Holes
- ASTR/GEOL 2040-3 The Search for Life in the Universe
- ATOC/GEOL 3070-3 Introduction to Oceanography
- ATOC 3050-3 Principles of Weather
- ATOC 3300/GEOG 3301-3 Analysis of Climate and Weather Observations
- ATOC 3500/CHEM 3151-3 Air Chemistry and Pollution (formerly ATOC/CHEM 3500)
- ATOC/ENVS 3600/GEOG 3601-3 Principles of Climate
- ATOC 4550-3 Mountain Meteorology
- ATOC 4700-3 Weather Analysis and Forecasting
- ATOC 4750-3 Desert Meteorology and Climate
- ATOC 4770-3 Wind Energy Meteorology
- CHEM 1021-4 Introductory Chemistry (lab included)\*
- CHEM 1400-4 Foundations of Chemistry
- CHEN 1000-3 Creative Technology
- EBIO 3180-3 Global Ecology
- ENVS 1000-4 Introduction to Environmental Studies
- ENVS/PHYS 3070-3 Energy and the Environment
- ENVS/GEOL 3520-3 Energy and Climate Change: An Interdisciplinary Approach
- GEOG 3511-4 Introduction to Hydrology
- GEOG/GEOL 4241-4 Principles of Geomorphology (lab included)
- GEOL 2100-3 Environmental Geology
- GEOL 3040-3 Global Change: The Recent Geological Record
- GEOL 3500-3 Earth Resources and the Environment
- GEOL 3720-3 Evolution of Life: The Geological Record
- GEOL 3950-3 Natural Catastrophes and Geologic Hazards
- IPHY 2420-3 Nutrition for Health and Performance
- IPHY 3660-3 The Dynamics of Motor Learning
- MCDB 3150-3 Biology of the Cancer Cell
- MCDB 3330-3 Evolution and Creationism
- PHIL 1400-3 Philosophy and the Sciences\*
- PHIL 3410-3 History of Science: Ancients to Newton
- PHIL 3430-3 History of Science: Newton to Einstein
- PHYS 1230-3 Light and Color for Non-Scientists

PHYS 1240-3 Sound and Music\*

- PSYC 2012-3 Biological Psychology 1\*
- PHYS/EDUC 1580-3 Energy and Interactions
- SLHS 2010-3 Science of Human Communication

### One-credit-hour Lab/Field Courses

(NOTE: Each course below has a prerequisite or corequisite.)

- ANTH 2030-1 Lab in Physical Anthropology 1\*
- ANTH 2040-1 Lab in Physical Anthropology 2\*
- ATOC 1070-1 Weather and the Atmosphere Laboratory\*
- CHEM 1114-1 Lab in General Chemistry 1
- CHEM 1134-1 Lab in General Chemistry 2
- CHEM 1401-1 Foundations of Chemistry Lab
- EBIO 1050-1 Biology: A Human Approach Lab
- EBIO 1230-1 General Biology Lab 1
- EBIO 1240-1 General Biology Lab 2
- GEOL 1030-1 Introduction to Geology Lab 1\*
- MCDB 1043-1 Exploring Genetics Laboratory
- MCDB 1151-1 Introduction to Cell and Molecular Biology Lab\*
- MCDB 2151-1 Principles of Genetics Lab\*
- PHYS 1140-1 Experimental Physics 1\*

\*NOTE: This course is approved for the Colorado statewide guaranteed transfer program. Further information about the statewide guaranteed transfer program can be found at the website of the Colorado Commission on Higher Education, [highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html](http://highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html).

**9. Contemporary Societies (3 semester hours).** All individuals function within social frameworks. Courses in contemporary societies introduce students to the study of social groups, including social institutions and processes, the values and beliefs shared by their members and the forces that mold and shape social groups. They prepare students to approach social phenomena of all kinds in an informed and critical way, and to describe, analyze, compare and contrast them. Such study also provides students with new vantage points from which to view their own sociocultural assumptions and traditions.

These courses, which treat contemporary societies, study an individual society or compare several societies. All explicitly attempt to deepen the students' understanding of the cultural, political, economic or social contexts that shape people's lives. Their scope may be global or specific, but all courses that fulfill this requirement address social processes, institutions, values, forces and beliefs.

Students who graduate with a major in anthropology, economics, international affairs, political science, psychology or sociology are exempt from the contemporary societies requirement. Students may satisfy this 3-hour requirement by passing any course listed below. Students who take approved CU-Boulder course work to fulfill this requirement must take the course for a letter grade and receive a passing grade of *D-* or higher.

- ANTH 1200-3 Culture and Power
- BAKR 1600-3 Creating a Sustainable Future

- COMM 1210-3 Perspectives on Human Communication
- ECON 2010-4 Principles of Microeconomics
- ECON 2020-4 Principles of Macroeconomics
- ECON 3403-3 International Economics and Policy
- ECON 3535-3 Natural Resource Economics
- ECON 3545-3 Environmental Economics
- EDUC 3013 (3-4) School and Society
- ETHN 1025-3 Introduction to Asian American Studies (formerly AAST 1015)
- ETHN 2232-3 Contemporary African American Social Movements (formerly BLST 2200)
- ETHN 2242-3 African American Social and Political Thought (formerly BLST 2210)
- ETHN 3015-3 Asian Pacific American Communities (formerly AAST 3013)
- GEOG 3742-3 Place, Power and Contemporary Culture
- GRMN 1601-3 Germany Today
- HIST 2126-3 Issues in Modern U.S. Politics and Foreign Relations
- HIST 2166-3 The Vietnam Wars
- HUMN 4835-3 Literature and Social Violence
- IAFS 1000-4 Global Issues and International Affairs\*
- IAFS/JWST 4302-3 Justice, Human Rights and Democracy in Israel
- INVS 3000 (3-4) Innovative Approaches to Contemporary Issues through Service Learning
- INVS 4302/PSCI 4732-3 Critical Thinking in Development
- ITAL 1500-3 "That's Amoré": Introduction to Italian Culture\*
- ITAL 4290-3 Italian Culture through Cinema
- LIBB 2100-3 Russian Revolutions: Social and Artistic
- LING 1000-3 Language in U.S. Society
- PORT 2800-3 Brazil: Past and Present
- PRLC 1820-3 Community Issues in Leadership\*
- PSCI 1101-3 Introduction to American Politics
- PSCI 2012-3 Introduction to Comparative Politics\*
- PSCI 2223-3 Introduction to International Relations\*
- PSCI 3022-3 Russian Politics
- PSCI 3032-3 Democracy, Inequality and Violence in Latin America
- PSCI 3074-3 Democracy and its Citizens in the U.S. and the E.U.
- PSCI 3082-3 Political Systems of Sub-Saharan Africa
- PSCI 3143-3 Current Affairs in International Relations
- PSCI 4002-3 Western European Politics
- PSCI 4012-3 Global Development
- PSCI 4062-3 Emerging Democracies of Central and East Europe
- PSCI 4272-3 The Political Economy of Advanced Industrial Democracies

- PSYC 2606-3 Social Psychology\*
- RLST 1850-3 Ritual and Media
- RLST 2400-3 Religion and Contemporary Society\*
- RUSS 2501-3 Russia Today
- RUSS 4831-3 Contemporary Russian Literature
- SCAN 2201-3 Introduction to Modern Scandinavian Culture and Society
- SCAN 3201-3 Contemporary Nordic Society and Culture
- SLHS 1010-3 Disabilities in Contemporary American Society
- SOCY 1001-3 Introduction to Sociology\*
- SOCY 4024-3 Juvenile Justice and Delinquency
- WMST 2600-3 Gender, Race and Class in a Global Context\*

\*NOTE: This course is approved for the Colorado statewide guaranteed transfer program. Further information about the statewide guaranteed transfer program can be found at the website of the Colorado Commission on Higher Education, [highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html](http://highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html).

**10. Ideals and Values (3 semester hours).** Ideals and values have usually been determined by long-standing traditions and fixed social practices. In our modern world, the interaction of different cultures, movement from place to place, electronic media and the rapidity of change, even within a given society, have combined to generate new constellations of ideals and hard choices among values.

Courses meeting the ideals and values requirement inquire into some specific sphere of human value (e.g. moral, religious, intellectual, aesthetic, environmental, etc.). In these courses students are encouraged to reflect upon fundamental ideals and values, their own and others, and the sources from which those value orientations derive. Such inquiry demands the development of the critical skills which help students identifying the assumptions and ramifications of value structures. It also requires consideration of approaches by which value systems are constructed, justified and applied, especially in regard to personal, societal and in some cases cross-cultural contexts.

Students may complete this 3-hour requirement by passing any course listed below. Students who take approved CU-Boulder course work to fulfill this requirement must take the course for a letter grade and receive a passing grade of *D-* or higher.

- ARSC/NRLN 2000-3 Constructions of Knowledge in the Academy and Beyond
- CLAS/PHIL 2610-3 Paganism to Christianity
- CWCV 2000-3 The Western Tradition
- ENGL/HUMN/JWST 3310-3 The Bible as Literature (formerly ENGL/JWST 3312)
- ENVS/PHIL 3140-3 Environmental Ethics
- FARR 2510/FILM 2613-3 Exploring Good and Evil Through Film (formerly FARR/FILM 2510)
- FARR 2660/HONR 2250-3 The Ethics of Ambition
- FARR 2820-3 The Future of Spaceship Earth
- FREN 4860-3 War, Trauma and Memory (formerly FREN 4000)
- GRMN/HUMN 1701-3 Nature and Environment in German Literature and Thought
- GRMN/JWST 2502-3 Representing the Holocaust

- GRMN 2603-3 Moral Dilemmas in Philosophy and Literature (formerly GRMN 1603)
- GRMN/HUMN 3505-3 The Enlightenment: Tolerance and Emancipation
- GRMN/HUMN 4502-3 Nietzsche: Literature and Values
- HUMN 4155-3 Philosophy, Art and the Sublime
- INVS 1000-4 Responding to Social and Environmental Problems through Service Learning\*
- ITAL 1300-3 'La Dolce Vita': Why the Humanities Matter, Italian Style
- JWST/RLST 2600-3 Judaism, Christianity and Islam\*
- LDSP 1000-3 The Foundations of 21st Century Leadership
- LIBB 1500-3 The Dialogue of Art and Religion
- LIBB 2013-3 Film and the Quest for Truth (formerly FILM 2013)
- PHIL 1000-3 Introduction to Philosophy\*
- PHIL 1100-3 Ethics\*
- PHIL 1160-3 Introduction to Bioethics
- PHIL 1200-3 Philosophy and Society\*
- PHIL 1600-3 Philosophy and Religion\*
- PHIL 2200-3 Major Social Theories
- PHIL 3100-3 Ethical Theory
- PHIL/WMST 3110-3 Feminist Practical Ethics
- PHIL 3160-3 Bioethics
- PHIL 3190 (3-4) War and Morality
- PHIL 3200-3 Social and Political Philosophy
- PHIL 3260-3 Philosophy and the International Order
- PHIL 3600-3 Philosophy of Religion
- PRLC 1810-3 Ethical Leadership
- PSCI 2004-3 Survey of Western Political Thought\*
- PSCI 3054-3 American Political Thought
- PSCI 3064-3 Environmental Political Theory
- RLST 1620-3 The Religious Dimension in Human Experience
- RLST 2202-3 Foundations of Islamic Traditions
- RLST 2500-3 Religion in the United States\*
- RLST 2610-3 Religions of India
- RLST 2620-3 Religions of East Asia\*
- RLST 2700-3 American Indian Religious Traditions\*
- RUSS 3701-3 Slavic Folk Culture: Ideals and Values in the Contemporary World
- RUSS 4221-3 Stalinism: Society and Culture
- SCAN 3301-3 Radical Nationalism in Contemporary Northern Europe
- SEWL 2000-3 America, the Environment and the Global Economy
- SOCY 1004-3 Deviance in U.S. Society\*

## SOCY 1022-3 Ethics and Social Issues in U.S. Health and Medicine

- SOCY 2031-3 Social Problems\*
- SOCY 2077-3 Environment and Society
- SOCY 3151-3 Self in Modern Society
- SOCY 4121-3 Sociology of Religion

\*NOTE: This course is approved for the Colorado statewide guaranteed transfer program. Further information about the statewide guaranteed transfer program can be found at the website of the Colorado Commission on Higher Education, [higher.ed.colorado.gov/Academics/Transfers/gtPathways/curriculum.html](http://higher.ed.colorado.gov/Academics/Transfers/gtPathways/curriculum.html).

## Majors and Other Areas of Interest

To be eligible for the four-year guarantee, a student must begin the program of study and declare the major by the start of the second semester or earlier for some select majors. For complete information, see the Four-Year Graduation Requirements in this section.

All arts and sciences students pursuing a bachelor's degree must enter a degree-granting major by the end of their sophomore year (i.e., the semester in which they will complete 60 semester hours of work, including transfer work).

College academic advisors are responsible for advising students and also for certifying the completion of those students' programs for graduation. The college can assume no responsibility for difficulties arising out of a student's failure to establish and maintain contact with their assigned academic advisor.

## Minimum Major Requirements

The following minimum requirements are specified by the college. In many cases departmental requirements may be higher than the minimums listed here.

1. A minimum of 30 credit hours in the major area (for the BFA, a minimum of 50 hours).
2. Thirty semester hours in the major area, all with grades of C- (1.70) or higher (no pass/fail credits can be applied to the major).
3. Eighteen credit hours of upper-division courses in the major, all with grades of C- (1.70) or higher.
4. Twelve hours of upper-division course work in the major on the CU-Boulder campus.
5. A 2.00 (C) overall grade point average in all major work attempted.
6. Special requirements as stipulated by the major department.
7. No more than 8 credit hours of independent study.

Students are subject to those major requirements in effect at the time they formally declare the major. All College of Arts and Sciences students have 10 years to complete the requirements for a declared major. If this 10-year limit is exceeded, students may be required to satisfy the current major requirements. Students with further questions should consult a major advisor.

## Open Option

"Open option" (OPNO) is a major designation, but it is not a degree program. Open option students are advised in the Center for First-Year Students, which offers a structured advising program that provides students with the necessary support and strategies to investigate and compare academic disciplines so they can make informed decisions about the

degree programs they will pursue. Students can explore any major available in the college while completing course requirements toward a baccalaureate degree. To ensure that students graduate in a timely manner, open option majors are required to enter a specific degree program by the time they have completed 45 credit hours (approximately the end of the third semester). Students must declare and enter a degree-granting major by the start of the second semester (or earlier for certain majors) to maintain eligibility for the four-year guarantee.

## Double Majors

Students pursuing either the BA or BFA degree may graduate with more than one major within the degree (e.g., economics and French) by completing all requirements for both majors. A minimum of 120 total credit hours is required for double majors within the College of Arts and Sciences.

## Minors

A number of departments and programs in the College of Arts and Sciences offer minor programs. Participation in a minor program is optional for students pursuing a bachelor's degree. Course work applied to a minor also may be applied toward general education (core curriculum or college list) and major requirements. Students may not earn a major and a minor in the same program of study. All requirements for the minor must be completed by the time the BA or BFA is conferred.

Departments and programs with approved minor programs currently include applied mathematics; astrophysical and planetary sciences; atmospheric and oceanic sciences; chemistry and biochemistry; Chinese; classics; dance; ecology and evolutionary biology; economics; English—creative writing; ethnic studies; French; geography; geological sciences; Germanic studies; history; Italian; Japanese; Jewish studies; linguistics; mathematics; Nordic studies; philosophy; physics; political science; religious studies; Russian studies; Spanish and Portuguese—Portuguese; theatre; and women's studies. Minors are also available in business, offered by the Leeds School of Business; and in computer science, offered by the College of Engineering and Applied Science. Interested students can find further information at [advising.colorado.edu](http://advising.colorado.edu).

Although the structure of specific minor programs may differ, all minors offered in the College of Arts of Sciences must have the following restrictions or minimum requirements:

1. A minimum of 18 credit hours must be taken in the minor area, including a minimum of 9 upper-division hours.
2. All course work applied to the minor must be completed with a grade of C- or better (no *pass/fail* work may be applied). The grade point average for all minor degree course work must be equal to 2.00 (C) or higher.
3. Students pursuing a major in distributed studies or an individually structured major are not eligible to earn a minor.
4. Students are allowed to apply no more than 9 credit hours, including 6 upper-division credit hours, of transfer work toward a minor.
5. Students may earn no more than two minors.
6. Students must complete all requirements for a minor by the time they graduate.

## Areas of Interest

The college sponsors programs—but not undergraduate majors—in the areas of interest below. Course work in these areas is open to all interested students. Contact the Office of the Dean for more information.

- African American Studies
- American Indian Studies
- Asian American Studies
- Bibliography
- Chicano Studies
- Honors
- International and National Voluntary Service Training
- Museum

## Certificate Programs

The college also sponsors undergraduate certificate programs in a number of fields of study. Completion of specified course work in the certificate programs below entitles students to a certificate issued by the dean of the college. Students interested in these programs should contact the director of the appropriate program.

- Actuarial Studies and Quantitative Finance
- British and Irish Studies
- Central and Eastern European Studies
- Cognitive Sciences
- European Union Studies
- Foundations of Western Civilization
- Global Environmental Affairs
- Global Gender and Sexuality Studies
- International Media
- Lesbian, Gay, Bisexual and Transgender Studies
- Medieval and Early Modern Studies
- Middle Eastern and Islamic Studies
- Neurosciences and Behavior
- Peace and Conflict Studies
- Public Health
- South Asian Languages and Civilizations
- Western American Studies

## Multiple Degrees

### Double Degrees

Two different degrees (i.e., a BA and BFA from the College of Arts and Sciences, or two degrees from different schools or colleges) may be earned from CU-Boulder if the following conditions are fulfilled:

- The student meets the residency requirements of, and is enrolled in, both the College of Arts and Sciences and the college or school granting the second degree.
- The student completes a minimum of 145 credit hours when both degrees are offered within

the College of Arts and Sciences.

- The student completes all requirements for both degrees when the degrees are offered by two different colleges.
- For the BA and BFA degrees, 90 credit hours of arts and sciences course work are required (courses from outside arts and sciences that have been approved for the arts and sciences core curriculum will apply toward the 90 credit hours).
- The student has completed all general education and major requirements of the College of Arts and Sciences.
- Both degrees must be awarded at the same time.

## Second Baccalaureate Degrees

A student who has been awarded a baccalaureate degree, either from this college or elsewhere, may be granted a second baccalaureate degree provided the following conditions have been fulfilled:

1. All general requirements for the degree to be awarded by the College of Arts and Sciences have been met. (Students are subject to the general degree requirements in effect the semester they enter the second baccalaureate degree program.)
2. The major in the BA or BFA is different from the major in the first degree earned.
3. Arts and sciences students must complete a minimum of 45 credit hours in University of Colorado courses on the Boulder campus toward the second degree after admission to the second undergraduate degree program. Of these 45 credits, a minimum of 30 credits must be in arts and sciences upper-division credit hours completed as a matriculated student in the second undergraduate degree in the College of Arts and Sciences at the University of Colorado Boulder and at least 12 of these upper-division hours must be in the major. Courses taken as a nondegree student or as part of a graduate degree program do not count in these minimum requirements.

## Graduation Deadlines

Arts and Sciences students who have earned 80 or more credit hours and wish to walk in a commencement ceremony and/or graduate at the close of a term must submit an online application to graduate via the myCUinfo student portal, meeting all appropriate application deadlines published by the Office of the Registrar ([www.colorado.edu/registrar/degree-audit-and-diplomas](http://www.colorado.edu/registrar/degree-audit-and-diplomas)). Students should also consult with their primary Arts and Sciences academic advisor.

Students who intend to complete their degree in Summer (August) and want their name to appear in the Spring (May) commencement program should apply online for the Summer graduation term, submitting their application prior to the published Spring commencement program deadline. Summer applicants who apply prior to the Spring program deadline will automatically be included in the Spring commencement program.

Students who apply to graduate but fail to fulfill all degree requirements by the deadline for that term/year must submit a new online graduation application for a future term/year in order for the college to confer the degree once all remaining requirements are complete. To be certified as having completed all degree and major/minor requirements, all credit hours and grades (including transfer coursework and Continuing Education credit hours and grades) must be posted to the student records system by the deadline for reporting degrees for that term/year.

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## Graduate Study

Curricula leading to advanced degrees are offered by most of the departments in the College of Arts and Sciences. Students should consult the [Graduate School](#) section of this catalog for admission and degree requirements of the Graduate School. Curricula for graduate programs are listed alphabetically in this section.

For information about enrollment in graduate course work while still an undergraduate, see [Admission of Seniors](#) in the Graduate School section.

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# Programs of Special Interest

## Honors Program

The Honors Program is designed to provide special educational opportunities for highly motivated students. It is open to well-prepared first-year students, as well as to sophomores and upper-division students in all schools and colleges. The Honors Program offers thoughtful advising, close contact with faculty and with other honors students and an opportunity to write an honors thesis. Honors offers over 70 courses per year in a wide variety of areas. In any academic year about one-fourth of all Honors courses are offered under the HONR designation; the remainder are offered as seminars under departmental designations (CHEM, ENGL, HIST, IPHY and so on). Course offerings for each semester are listed, with detailed descriptions, on the Honors Program web page at [www.colorado.edu/honors/courses](http://www.colorado.edu/honors/courses). Honors courses are limited to an enrollment of approximately 15 students.

Faculty members teaching honors seminars are carefully selected for special interests and enthusiasm, for teaching excellence in small discussion classes and for insistence on high academic standards. Honors seminars are designed for the student who welcomes challenge, knows that the mind expands only with effort and actively seeks academic and intellectual challenges. Honors courses encourage students to think creatively. Many honors courses are interdisciplinary; all encourage students to read widely and critically.

The Honors Council, consisting of faculty from all participating academic departments, is responsible for deciding which students merit the award of the bachelor's degree with the Latin honors designations: *cum laude*, *magna cum laude* and *summa cum laude*. These awards are made on the basis of special honors work and not simply on the basis of grades earned in courses.

Students may graduate with departmental honors, general honors or both. Departmental honors may require a junior or senior honors seminar, an independent research project and/or directed readings. Each department has information pertaining to its own particular program. General honors, supervised and administered directly by the Honors Program and its core faculty, permits students to pursue interests and ultimately to write theses that cross disciplinary and departmental boundaries. To graduate with general honors, students must have a cumulative GPA of 3.50 or higher, have completed 12 credit hours of required honors courses and have written a thesis on an interdisciplinary topic.

The Honors Residential Academic Program (Honors RAP) is the optional residential component of the program. Honors RAP, open to a limited number of qualified first-year and continuing students, consists of small classes offered in Smith Hall as well as opportunities to participate in extracurricular activities. (There is an additional charge for the Honors Residential Academic Program.)

First-year students are invited to join the Honors Program based on their high school GPA and

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test scores. Transfer students must have a 3.30 GPA from their previous school. Students currently enrolled are accepted on the basis of academic achievement at CU-Boulder. Honors students are expected to have a GPA of at least 3.30. This is a program of excellence and commitment in which the best teaching faculty is committed to serve the most highly motivated students for the benefit of those students, the university and the larger society.

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## Residential Academic Programs (RAPs)

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### Baker Residential Academic Program

Baker Residential Academic Program's (BRAP) courses and activities focus on the Natural Sciences and the Environment. This program is ideal for students who see the importance of scientific awareness in their daily lives and career paths. BRAP inspires students to connect with nature and see the intrinsic value of the natural world. It challenges students to understand the complex biotic and physical interactions in the environment and to become mindful of the impact of humans on the future of life on earth. Intellectual development in environmental issues, health sciences, wildlife biology, sustainability and stewardship are emphasized. Students in diverse majors including all of CU's Biology departments, Environmental Studies, Geology, Chemistry, Atmospheric and Oceanic Sciences, Environmental Design, History, and Philosophy bring different perspectives to the BRAP classroom.

Baker RAP classes differ from those taught in the traditional departments in that they are small (fewer than 20 students) in contrast to lecture sections that contain a few hundred students. BRAP classes offer direct experiential activities, are much more interactive than large lectures, and most BRAP classes fulfill university core requirements. We convey to our students that faculty know them and care about them. Several unique classes offered through the Baker RAP offer applied learning; these include Creating a Sustainable Future, Colorado History and Ecology, Tropical Marine Ecology, and Oceanography and a field studies course at a marine lab in Florida.

Extracurricular activities, run by program staff and faculty, include a variety of outdoor experiences, such as rock climbing, mountain climbing, snowshoeing, and hiking. Additionally, there are field trips to a working gold mine, the Denver Zoo, The Wild Animal Sanctuary, the local farmer's market, the Center for Hard to Recycle Materials and the Denver Aquarium.

BRAP offers a living-learning environment that fosters a sense of community within an academic context, helps students identify with an academic and residence family, and eases

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the transition to university life. There is a fee for participation in Baker RAP in addition to tuition, fees and room and board. Students eligible for financial aid may request that their budget be adjusted to include the program fee. Their eligibility for aid will then be increased by an amount equal to the Baker RAP fee. Explore our website [bakerrap.colorado.edu](http://bakerrap.colorado.edu) and contact us if you have any questions by email ([bakerrap@colorado.edu](mailto:bakerrap@colorado.edu)) or by (303-492-3188).

## Communication and Society Residential Academic Program

Buckingham Hall's Communication and Society Residential Academic Program (COMM RAP) is a living-learning environment for 200 students designed around the theme of Communication and Society. It offers students an opportunity to engage with faculty and other students in a small college atmosphere within a major research university. Students explore the complex social problems and challenges of communication in contemporary society in seminar-sized courses. They also have opportunities to participate in co-curricular activities that stress civic engagement. The many opportunities for outreach and collaboration with the Boulder community provide an excellent venue for learning by doing.

A unique feature of the program is its integration of courses from its three supporting areas, the Department of Communication, CMCI and the Program for Writing and Rhetoric. These courses emphasize the role of participation, deliberation and collaboration in shaping and resolving public problems and problems in daily life. Its offerings also include opportunities for upper-division courses on topics germane to communication and society.

In addition to communication offerings, the curriculum includes courses that satisfy the writing and core requirements in Arts and Sciences. Across the year, guest lectures and seminars provide opportunities to interact on civic engagement and societal participation with leading experts on the CU faculty and distinguished visitors to the university.

The COMM RAP is open to students with an interest in communication and society, regardless of major. A fee is charged for participation in the program. For more information, call **303-492-1996**.

## Farrand Residential Academic Program

Farrand's small seminar courses in the liberal arts are taught by award-winning faculty especially selected to help create a close intellectual and social community. As the Humanities and Cultural Studies Residential Academic Program, Farrand focuses on the study of the humanities within the larger frame of culture and society. The Farrand curriculum offers a wide range of popular core curriculum classes taught by faculty known for their teaching skills. These include service-learning classes, which provide a deeper cultural understanding by applying classroom learning to service to the community.

All Farrand students are required to take a one-credit course called Passport to Literature in the Humanities to provide a shared academic experience. Additionally, they take a three-credit course each semester, such as Introduction to Philosophy, Women, Literature and the Arts, or Exploring Good and Evil Through Film, reflecting a commitment to the humanities that is central to Farrand's identity.

Because helping others contributes to the learning experience as well as to the whole community, Farrand offers several service-learning classes each semester. Service learning gives students the chance to apply what they study in their classes to real-life situations, such as a homeless shelter, a humane society or a tutoring program. These classes include Gandhian Philosophy; Nutrition, Health and Performance; and Global Women Writers.

Farrand's many cocurricular opportunities include a wide variety of events and performances, active and well-supported student governance (Hall Council), and group projects benefiting the community and the environment.

The program is designed primarily for students in the College of Arts and Sciences. Interested students in other colleges should contact the Farrand program for special admission procedures. It is administered by academic directors selected from the faculty and a hall director experienced in the operation of a large residence hall. There is a charge for the program in addition to regular tuition, fees and room and board.

Inquiries concerning any aspect of the academic program may be directed to the Farrand Academic Program, University of Colorado Boulder, 180 UCB, Boulder, CO 80309-0180, **303-492-8848**.

## Global Studies Residential Academic Program

The Global Studies Residential Academic Program (GRAP) promotes the recognition of global interdependence, encourages the study of foreign languages and international affairs and emphasizes the value of international education. This year long program, housed in Arnett Hall in the Kittredge complex, provides 200 freshmen and sophomore students with the foundational tools needed to serve as effective global citizens.

Global Studies RAP combines multidisciplinary, internationally focused courses with cocurricular activities, service learning opportunities and short term study abroad programs. Students select from a diverse range of course offerings each semester, including courses in anthropology, economics, foreign language, philosophy, political science and international affairs. The majority of the courses fulfill requirements from the arts and sciences core curriculum. Students are required to take one of the above courses each semester and if space permits two courses. Small seminar style classes are limited to 15 to 18 students and are taught in classrooms located in Arnett Hall. Classes encourage active student participation. The instructors hold office hours in Arnett Hall to ensure enhanced accessibility for GRAP students.

By participating in the Global Studies RAP, students gain access to staff and faculty with extensive and unique international experiences and interests, as well as access to each other as a group of like minded, globally conscious individuals. Additionally, the program offers participants access to student fellows, a group of outstanding former GRAP students who hold office hours in the residence hall each week to assist with course work, study sessions, paper writing or language tutoring.

The Global Studies RAP is open to all students seeking to add an international component to their academic program, regardless of major. With students taking several classes together and living in the same residence hall, GRAP fosters a small community within the larger university setting. GRAP is proud to be a leader in the effort to globalize the campus.

There is a fee charged for participation in Global Studies RAP in addition to regular tuition fees and room and board. Interested students should visit [globalstudiesrap.colorado.edu](http://globalstudiesrap.colorado.edu) to read more, view current course offerings and browse cocurricular opportunities. For additional information, call 303-735-3189 or e-mail [GRAP@colorado.edu](mailto:GRAP@colorado.edu).

## Health Professions Residential Academic Program

The Health Professions Residential Academic Program (HPRAP) proudly resides in Kittredge West Hall, accommodating approximately 270 students. Joining our living/learning community is an excellent choice for students interested in exploring majors and careers in healthcare. These

career paths may include, but are not limited to: chiropractic medicine, dentistry, medicine, nursing, occupational therapist, optometry, pharmacy, physical therapy, physician's assistant, podiatry, public health, veterinary medicine and life sciences research. Students of all colleges and schools are welcome, although the curriculum does not lend itself to freshmen engineering majors.

HPRAP provides highly desirable introductory courses taught by expert teachers in a supportive atmosphere where each individual is valued. HPRAP students will take at least one course offered by the program each semester. Courses are taught onsite within the hall, with an average of only 20 students per class. HPRAP offers two different introductory biology course sequences, two sequences for chemistry, as well as a variety of courses on bioethics, global health policy, writing and the social sciences that satisfy core curriculum requirements. A representative schedule of course offerings can be found on the program's website. Faculty have offices and/or office hours within Kittredge West.

As part of the HPRAP experience, faculty provide co-curricular activities to enhance the learning environment and integrate the health professions theme through experiences such as field trips and evening programs. The HPRAP hosts a live-in physician-in-residence that also provides programming and shadowing opportunities. The HPRAP also hosts a weekly selection of social activities and volunteer opportunities that are designed to build community and life-long friendships.

The Health Professions RAP will make the first year at CU a rewarding adventure and will serve as a gateway to opportunities on campus and beyond.

For more information about the program fee, application process and course offerings, visit [hprap.colorado.edu](http://hprap.colorado.edu), or contact [hprap@colorado.edu](mailto:hprap@colorado.edu) or **303.492.4537**.

## Honors Residential Academic Program

The Honors Residential Academic Program (Honors RAP) is the residential component of the Honors Program of the College of Arts and Sciences. It is open to approximately 335 honors-qualified first-year and continuing honors-qualified students. Participants live in Smith Hall. Students of other colleges are welcome to participate although the curriculum may not lend itself as well to their degree requirements.

The Honors RAP promotes and sustains academic excellence within a lively community setting. First-year students take one onsite 3-hour seminar-style course each semester. Each semester the program offers a variety of honors courses, the great majority of which satisfy arts and sciences core curriculum requirements. Each seminar is taught by an experienced faculty member, emphasizes discussion and writing, and ordinarily enrolls about 15 students.

Beyond the classroom and a variety of co-curricular activities that enhance the learning experience, Honors RAP fosters a variety of student-led activities, including evening social events and a lecture series that brings students into contact with leading teachers and researchers from the university community.

Members of the Honors RAP draw on a rich variety of academic, advising and informational resources. Responsibilities for community building, fostering a culture of academic success and for the planning and implementation of programming consistent with our Honors mission are shared among the student leaders, faculty and staff. The director who supervises Honors RAP's daily functioning maintains an office in Smith Hall for academic advising and acts as liaison to the rest of campus. There is a faculty in residence for Honors RAP who lives in a faculty apartment in Smith Hall east wing.

**Eligibility:** Beginning each December, the Honors Program of the College of Arts and Sciences

invites approximately the upper 10 percent of all admitted College of Arts and Sciences students to participate in honors courses during their first year on campus. These invitations are issued on the basis of high school grade averages and scores on the Scholastic Aptitude Test (SAT) or American College Test (ACT). All students receiving an honors invitation are eligible to become members of the Honors RAP on a first-come, first served basis, determined by date of receipt of their online housing application. Students who wish to participate in Honors RAP beyond the first year must maintain a University of Colorado GPA of 3.30 or above. As with participants in all other residential academic programs, Honors RAP members pay a participation fee in addition to the standard charges for tuition, fees and room and board. Students eligible for financial aid may request their budget be adjusted to include the program fee.

For more information about the program, program fee, application process, course offerings and more, visit [honorsrap.colorado.edu](http://honorsrap.colorado.edu) or contact [hrap@colorado.edu](mailto:hrap@colorado.edu) or **303-492-3695**.

## Leadership Residential Academic Program

This Leadership RAP is located at Kittredge Central and is dedicated to developing community, civic and global leaders for a culturally diverse and democratic society. When a student enrolls in the Leadership RAP they select one of two academic programs.

**The Ethnic Living and Learning Community (ELLC) Leadership Studies Program** provides students with a multicultural living and learning experience while studying leadership from a cultural and multidisciplinary perspective.

**The Chancellor's Leadership Studies Program (CLSP)** offers leadership development and an understanding of how institutions and communities solve problems. Students learn different leadership styles needed to work effectively in those settings.

Students in both of these programs take leadership courses offered each semester that meet core requirements and may be applied toward graduation as well as toward a Certificate in the Study and Practice of Leadership. Students from all schools and colleges on the Boulder campus are eligible to participate.

There is a program participation fee of \$850. Scholarships are available to cover the cost of the fee for those with financial need. Contact the Leadership RAP, University of Colorado Boulder, 406 UCB, Boulder, CO 80309-0406, phone **303-735-1987**, email [leadership@colorado.edu](mailto:leadership@colorado.edu) or visit [LeadershipRAP.colorado.edu](http://LeadershipRAP.colorado.edu).

For additional information on this program, see the [Other Academic Programs](#) section.

## Libby Arts Residential Academic Program

The Libby Arts Residential Academic Program (Libby RAP or LRAP) fosters individual creativity and personal expression to prepare students for success in a wide variety of fields. The curriculum is designed for students who consider study in the arts to be a valuable complement to a major in the humanities, social sciences or natural sciences, or who have an interest in the arts as a major. Prior art experience is not required for any Libby RAP class.

Libby RAP classes satisfy either core, major or elective requirements and are taught in Libby Hall by faculty with demonstrated excellence in teaching. Class sizes are limited to 19 students. Courses are offered in dance, acting, drawing, painting, writing, film criticism and theory, digital art, art history, music history and media studies. A range of popular core curriculum classes are also offered each year in disciplines such as economics, philosophy and nutrition. Libby RAP classes require a healthy curiosity and the willingness to be creative.

With students taking several classes together and living in the same residence hall, LRAP fosters a small community within the larger university setting.

Libby RAP also exposes students to the diversity of the arts through co-curricular activities, experiential learning opportunities and community events. Students are offered numerous chances to explore the breadth of the performing and visual arts, to investigate creativity and how it is applied outside the arts and to expand their social and cultural awareness. Other activities build a sense of community within Libby Hall and address social responsibility in the community at large. Activities regularly occur on and off campus, in the Denver metro area and even include travel to New York City.

Students enrolling in the program are required to take at least one course in the hall each semester. The LRAP faculty director and professional staff are located in Libby Hall and provide academic assistance to students. A limited number of scholarships are available. Students who are eligible for financial aid may request that their budget be adjusted to include the LRAP program fee.

To learn more, visit [libbyrap.colorado.edu](http://libbyrap.colorado.edu), or contact [libbyrap@colorado.edu](mailto:libbyrap@colorado.edu) or **303-735-4211**.

## Sewall Residential Academic Program

The Sewall Residential Academic Program (SRAP) is a program for first- and second-year students enrolled in the College of Arts and Sciences who have an interest in the study of history and culture. Citizenship in the 21st century requires the ability to engage complex connections between the present and past, between local places and our global society and between the arts and sciences. SRAP combines classes ranging from history and biology to economics and English, with co-curricular activities (such as lectures, films and field trips) and local community outreach to help students recognize and think about these connections.

Limited to 330 students, SRAP provides the opportunity to enjoy the advantages of a small liberal arts college within the broader context of a large research university. The program offers a selection of small seminar-style classes (limited to approximately 18 students) that meet in the Sewall residence hall. Classes encourage active student participation and emphasize analytical thought through intensive reading, discussion and writing. Most SRAP courses also fulfill College of Arts and Sciences core requirements.

Each semester all SRAP students must take a 3-credit course at Sewall. All students are further required to take SEWL 2020, a 1-credit Civic Engagement course, either fall or spring semester. In addition, students have the opportunity to take the lower-division writing course (WRTG 1150) at Sewall in either fall or spring semester.

SRAP facilitates a successful transition from high school to the university. Sewall courses are taught by faculty with a demonstrated excellence in teaching and a commitment to working closely with first-year students. Faculty members have offices conveniently located in Sewall Hall, which helps foster communication between students and faculty. Participants in the Sewall program are also fully involved in regular campus life, take the majority of their classes with the rest of the university and are encouraged to join in all university activities.

The SRAP director, associate director and program assistant are readily available to help students with planning schedules, making sense of the rules of the University and the College of Arts and Sciences and choosing majors. They can refer students to other university resources for specialized counseling when necessary, and the housing department office offers free tutoring in many subject areas.

Interested first- and second-year students who are admitted into the College of Arts and

Sciences should indicate Sewall Hall as their first choice on the housing application form and return it to the Housing Reservation Center as early as possible. Students are admitted on a first-come, first-served basis, determined by date of receipt of the housing application form. There is an extra charge for participating in the program in addition to regular tuition, fees and room and board. Some scholarships are available; please contact the academic program office for details.

Students who have questions about the program should address them to the Director, Sewall Residential Academic Program, University of Colorado Boulder, 353 UCB, Boulder, CO 80309-0353; visit the program online at [sraps.colorado.edu](http://sraps.colorado.edu); or call the SRAP office at **303-492-6004**.

## Sustainability and Social Innovation Residential Academic Program

The Sustainability and Social Innovation (SSI) RAP is an experiential skills-based program for students concerned about sustainability and innovation issues who want to participate in developing solutions while earning credits toward their degree in any college on campus. Students in the Sustainability and Social Innovation RAP are housed in the only LEED Platinum residence hall on campus, Williams Village North. The program is uniquely multidisciplinary, seeking a critical engagement of students interested in identifying sustainable solutions to diverse global challenges including resource depletion and conservation, climate change, poverty, environmental protection and economic instability. Our teaching faculty includes professors in architecture, engineering, political science, writing, biology, psychology, anthropology, business and sociology. Courses offered in the residence hall for RAP students vary each term but always include core curriculum courses from the College of Arts and Sciences, as well as other campus offerings.

Sustainability and Social Innovation courses challenge the status quo and emphasize collaborative problem-solving and social innovation through design, debate, planning, project development, writing and creative enterprise. In small classes of usually 19-23 students, and through RAP activities and events (e.g., using a state-of-the-art kitchen, computer lab, facilities and grounds at Williams Village, visiting speakers, field trips) students develop a strong knowledge base, entrepreneurial savvy, communications skills, technology literacy, teamwork skills and compassionate understanding. SSI is one of the few RAPs with its own faculty-in-residence and with resident graduate student teaching resident assistants (TRAs) who live in the building and assist with RAP classes. As a result, mentoring, academic staff and informal support are close at hand for all RAP students. SSI students work closely with their peers in the Sustainable by Design (SbD) RAP, also located at Williams Village North.

Enrollment in the program includes an additional fee. Please contact [wvrap@colorado.edu](mailto:wvrap@colorado.edu) or call **303-735-1330**.

The Sustainability and Social Innovation RAP provides students from across all academic disciplines study of a variety of practices that foster social innovation and sustainability.



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| <a href="#">Applied Mathematics</a>                  | BS, MS, PhD      |
| <a href="#">Art and Art History</a>                  | BA, BFA, MA, MFA |
| <a href="#">Asian Languages and Civilizations</a>    | BA, MA, PhD      |
| <a href="#">Asian Studies</a>                        | BA               |
| <a href="#">Astrophysical and Planetary Sciences</a> | BA, IBA, MS, PhD |
| <a href="#">Atmospheric and Oceanic Sciences</a>     | MS, PhD          |
| <a href="#">Chemical Physics</a>                     | PhD              |
| <a href="#">Chemistry and Biochemistry</a>           | BA, IBA, MS, PhD |
| <a href="#">Classics</a>                             | BA, MA, PhD      |
| <a href="#">Cognitive Science Studies</a>            | PhD              |
| <a href="#">Comparative Literature</a>               | MA               |
| <a href="#">Computer Science</a>                     | BA               |
| <a href="#">Distributed Studies Program</a>          | BA               |
| <a href="#">Ecology and Evolutionary Biology</a>     | BA, IBA, MA, PhD |
| <a href="#">Economics</a>                            | BA, MA, PhD      |
| <a href="#">English</a>                              | BA, MA, MFA, PhD |
| <a href="#">Environmental Studies</a>                | BA, IBA, MS, PhD |
| <a href="#">Ethnic Studies</a>                       | BA, PhD          |
| <a href="#">Film Studies</a>                         | BA, BFA          |
| <a href="#">French and Italian</a>                   | BA, MA, PhD      |
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- Classics
- Cognitive Science Studies
- Comparative Literature
- Computer Science
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|   |                       |
|---|-----------------------|
|   |                       |
| Geological Sciences                           | BA, IBA, MS, PhD      |
| Germanic and Slavic Languages and Literatures | BA, MA, PhD           |
| History                                       | BA, MA, PhD           |
| Humanities                                    | BA                    |
| Integrative Physiology                        | BA, IBA, MS, PhD      |
| International Affairs                         | BA                    |
| Jewish Studies                                | BA                    |
| Linguistics                                   | BA, MA, PhD           |
| Mathematics                                   | BA, MA, MS, PhD       |
| Molecular, Cellular and Developmental Biology | BA, IBA, MA, PhD      |
| Museum and Field Studies                      | MS                    |
| Philosophy                                    | BA, MA, PhD           |
| Physics                                       | BA, IBA, MS, PhD      |
| Political Science                             | BA, MA, PhD           |
| Psychology and Neuroscience                   | BA, IBA, MA, PhD      |
| Religious Studies                             | BA, MA                |
| Sociology                                     | BA, MA, PhD           |
| Spanish and Portuguese                        | BA, MA, PhD           |
| Speech, Language and Hearing Sciences         | AuD, BA, IBA, MA, PhD |
| Theatre & Dance                               | BA, BFA, MA, MFA, PhD |
| Women and Gender Studies                      | BA                    |

Program

- Ecology and Evolutionary Biology
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- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
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# Actuarial Studies and Quantitative Finance Certificate Programs

The Actuarial Studies and Quantitative Finance Certificate Program is an interdisciplinary program provided by the College of Arts and Sciences Departments of Mathematics, Applied Mathematics and Economics; and the Leeds School of Business. The program trains students in two tracks. The **Actuarial track** prepares students for the actuarial profession while the **Quantitative Finance track** trains students for financial and economics analyst positions. The admission policies and contact information are given for each track.

## Certificate Program(s)

### Certificate in Actuarial Studies

The **Actuarial Studies Certificate** offered by the College of Arts and Sciences is designed to help students obtain the expertise in mathematics, economics and finance necessary to become actuaries—the mathematical planners of the insurance and pension industries.

Students in the program can be of any major or college, or can be nondegree candidates. The entrance requirement is three semesters of calculus completed with grades of *B+* or better. There are a number of courses in mathematics, economics and business required to earn the certificate. The certificate is awarded by the dean of the College of Arts and Sciences.

Besides taking courses, students are encouraged to take the professional exams offered by the various actuarial societies. The entrance requirements can be waived for students who pass the first actuarial examination (*see also our website below*).

Interested students should contact one of the co-directors: David Grant at **303-492-7208** or Anne Dougherty at **303-492-4011**, who will also provide advice on actuarial studies to students who are not in the program. For more information, see [www.colorado.edu/asqf](http://www.colorado.edu/asqf).

### Certificate in Quantitative Finance

The **Quantitative Finance Certificate**, offered jointly by the College of Arts and Sciences and the Leeds School of Business, was initiated in the fall of 2004 and is designed to prepare students for financial and economics analyst positions that require outstanding quantitative skills. Often employers hire graduate students for such positions due to a shortage of undergraduates with the required combination of skills and training. This program is designed to meet this need.

The required curriculum is extensive and rigorous. Potential participants are encouraged to begin work early in their studies, preferably during the first year. Course work draws from the Departments of Mathematics, Applied Mathematics and Economics; and the Leeds School of Business. Qualified students enrolled in any college are invited to participate. For admittance to

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- Atmospheric and Oceanic Sciences
- Behavioral Genetics
- Biological Sciences
- British and Irish Studies
- Central and East European Studies
- Chemistry and Biochemistry
- Classics
- Cognitive Science Studies
- Comparative Literature
- Computer Science
- Distributed Studies

the program, a student must earn a GPA of 2.87 or higher in Calculus I through III. However, students may be provisionally admitted after completion of Calculus I (MATH 1300 or APPM 1350) with a grade of *B* or better or through advanced placement. Additional GPA requirements must be met to earn the certificate. Participants may be given preference when enrolling in certain courses in the Leeds School of Business.

Interested students should contact Daniel Brown, Leeds School of Business, at [daniel.brown@colorado.edu](mailto:daniel.brown@colorado.edu). Additional information can be found at [www.colorado.edu/asqf](http://www.colorado.edu/asqf).

#### Program

- Ecology and Evolutionary Biology
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- Ethnic Studies
- Film Studies
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- Lesbian, Gay, Bisexual, Transgender and Queer Studies
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- Molecular, Cellular and Developmental Biology
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## Anthropology

Anthropology is the study of people, both ancient and modern, in their cultural context. The field involves a global look at human cultures from prehistoric times to the present, integrating findings from the social sciences, natural sciences and humanities. Students of anthropology learn to appreciate the variety of cultures throughout human history and to understand the meaning of human biological and cultural development as well as diversity.

The undergraduate degree in anthropology emphasizes knowledge and awareness of:

- basic methods, concepts, alternative theories and approaches and modes of explanation appropriate to each of the three main subfields of the discipline (archaeology, biological anthropology and cultural anthropology);
- basic archaeological techniques, including stratigraphy, dating and inference of human behavior from archaeological data, as well as human history from its beginning through the emergence of complex societies;
- variation, patterning and creativity in human communities and symbolic systems, including ecological, social structural and cultural factors exemplified in a diverse array of the world's societies, including those undergoing change as a result of globalization and the impact of contemporary social and political movements; and
- theories of primate and human evolution and the basic data of the hominid fossil record, as well as biological variation in contemporary human populations.

In addition, students completing the degree in anthropology are expected to acquire the ability and skills to:

- identify trends or patterns in anthropological data from different cultures or periods, identify an appropriate context of explanation or interpretation and formulate a testable explanation or reasonable interpretation, including the ability to identify data that constitute credible evidence for an explanation or interpretation; and
- identify and define a significant problem or topic in anthropology and analyze and interpret data in a systematic manner.

**Course code for this program is ANTH.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Anthropology

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below. (A minimum of 30 credit hours in anthropology, 18 of which must be upper division, is required for the degree.)

**Required Courses and Semester Credit Hours**

### □ Arts & Sciences

- Policies & Requirements
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- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs

### • Anthropology

- Applied Mathematics
- Art and Art History
- Asian Languages and Civilizations
- Asian Studies
- Astrophysical and Planetary Sciences
- Atmospheric and Oceanic Sciences
- Behavioral Genetics
- Biological Sciences
- British and Irish Studies
- Central and East European Studies
- Chemistry and Biochemistry
- Classics
- Cognitive Science Studies
- Comparative Literature
- Computer Science
- Distributed Studies

- ANTH 2010-3 Introduction to Physical Anthropology 1—3
- ANTH 2100-3 Frontiers of Cultural Anthropology—3
- ANTH 2200-3 Introduction to Archaeology—3
- One upper-division topical course in cultural anthropology—3
- One upper-division ethnographic area course in cultural anthropology—3
- One upper-division course in archaeology—3
- One upper-division course in physical anthropology—3
- Electives in anthropology (6 credits must be at the upper-division level; students planning to pursue graduate work in anthropology are advised to take ANTH 4000 and ANTH 4530)—9

In addition, students planning to pursue writing a senior honor's thesis or graduate work in Anthropology are advised to take ANTH 4000 (Quantitative Methods) and an upper division Anthropology theory course.

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for more information on eligibility. The concept of "adequate progress" as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in anthropology, students should meet the following requirement:

- Declare a major in anthropology by the beginning of the second semester.

## Graduate Degree Program(s)

### Graduate Study in Anthropology

**Prerequisites.** To be considered for admission as a regular degree student, applicants should have a minimum undergraduate grade point average of 3.00 (4.00 = A) or a master of arts degree in anthropology. Graduate Record Examination scores for verbal and quantitative aptitude tests are required. Letters of recommendation and evidence of previous anthropologically oriented experience and work are carefully considered. Students with fewer than 18 credit hours of previous course work in anthropology are considered deficient and may be asked to present a greater number of hours for a degree.

**Application.** Inquiries concerning applications should be directed to the main departmental office. Completed applications are reviewed once each year and are due by January 15. Students with no previous graduate work should apply for entrance into the MA program which, if successfully completed, will prepare them for the PhD program. Students who have or will have completed an MA degree in anthropology by the time of their admission may apply for direct admission into the PhD program, but they may be required to complete specific remedial requirements in some cases.

**Course Requirements.** Students may have a primary specialization in any of the major subfields of anthropology: archaeology, cultural or biological anthropology. The department expects graduate students to maintain a breadth of competence in general anthropology through the master's degree with specialization intensifying with progress toward the PhD degree.

All entering graduate students must have had the equivalent of ANTH 4000 or 5000 (Quantitative Methods in Anthropology) or take the course, or in the case of cultural anthropology students an appropriate "tool course," during their first year in residence.

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

As partial fulfillment towards a graduate degree, all students must complete the graduate proseminar that covers the three subdisciplines of anthropology (cultural, biological and archaeology). The proseminar should be taken during the first semester in residence, if possible. In addition, students are required to take one graduate seminar focusing on one of the two subdisciplines outside of their primary specialization.

Other specific course requirements are established through a consultation with an academic advisor. MA students in archaeology and biological anthropology are normally expected to write a thesis (plan I). In consultation with their advisor, students in cultural anthropology have the option of writing a thesis or completing their MA degree by examination only (plan II).

Additional information about other specific areas of specialization and other requirements for the degree may be obtained by writing directly to the Department of Anthropology, and by referencing the [Graduate School](#) section. Information is also available at the departmental website ([www.colorado.edu/anthropology](http://www.colorado.edu/anthropology)).

## Dual Degree Programs

### MBA/MA in Anthropology

The MBA/MA in anthropology dual-degree program enables students to earn an MBA and an MA in anthropology simultaneously over three or four years depending on the student's subdiscipline in anthropology. Students in this MBA/MA program pursue careers in managing the business aspects of archaeological projects, working in the growing field of corporate cultural anthropology and ethnography or museum management.

See Dual degrees in [School of Business](#) for details.

Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

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## Applied Mathematics

The Department of Applied Mathematics in the College of Arts and Sciences offers courses and degree programs for undergraduate and graduate students. Course offerings at the undergraduate level focus on providing students with the mathematical tools and problem-solving strategies that are useful in science and engineering. The undergraduate bachelor of science degree is offered through the College of Engineering and Applied Science.

The department offers a range of courses and research opportunities in many areas, including computational mathematics, mathematical biology, nonlinear phenomena, physical applied mathematics and probability and statistics. Each of these areas is described below.

### Computational Mathematics

The study of computational mathematics has grown rapidly in recent years and has allowed scientists and engineers to answer questions and to develop insights not possible just a decade or two ago. Modern computational methods require in-depth knowledge of a variety of mathematical subjects including linear algebra, analysis, ordinary and partial differential equations, asymptotic analysis, elements of harmonic analysis and nonlinear equations. Since computers are invaluable tools for an applied mathematician, students are expected to attain a high level of computer literacy and to gain a substantial knowledge of operating systems and hardware. Computational mathematics courses include the study of computational linear algebra, optimization, numerical solution of ordinary and partial differential equations, solution of nonlinear equations and advanced seminars in wavelet and multiresolution analysis and in multigrid methods, radial basis functions and algorithm design and development, more generally.

### Mathematical Biosciences

Advances in our ability to quantitatively study biological phenomena have provided a number of exciting opportunities for applied mathematicians. The careful modeling, analysis and simulation of these systems using the standard and state-of-the-art tools of applied mathematics has led to novel and non-intuitive insights into biology. Furthermore, deeper understanding of the inherently complex and multiscale nature of biological systems, in many cases, requires the development of new mathematical tools, techniques and methodologies (a challenge to which applied mathematics is particularly well suited). For students interested in pursuing research in mathematical biology, good preparatory classes would include differential equations, advanced calculus, numerical analysis and probability and statistics, as well as supplemental courses in the appropriate biological, biomedical or bioengineering fields. Research areas at CU encompass immunology, virology, bacteriology, population genetics and cardiac nonlinear dynamics. Specifically, current topics of interest include model selection and control of in vivo HIV pathogenesis dynamics, modeling of intracellular calcium dynamics, the analysis of heart rhythm instabilities, the role of aggregation and fragmentation in bacteremia and bacterial pneumonia, inverse problems arising in the use of population genetics and bioinformatics to identify geographic features and the analysis of patterns in biological sequences such as DNA

#### Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology

#### • **Applied Mathematics**

- Art and Art History
- Asian Languages and Civilizations
- Asian Studies
- Astrophysical and Planetary Sciences
- Atmospheric and Oceanic Sciences
- Behavioral Genetics
- Biological Sciences
- British and Irish Studies
- Central and East European Studies
- Chemistry and Biochemistry
- Classics
- Cognitive Science Studies
- Comparative Literature
- Computer Science
- Distributed Studies

and RNA.

## Dynamical Systems and Nonlinear Phenomena

In recent years, there has been an explosion of interest in the study of nonlinear waves and dynamical systems with analytical results, often motivated by the use of computers. The faculty in the Department of Applied Mathematics are actively and intensively involved in this growing field. Research areas include qualitative analysis and computational dynamics, conservative and dissipative systems, bifurcation theory, the onset and development of chaos, wavelets and multiresolution analysis, integrable systems, solitons, cellular automata, analytic dynamics, pattern formation and symmetry, synchronization, dynamics on networks, fluid dynamics, transport and mixing and the study of nonlinear phenomena arising from the interactions of many interconnected dynamical units. Department courses in this field include dynamical systems, nonlinear wave motion and many advanced seminars. Suitable background courses are analysis, computation and methods in applied mathematics. Valuable supplemental courses include mechanics and fluid dynamics.

## Physical Applied Mathematics

Physical applied mathematics is a term that generally refers to the study of mathematical problems with direct physical application. This area of research is intrinsically interdisciplinary. In addition to mathematical analysis, it requires an in-depth understanding of the underlying applications area, and usually requires knowledge and experience in numerical computation. The department has approximately 40 affiliated faculty who can direct thesis research in areas such as atmospheric and fluid dynamics, theoretical physics, plasma physics, genetic structure, parallel computation, etc. The department's course requirements are designed to provide students with a foundation for their study (analysis and computation). The department also requires supplemental courses in one of the sciences or engineering fields necessary for thesis research in physical applied mathematics.

## Statistics and Applied Probability

Almost all natural phenomena in the technological, biological, physical and social sciences have random components with complex levels of interactions, part stochastic, part deterministic. Applied probability is the application of probabilistic and analytic methods to model, understand and predict the behavior of real-life problems that involve random elements. Statistics is the science of using data that typically arise from the randomness inherent in nature to gain new knowledge. Areas of current interest by applied math and their affiliated faculty include optimization of stochastic networks; the study of stochastic processes, and stochastic differential equations in hydrology and telecommunications; probabilistic models, nonparametric regression methods, shrinkage estimation, gene expression microarray data analysis, false discovery rate control, classification methods and statistical tests based on these models, in genetics and RNA sequencing; and extreme value theory in estimation of maximal wind speeds. Appropriate course work includes analysis, stochastic processes, simulation techniques and mathematical statistics, as well as background courses in one of the sciences or engineering fields in which one intends to do research.

For details on the range of courses and research opportunities available through the Department of Applied Mathematics, visit [www.colorado.edu/amath/](http://www.colorado.edu/amath/).

**Course code for this program is [APPM](#).**

## Bachelor's Degree Program(s)

### Undergraduate Study in Applied Mathematics

A [bachelor of science degree in applied mathematics](#) is offered by the College of Engineering and Applied Science.

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

The undergraduate curriculum in applied mathematics trains students in the applications of mathematics in engineering and science. The use of computational methods and implementation of algorithms on computers is central. Technical electives may be selected from mathematics, engineering, physics, chemistry, computer science, biology, astrophysics, geology, economics, finance and accounting.

In general, nontechnical electives should be broadening and have multicultural value. Students interested in research also are encouraged to take a foreign language as early as possible. French, German or Russian are recommended.

Interested students should contact the applied mathematics office in the College of Arts and Sciences for information on specific major and degree requirements.

## Minor Program

A minor is offered in applied mathematics. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school. For more information, see [www.colorado.edu/advising/programs-requirements](http://www.colorado.edu/advising/programs-requirements)

A minor in applied mathematics indicates that a student has received in-depth training in mathematical techniques and computational methods well beyond the training usually received by science and engineering majors. For more information on the minor in applied mathematics, see [www.colorado.edu/amath/prospective-students/undergraduate/applied-math-minor-requirements](http://www.colorado.edu/amath/prospective-students/undergraduate/applied-math-minor-requirements).

The department also offers a minor in statistics which was developed to provide in-depth training in statistical methods and techniques well beyond the training usually received by science and engineering majors. The ability to understand, visualize and analyze data is becoming an increasingly important skill in many disparate fields. This minor offers undergraduate students from any major the opportunity to develop their statistical knowledge. For more information on the minor in statistics, see [www.colorado.edu/amath/prospective-students/undergraduate/applied-math-minor-statistics-requirements](http://www.colorado.edu/amath/prospective-students/undergraduate/applied-math-minor-statistics-requirements).

## Concurrent Bachelor's/Master's Program

### Concurrent BS/MS in Applied Mathematics

The concurrent BS/MS program in applied mathematics enables well-qualified and motivated students to experience graduate-level course work earlier in their education and to obtain an MS degree in a reduced time period. Applied math majors may apply for this program during their junior year. Minimum requirements for admission include completion of at least two APPM courses numbered 3000 or higher, an overall GPA of 3.40 or higher, an APPM and MATH GPA of 3.40 or higher, and two letters of recommendation from APPM faculty. Students interested in this program are encouraged to consult with an applied mathematics faculty advisor early in their undergraduate career.

## Graduate Degree Program(s)

### Graduate Study in Applied Mathematics

Prerequisites for graduate study in applied mathematics include three semesters of calculus and a course in differential equations and linear algebra. Other strongly recommended courses are Methods in Applied Mathematics (APPM 4350 and 4360); Intermediate Numerical Analysis (APPM or MATH 4650 and 4660); either Matrix Methods (APPM 3310) or Linear Algebra (MATH 3130); and Analysis (APPM 4440). The overall grade point average for mathematics and applied mathematics must be *B* or better.

#### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

Students should carefully read the Requirements for Advanced Degrees in the Graduate School section. What follows is an abbreviated summary of specific requirements for the department. A precise description of the degree requirements is available from the *Applied Mathematics Supplement to the Catalog* available from the applied mathematics office or at [www.colorado.edu/amath](http://www.colorado.edu/amath).

## MS in Applied Mathematics

The MS degree can serve as a steppingstone for any student considering a PhD program at CU-Boulder or elsewhere. However, the MS degree is unique and an important program in its own right. One of the principal advantages is in preparation for teaching or industry, which is the genesis of the required numerical analysis and out-of-department sequences. It is also a flexible program that supports special interest directions.

## MS with Computational Science and Engineering Track

The purpose of this program is to meet the needs of students who want to learn the basic concepts and skills of computational science and engineering, and then to continue toward a PhD in a discipline outside applied mathematics. A student who completes this program successfully will obtain a master's degree in applied mathematics, in the Computational Science and Engineering Track. The program is designed to provide interested students with a foundation in computational mathematics and, at the same time, to allow sufficient latitude for the student to become proficient in an outside discipline. Approximately half of the credits for the master's degree will be taken from a department other than applied mathematics.

A student in the Computational Science and Engineering Track will be enrolled simultaneously in two graduate programs, one in applied mathematics and one in the department from which the student wishes to receive a PhD. An interested student may apply for admission to this track either when applying for graduate study at CU, or at any time in the student's first two years of graduate study. First-year and second-year graduate students in any of the participating departments may apply for admission to this program.

## Doctoral Degree

The Department of Applied Mathematics offers course work and research leading to the PhD degree in applied mathematics.

A minimum of 60 credit hours is required for the degree, including 30 hours in courses numbered 5000 or above (4350/5350, 4360/5360, and 4720/5720 generally do not count toward this requirement) and 30 hours of applied math dissertation credit. A grade of *B-* or higher must be attained in each course. No specific courses are mandatory (apart from two semesters of seminars—APPM 8000, 8100, 8300, and 8600), but the selection ought to include some of the department's core sequences, such as applied analysis (APPM 5440/5450) and numerical analysis (APPM 5600/5610). Other recommended sequences are methods (APPM 5470/[5430, 5460, or 5480]) and statistics (APPM 5520/[5540 or 5560]). Finally, each student must take a yearlong graduate sequence outside of applied mathematics in an area where mathematics has significant application. Approval of the sequence from the graduate committee chair is required. Preliminary exams are offered in four areas: analysis, numerics, partial differential equations and probability/statistics. Students must take the numerics and analysis exams, and either one of the other two.

Further information on the department and degree requirements is available from the supplement to the catalog in the applied mathematics office or at [www.colorado.edu/amath](http://www.colorado.edu/amath).

## PhD with Certificate in Interdisciplinary Quantitative Biology

Applied mathematicians interested in collaborations with bioscientists will need a breadth of knowledge in quantitative bioscience to be successful. The Interdisciplinary Quantitative Biology (IQ Biology) program emphasizes training at the intersection of biochemistry, biology, computer science, engineering, applied mathematics and physics. The PhD in applied mathematics with a certificate in IQ Biology will strengthen this training with additional foundations in numerical and mathematical analysis, probability and statistics, mathematical biology and network analysis.

Candidates interested in this program should apply directly to IQ Biology ([cimb.colorado.edu/iq-biology/application](http://cimb.colorado.edu/iq-biology/application)), and select applied mathematics as one of their graduate programs of interest. In addition to satisfying the requirements for the PhD in applied mathematics, students in this program must take 12 credit hours in three IQ Biology core courses: Quantitative Biology Foundations, Statistics and Computations for Genomes and Meta-Genomes and Forces in Biology, which can serve as the out-of-department sequence for the PhD; as well as three 10-week rotations in labs associated with the IQ Biology program. For additional information, see [IQBiology.colorado.edu](http://IQBiology.colorado.edu).

## Dual Degree Programs

### Combined MS and MA Program with MCD Biology

This three-year interdisciplinary program offers two master's degrees: an MS in applied mathematics and an MA in MCD biology. The goal of the program is to produce well-trained applied mathematics students who are capable of making serious contributions leading to advancements in molecular biology. Such students will be well educated in computational sciences, statistics, probability and molecular biology. Students are expected to meet all requirements for admission to the graduate program in the Department of Applied Mathematics and to possess a basic science background suitable for pursuit of this dual degree. Students also are expected to meet minimum requirements for admission to the graduate program in MCD Biology. Adequate undergraduate preparation consists of successful completion of basic courses on cell and molecular biology. Any student deemed deficient in either area will be required to take Molecular Cell Biology I and II (MCDB 3135 and 3145) after enrollment. Students will be required to apply to both programs, with APPM the primary one. Subject to joint recommendation and approval by APPM and MCDB, incoming students will be admitted to this dual degree program as a regular part of the applied mathematics recruitment process.

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## Art and Art History

The Department of Art and Art History offers the bachelor of arts in art history and in art practices and the bachelor of fine arts in art practices.

The undergraduate degree in art history emphasizes knowledge and awareness of:

- the major artistic monuments of the world in a historical context;
- varied methodologies used to study art historically; and
- artistic media and techniques.

In addition, students completing the degree in art history are expected to acquire the ability and skills to:

- relate individual monuments to their historical and cultural context by identifying technique, style and subject matter;
- interpret historical and critical information about works of art, artists and related issues; and
- organize and communicate concepts and data pertaining to the history of art effectively in written and oral form.

The undergraduate degree in art practices emphasizes knowledge and awareness of:

- the significance of the major monuments in art history, with an emphasis on contemporary art;
- at least one discipline of studio art;
- related critical issues in studio practice; and
- a wide range of stylistic approaches.

In addition, students completing a degree in art practices are expected to acquire the ability and skills to:

- analyze their own works of art in terms of form and content;
- interpret the work of others;
- execute ideas in one or more artistic media;
- demonstrate artistic ability and technical proficiency in one chosen medium; and
- communicate in verbal and written form the particular conceptual and perceptual attitudes and stances of their own artistic production.

**Course codes for these programs are ARTS, ARTF and ARTH.**

### Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics

### • **Art and Art History**

- Asian Languages and Civilizations
- Asian Studies
- Astrophysical and Planetary Sciences
- Atmospheric and Oceanic Sciences
- Behavioral Genetics
- Biological Sciences
- British and Irish Studies
- Central and East European Studies
- Chemistry and Biochemistry
- Classics
- Cognitive Science Studies
- Comparative Literature
- Computer Science
- Distributed Studies

## Bachelor's Degree Program(s)

### Bachelor of Arts (Art History)

(39 credit hours in the major)

#### Required Courses and Semester Credit Hours

- ARTS 1010 and 1020 Introduction to Studio Art—6
- ARTH 1300 and 1400 World Art Studies 1 and 2—6
- ARTH 4919 BA Art History Seminar—3
- 3000-level art history courses—9
- 4000-level art history courses—12
- ARTS or ARTH electives—3
- Any ARTS or ARTH course (upper or lower division) or three hours of fourth semester or higher foreign language.

**Distribution Requirements:** Complete at least six hours at the 3000 or 4000 level in each of three areas: Ancient and/or African/American/Asian/Australian, Medieval and/or Early Modern (a.k.a. Renaissance and Baroque) and Modern and/or Contemporary. Students must take at least one course in African, American, Asian or Australian art at the 3000 or 4000 level.

#### Graduating in Four Years with a BA in Art History

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress toward a BA in art history, students should meet the following requirements:

- Declare the major by the beginning of the second semester.
- By the end of the third semester, complete lower-division studio courses, lower-division art history courses and two classes in upper-division art history.
- By the end of the sixth semester complete up to 32 credit hours in the major.

#### Minor Program

A minor is offered in Art History. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school. For more information see [cuart.colorado.edu](http://cuart.colorado.edu).

### Bachelor of Arts (Art Practices)

(39 credit hours in the major)

A major in the Department of Art and Art History with a minimum of 30 hours of ARTS/ARTH and/or transfer credit hours and successful portfolio review are required for the admission into the BFA program.

#### Required Courses and Semester Credit Hours

- ARTS 1010 and 1020 Introduction to Studio Art—6
- ARTH 1300 and 1400 World Art Studies 1 and 2—6
- Two 2000- level courses in area of emphasis—6
- Any two upper-division art history courses—6

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

- Upper-division studio emphasis (minimum)—12
- ARTS or ARTH electives—3

## Graduating in Four Years with a BA in Art Practices

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress toward a BA in studio arts, students should meet the following requirements:

- Declare major by the beginning of the second semester.
- Complete ARTS 1010 and 1020 Introduction to Art, two level-1 studio classes and lower-division art history courses by the end of the third semester.
- Complete 30–36 credit hours in the major by the end of the sixth semester.

## Bachelor of Fine Arts (Art Practices)

(63 credits toward the major)

Students must present and pass a portfolio review to be eligible for the BFA degree (a minimum of 30 ARTS/ARTH credit hours is required to apply).

### **Required Courses and Semester Credit Hours**

- ARTS 1010 and 1020 Introduction to Studio Art—6
- ARTH 1300 and 1400 World Art Studies 1 and 2—6
- Two 2000-level studio courses in area of emphasis—6
- Any two upper-division art history courses—6
- Upper-division studio emphasis (min.)—18
- ARTS or ARTH electives—18
- ARTS 4117 BFA Seminar—3

*NOTE: BA/BFA candidates must complete 12 upper-division hours in the major on the Boulder campus.*

### **Required Studio Courses for Art Practices Majors**

- Painting and drawing majors must take any sequence of courses culminating in ARTS 4002 Drawing 4 or ARTS 4202 Painting 4.
- Ceramics majors must take ARTS 4085 Ceramics 4 and ARTS 4095 Special Topics in Ceramics.
- Printmaking majors are not required to take ARTS 1003 and may register for ARTS 3403, ARTS 3413 and ARTS 3423 as sophomores.

## Graduating in Four Years with a BFA in Art Practices

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress toward a BFA in studio arts or divisional studio arts, students should meet the following requirements:

- Declare the major by the beginning of the first semester, freshman year.

### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

- Complete ARTS 1010 and 1020, ARTH 1300 and 1400, 9 credit hours of lower-division studio, two 2000-level courses and one lower-division or upper-division studio or art history course by the end of the third semester (27 credit hours).
- Apply for the BFA in the fourth or fifth semester, with a minimum of 30 hours in the major.
- Complete up to 48 credit hours in the major by the end of the sixth semester.

## Honors

Students may graduate with departmental honors. Those interested in pursuing this program should contact the Honors Department and/or the Department of Art and Art History honors representative as early as possible. The minimum GPA requirement is 3.300 overall and 3.500 in the major. Students may take Art Practices or Art History Honors Thesis to complete individual work.

## Program Fees

Each course in the department has a program fee calculated at \$75 per lecture or seminar course and \$225 per studio course.

## Special Programs

**The CU Art Museum.** The CU Art Museum is a cultural gateway to the University of Colorado Boulder, facilitating engagement with larger societal issues through a greater understanding of the arts in a global context. The CU Art Museum is committed to enhancing understanding and appreciation of the visual arts within the academic community and among regional, national and international audiences. It provides access to art of the highest quality through exhibitions, publications and related educational events that reflect diversity, critical thinking and creative research. The museum also facilitates student training in museum practices. As a collecting institution, the CU Art Museum promotes the excellence, preservation, scholarly interpretation, exhibition and growth of its comprehensive permanent collection, which includes artworks from numerous time periods, artistic traditions and cultures. The new 25,000-square-foot CU Art Museum contains five galleries including permanent collection galleries, changing exhibition galleries and a video gallery. The CU Art Museum also includes a collections study center, allowing students, faculty and researchers the opportunity to schedule appointments to view, research and study works in its permanent collection.

**The CU Art Museum's Permanent Collection.** The Permanent Collection of the CU Art Museum contains over 6,000 works of art. The collection includes works from numerous time periods and cultures including ancient Greek pottery, Roman Glass, ancient Iranian pottery, Southwestern and South American santos, Southeast Asian pottery, African sculpture, Old Master works on paper, British 18th century prints, 19th and 20th century American prints and paintings, Japanese *ukiyo-e* prints, 19th century photography, Pop art, Minimalist works on paper and modern and contemporary ceramics, sculpture, works on paper, paintings, photography, video and new media art.

**Visiting Scholar Program.** This program is organized to explore the discipline of art history—its cultural connections, methodological pursuits and its changing nature—by focusing extensively on the research and insights of individual academic experts. Three to five highly regarded art historians and/or art critics speak at a public lecture, presenting current research and published papers. During their week-long visit they work closely with students enrolled in the Visiting Scholar Seminar.

**Visiting Artist Program.** Artists of national and international reputation interact with graduate and advanced undergraduate students and discuss their studio work at seminar meetings. Artists present a public lecture during their visit, providing continuous input of significant developments and a comprehensive view of contemporary issues in the arts.

**Visual Resources Center (VRC).** The mission of the VRC is to provide and facilitate access to images, imaging and related information resources for teaching and research in the Department of Art and Art History. This includes: 1) a departmental image collection and support for other important image resources; 2) resources, training and support in digital imaging and image presentation software; and 3) equipment for use in creative work, documentation and classrooms within the department. The digital image collection contains works by faculty, MFA thesis recipients, visiting artists and other contemporary and historical works. Digital imaging resources include slide and flatbed scanning stations, with training available in digitization standards and best practices. VRC equipment includes laptops, data projectors, digital SLR cameras, video cameras, tripods and other equipment for use in the department. The VRC also circulates its collection of DVDs containing lectures and interviews from the department's Visiting Artist Program. More information is available at [cuart.colorado.edu/resources/vrc](http://cuart.colorado.edu/resources/vrc).

## Concurrent Bachelor's/Master's Program

### Concurrent BA/MA Degree in Art History

This program is open only to students enrolled in the BA art history degree program at the University of Colorado Boulder.

It is expected that the BA/MA program be completed within five years. Both degrees, BA and MA, are awarded simultaneously upon meeting all the requirements for each degree. Six credits (two courses) may be shared between the two programs: 1) one course outside the Department of Art and Art History, at the 3000 level or above; 2) ARTH 6929 Theories of Art History.

There is a formal application process with letters of recommendation, statement of intent, transcripts, GRE scores and a writing sample, as required for the two-year MA program. Students must have a minimum overall GPA of 3.00 and a GPA of 3.60 or above in the major of art history at the time of application. They take the GRE and formally apply to the graduate program during the second semester of their third (junior) year and begin taking graduate courses in the first semester of their fourth (senior) year. By the end of the fourth year, students must complete the language requirement of at least three progressive semesters at the college level or above, in a language appropriate to their studies.

During the second semester of their senior year, students should select a thesis advisor from among the art history faculty. This faculty member will direct the student's thesis and chair the student's mid-program review committee. Students will be evaluated through a mid-program review during the last two weeks of April of their senior year. This is the equivalent of the first year review in the two-year MA program. It focuses on a review of student course work and performance, on selecting the major and minor areas of study in preparation for the comprehensive exam (see below) and on selection of a thesis topic.

Students will register for thesis hours during the second semester of their fifth year, pending successful completion of the comprehensive exam and approval of their thesis abstract. They will take the comprehensive exam during the first week of the second semester of the fifth year. Upon the successful completion of their comprehensive exam, they will obtain approval of their thesis abstract from their thesis committee ("pre-thesis review") by the end of the second week of the second semester of their fifth year.

In all other details, the graduate portion of the BA/MA program is identical to the two-year MA program, as stipulated above.

### Concurrent BA/MA Degree in Film Studies

Only currently enrolled University of Colorado Boulder students may be considered for admission to the program. Transfer students must complete at least 24 credit hours as a degree-seeking student before applying to the program. Students enrolled in this BA/MA

program cannot pursue a double major or double degree of any kind. Students must have a minimum overall undergraduate GPA of 3.300 and have completed all MAPS deficiencies.

The application deadline is the second Monday in October, in the fall semester of the applicant's junior year. Admission to the program occurs during the second semester of the junior year. Admitted students will secure the sponsorship and advisory commitment of a film studies faculty member at the rank of assistant professor or higher. They will also submit a one-page prospectus detailing a possible research topic for an MA thesis. In addition, they must successfully complete a writing assignment in the form of a 10–12 page analytical/theoretical or historical argument paper on a film determined by the faculty.

Students start taking graduate-level courses during their senior year and in the second semester of their senior year they go through a mid-program review. In the first semester of the fifth year, they fulfill their theory and critical methodology requirement by taking ARTH 6929 Theories of Art History and will also take two ARTF courses with a critical focus. They will also present and get approval of their thesis prospectus, constitute their thesis committee and fulfill 3 of the required thesis hours. During the second semester of the fifth year, they will take three ARTF critical focus courses and fulfill the remaining 3 hours of thesis credit. Students will complete and submit their theses (in fulfillment of all graduate college requirements) by the end of the fifth year. Once the principal advisor has accepted the thesis, the final requirement will be an oral examination focusing on its subject matter.

It is expected that the BA/MA program be completed within five years. Both degrees, BA and MA, are awarded simultaneously upon meeting all degree requirements. Six credits (two courses) may be shared between the two programs.

## Graduate Degree Program(s)

### Graduate Study in Art and Art History

The master of arts degree is offered in art history, and the master of fine arts degree is offered in creative arts. In addition, two concurrent BA/MA degree programs are offered: one in art history and the other in film studies, in collaboration with the Film Studies Program. The department, in conjunction with the Leeds School of Business, offers a dual degree program in which both MBA and MFA (or MA) degrees are awarded.

### Master of Arts Degree (Art History)

**Prerequisites.** The following are required for admission to the graduate program:

1. A baccalaureate degree from an approved college with a cumulative grade point average of at least 3.00.
2. A score of 153 or higher on the verbal section and an above average score (at least 60 percent below) on all other sections of the Graduate Record Examination.
3. A broad general background in history, literature and philosophy.
4. An extensive background in art history.
5. Applicants to the master's program in art history are asked to write a 750 to 1,000 word essay in Part II, number 6 on the application form. Applicants are also required to provide a writing sample of approximately 10–20 pages. Typically, this is a paper submitted for an undergraduate class.

**Duration.** It is expected that the MA program be completed within two years.

**Examinations.** The comprehensive exams are given during the second year of study to measure graduate student knowledge of art history at the master's degree level. The exams

consist of essay questions.

## Degree Requirements: Plan I (Thesis Option)

A minimum of 30 semester hours must be completed, of which 21 must be completed in residence on the Boulder campus. Requirements and regulations include:

### Courses

- ARTH 6929 Theories of Art History must be taken during the first semester. This course may be taken twice for up to 6 credit hours.
- ARTH 5949 Visiting Scholars Seminar must be taken during the second semester when offered. Students are encouraged to repeat this course.
- At least one 3-credit, 5000- or 6000-level course in four of the following areas of art history: medieval, early modern and Renaissance, art of the Americas, Asian art, modern art, contemporary art and critical theory/museology. When available, ancient art may constitute an area.
- At least one 3-credit, 3000-level or above course in a department outside the Department of Art and Art History, which supplements the major or minor areas of specialization.
- Comprehensive exam (see below).
- ARTH 6959 Master's Thesis: 4–6 credit hours (see below).
- No more than 9 hours of independent study credit may be applied toward the MA degree.
- *Pass/fail* courses do not count toward the MA degree.
- ARTH 5087 Selected Topics courses do not count toward the MA degree.
- A limit of 9 hours of transfer credits may be applied toward the MA degree.
- Students are encouraged and expected to attend undergraduate lecture courses as needed to prepare themselves for graduate seminars and for the comprehensive exam.
- Language requirement (see below).

## Degree Requirements: Plan II (Project Option)

Same requirements as above with the following exceptions:

- A minimum of 36 semester hours is required.
- The project replaces the thesis.

**Advisor.** Upon admission, students are assigned a faculty advisor. Students should remain in close contact with the advisor as regards course registration and program requirements. At the end of the second semester of full time study, students should select a thesis advisor (or project advisor) from among the art history faculty.

**First Year Review.** During the last two weeks of April, students are evaluated during the first year review. It focuses on a review of student course work and performance, on selecting the major and minor areas of study in preparation for the comprehensive exam (see below) and on selection of a thesis topic.

**Comprehensive Exam.** This exam is given to measure the graduate student's knowledge of art history at the MA level. It consists of essay questions pertinent to the student's major and minor areas of study. It is given once per year during the second week of October. The comprehensive exam consists of two essays: a two-hour essay in the major area and a 90-minute essay in the minor area. Students must pass the comprehensive exam in order to be eligible to register for thesis hours.

**Thesis Abstract** (“pre-thesis review”). By the end of the semester preceding the student's thesis semester, the student will prepare an abstract of approximately one-two typewritten pages, with attached bibliography, outlining the thesis topic and method of inquiry. The thesis abstract must be approved by the student's pre-thesis review committee in order for the student to register for thesis hours.

**Thesis.** This should demonstrate scholarly research and writing in art history, should be based on independent study and analysis and should represent the equivalent of 4–6 credit hours. In most cases, the master's thesis is the equivalent of a 40–50 page paper, exclusive of endnotes, bibliography and illustrations.

**Thesis Defense.** In consultation with the thesis advisor, the student will select a thesis committee that consists of not less than three members of the art history graduate faculty, including the thesis advisor. The student will then schedule the thesis defense and prepare all necessary paperwork. The thesis must be submitted to all members of the thesis committee at least one week before the thesis defense. Graduate School guidelines (“specifications”) must be used to prepare the MA thesis. Upon successful defense, the thesis is submitted to the Graduate School in the electronic form specified by the Graduate School, in accordance with the Graduate School's deadlines. A hard copy of the signature page, complete with the thesis committee members' signatures, is submitted to, and remains in, the Graduate School.

**Language Requirement.** The candidate for the MA degree in art history is required to demonstrate an adequate reading knowledge of French, German or another appropriate language before receiving the degree by satisfactory course work equal to 3 progressive semesters at the college level or above or by passing an approved language examination. Language examinations may be arranged with one of the art history faculty on an individual basis.

## Master of Fine Arts Degree (Art Practices)

The art practices areas include ceramics, painting and drawing, IMAP (Interdisciplinary Media Arts Practice: photography, video, digital arts and integrated arts), film (in collaboration with the Film Studies Program), printmaking and sculpture.

**Duration.** It is expected that the MFA program be completed within two-and-a-half years.

**Prerequisites.** The following are required for admission to the graduate program:

- Bachelor's degree from an approved college or school of art with a minimum grade point average of 2.750.
- Minimum of 34 credit hours of acceptable work in art; 12 credits in fine arts history is preferred.
- Submission of a portfolio, including 20 images, representing creative work, a written statement of goals and objectives and an artist statement.
- Applicants interested in IMAP-Video or film track should submit their portfolios on DVDs, for screening by the IMAP and film committees.

**Degree Requirements.** A minimum of 54 credit hours (of which 36 credit hours must be taken in residence on the Boulder campus) of acceptable graduate work must be completed beyond the bachelor's degree, with the following requirements:

### *Required Courses and Semester Credit Hours*

- Home studio (major area)—min. 12

- Electives (student and non-studio; up to 6 credits may be taken in an allied field, at the 3000 level and above)—21
- Art history, theory or film critical studies—9
- Visiting Artist Seminar—3
- Graduate Art Seminar—3
- Thesis—6

**Film Track MFA.** ARTF 5030 Visiting Filmmakers Seminar is allowed as a substitute for ARTS 5118 Visiting Artist Seminar.

**Advisor.** Upon admission, students are assigned a tenured or tenure-track faculty member to serve as an academic advisor in the student's area of purpose.

**First Semester and First Year Reviews.** In consultation with the advisor, the student will establish the membership of his or her committee, consisting of a minimum of three faculty members and one second-year graduate student, and schedule the first semester review; its purpose is to give feedback to the student with regard to progress toward the degree. At the end of the first year, the committee is convened for a first year review; its purpose is to evaluate the student's progress in the program and to determine if she or he will continue in the program.

**Pre-thesis Review.** At the end of the semester preceding the graduating semester, the pre-thesis review takes place. Its purpose is for the graduate student to present the focus of his or her written thesis and exhibition, to review and evaluate the student's progress in the program, and to determine if the student is ready to register for thesis hours.

**Thesis/Exhibition/Defense.** The MFA thesis defense must be conducted while the student's work is on view during the MFA Exhibition. The MFA thesis must be submitted in its final draft form to all the thesis committee members two weeks prior to the scheduled thesis defense. After the defense, two copies of the thesis, with the required signatures on the signature sheet, must be turned into the Graduate Program Coordinator. One of these is catalogued in the Norlin Library.

## Transfer of Credit

Procedures for transferring credit from other graduate programs are governed by the regulations of the Graduate School. Transfer credit, not to exceed 18 semester hours for studio arts or nine semester hours for art history, must first be approved by the students's academic advisor, associate chair and the Graduate School.

## Change in Area of Concentration

Students who wish to change their area of concentration after admission must petition the art practices curriculum committee.

## Graduation

Before registering for ARTS 6957 MFA Thesis, students must have a pre-thesis review with their faculty advisor and thesis committee. Studio arts thesis work must take the form of original creative work of acceptable professional standards. The oral defense exam must be done in conjunction with the thesis exhibition, and the candidate must provide a critical written statement (creative thesis) concerning the work. The candidate's written creative thesis is housed with the Art and Architecture Collection in Norlin Library, and 10–15 digital images (representing work in the exhibition) become part of and are housed with the departmental Visual Resources Center. The committee may request a contribution of original work.

## Dual Degree Programs

## Dual MFA (MA)/MBA Degree

To support the university's mission of advancing knowledge across disciplines, and in recognition that business education and training has relevance to many academic fields, the Leeds School of Business and Department of Art and Art History endorse a dual degree program in which both a Master of Business Administration and a Master of Fine Arts (or Master of Arts in art history) is awarded to those students who satisfy the requirements outlined below. This three-year program offers students the opportunity to earn both degrees together in less time than if the degrees were earned sequentially.

**Admissions Process and Degree Requirements.** Students must apply to and meet the application requirements for each program separately. Admitted students spend their first year in one of the two programs, the second year in the other program and the third year is a combination of the two. MFA students are required to complete 43 hours of MBA course work and 45 hours of AAH course work. MA (art history) students are required to complete 43 hours of MBA course work and 30 hours of art history course work. Both degrees must be awarded simultaneously.

Note: residents of Western states, including Alaska and Hawaii, may be eligible for in-state tuition for this dual degree program. Please see the Western Regional Graduate Program information sheet (download the WRGP handout) at [wiche.edu.wrgp](http://wiche.edu.wrgp) or contact a tuition classification officer in the Office of the Registrar (**303-492-0907** or [tuit.class@registrar.colorado.edu](mailto:tuit.class@registrar.colorado.edu)).

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## Asian Languages and Civilizations

Offering undergraduate and graduate degrees in Chinese and Japanese, two certificate programs, and six language programs, the Department of Asian Languages and Civilizations provides several opportunities to further a student's education beyond the classroom. Students interested in Chinese or Japanese are encouraged to broaden their career options through a double major, combining either language with another field of interest. Likewise, students in programs outside the department can pursue one of our certificates as a way of broadening their career options. Recent graduates have found positions in such fields as government service, international business and secondary-school teaching; others have gone on to graduate study in Chinese or Japanese.

Languages offered by the department include Arabic, Chinese, Farsi, Hindi/Urdu, Japanese and Korean. Before registering for specific courses, students should consult with a departmental advisor concerning appropriate placement in language classes beyond the beginning level.

**Course codes for these programs are ARAB, CHIN, FRSI, HIND, JPNS and KREN.**

### Bachelor's Degree Program(s)

## Undergraduate Study in Asian Languages and Civilizations

Undergraduate students may choose to major or minor in either Chinese or Japanese. In either case they receive a thorough grounding in the modern language, an introduction to the classical language and literature and a broad familiarity with the literary and cultural history of the selected area.

### Bachelor of Arts in Chinese

The undergraduate degree in Chinese emphasizes knowledge and awareness of:

- Chinese literary history, focusing on selected canonical or widely recognized works;
- the historical and cultural contexts in which particular works were written;
- critical approaches to the study of Chinese language and civilization; and
- the challenges, deficiencies and possible gains inherent in the process of translating from one language to another.

In addition, students completing the degree in Chinese are expected to acquire the ability and skills to:

- read modern Chinese at a level at which critical literary analysis can be performed;
- read classical Chinese, with the aid of appropriate reference works, at the level at which the

#### □ Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics
  - Art and Art History

#### • Asian Languages and Civilizations

- Asian Studies
- Astrophysical and Planetary Sciences
- Atmospheric and Oceanic Sciences
- Behavioral Genetics
- Biological Sciences
- British and Irish Studies
- Central and East European Studies
- Chemistry and Biochemistry
- Classics
- Cognitive Science Studies
- Comparative Literature
- Computer Science
- Distributed Studies

text may begin to be appreciated for its literary value;

- speak and comprehend Mandarin sufficient for all situations in daily life and for a basic level of academic conversation;
- analyze and interpret literary texts in terms of style, structure, character, themes and use of allusion; and
- communicate such interpretations competently in standard written English.

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below. CHIN 1010, 1020 and 2110 do not count toward the maximum of 45 credits in the major department.

The major program for the BA degree in Chinese requires successful completion of 30 credit hours, of which at least 18 credit hours must be at the upper-division level.

**Required Courses and Semester Credit Hours:**

CHIN 2120 Intermediate Chinese 2—5

CHIN 3110 Advanced Chinese 1—5

CHIN 3120 Advanced Chinese 2—5

CHIN 4210\* Introduction to Classical Chinese—3

The remaining 12 credit hours may be chosen from the courses listed below; 3 of the remaining credit hours may be satisfied by courses focusing wholly or substantially on China offered in other departments, subject to approval by the Chinese Undergraduate Advisor, and in consultation with the Department Chair.

- CHIN 1012 Introduction to Chinese Civilization (*Core: Human Diversity*)—4
- CHIN 1051 Masterpieces of Chinese Literature in Translation (*Core: Lit & Arts*)—3
- CHIN 2441 Film and the Dynamics of Chinese Culture (*Core: Lit & Arts*)—3
- CHIN 3200 Advanced Writing Topics on Chinese & Japanese Literature and Civilization (*Core: Upper Division Written Communication*)—3
- CHIN 3311 The Dao and the World in Medieval China—3
- CHIN 3321 Culture and Literature of Ancient China—3
- CHIN 3331 Culture and Literature of Late Imperial China—3
- CHIN 3334 Chinese Narrative Tradition—3
- CHIN 3341 Literature and Popular Culture in Modern China (*Core: Lit & Arts*)—3
- CHIN 3342 Literary Culture in Contemporary China—3
- CHIN 3351 Reality and Dream in Traditional Chinese Literature (*Core: Lit & Arts*)—3
- CHIN 3361 Women and the Supernatural in Chinese Literature—3
- CHIN 3371 Topics in Chinese Film—3, *taught in English*
- CHIN 4110\* Advanced Readings in Modern Chinese 1—3
- CHIN 4120\* Advanced Readings in Modern Chinese 2—3
- CHIN 4220\* Readings in Classical Chinese—3
- CHIN 4300 Open Topics—3

Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

### CHIN 4750 Daoism—3

- CHIN 4900 Independent Study—1—3
- CHIN 4950 Honors Thesis—3

*\*Transfer credit for these courses, from Universities in this country or abroad, will be considered only in exceptional cases; normally, no credit toward the major will be given for these courses unless taken in residence.*

## Graduating in Four Years with a BA in Chinese

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in Chinese, students should meet the following requirements:

- Declare the major in the first semester.
- Students wishing to major in Chinese and who have no prior knowledge of the language should begin the required major courses no later than the sophomore year.
- Students must consult with a major advisor to determine adequate progress toward completion of the major.

## Minor Program in Chinese

A minimum of 18 credit hours must be taken in Chinese language and literature courses, including a total of 13 upper-division credit hours; these credits will include CHIN 2120, 3110, 3120 and at least one additional upper-division 3 credit CHIN course. *Pass/fail* work and CHIN 3200 will not apply to the minor. Students are allowed to apply no more than 9 credit hours, including 6 upper-division hours, of transfer work toward a minor. For more information, please see the Department of Asian Languages and Civilizations Undergraduate Advisor.

## Bachelor of Arts in Japanese

The undergraduate degree in Japanese emphasizes knowledge and awareness of:

- the outlines of the history of Japanese literature from the Nara period to the present;
- the outlines of Japanese historical and cultural development; and
- appropriate research strategies for Japanese language, literature and culture.

In addition, students completing the degree in Japanese are expected to acquire the ability and skills to:

- speak and comprehend Japanese sufficiently for daily life;
- read, interpret and analyze modern written texts;
- compose letters and simple compositions;
- use cultural awareness and understanding to function appropriately in a range of social situations; and
- communicate the results of research in English.

In addition, students target one or more of the following goals:

- read and comprehend classical Japanese, with the aid of appropriate reference works;
- translate a range of Japanese texts into English; and

### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

- understand and analyze the structure of the Japanese language and communication patterns in Japanese.

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below. JPNS 1010, 1020 and 2110 do not count towards the maximum of 45 credits in the major department.

The major program for the BA degree in Japanese requires successful completion of 30 credit hours, of which at least 18 credit hours must be at the upper-division level.

**Required Courses and Semester Credit Hours:**

JPNS 2120 Intermediate Japanese 2—5

JPNS 3110 Advanced Japanese 1—5

JPNS 3120 Advanced Japanese 2—5

The remaining 15 credit hours may be chosen from the courses listed below; six of the remaining credit hours may be satisfied by courses focusing wholly or substantially on Japan offered in other departments, subject to approval by the Japanese Undergraduate Advisor.

- JPNS 1012 Introduction to Japanese Civilization (*Core: Human Diversity*)—4
- JPNS 1051 Masterpieces of Japanese Literature in Translation (*Core: Lit & Arts*)—3
- JPNS 2441 Film and Japanese Culture—3
- JPNS 2811 Heroes and the Supernatural: Word and Image in Old Japan—3
- JPNS 3200 Advanced Writing Topics on Chinese & Japanese Literature and Civilization (*Core: Upper Division Written Communication*)—3
- JPNS 3331 Business Japanese—3
- JPNS 3441 Language and Japanese Society—3
- JPNS 3511 From Rebellion to Calamity: Contemporary Japanese Literature in Translation—3
- JPNS 3811 Love, Death and Desire: Classical Japanese Literature in Translation—3
- JPNS 3821 Monsters, Monks and Mayhem: Medieval Japanese Literature in Translation—3
- JPNS 3831 The Floating World of Play and Passion: Early Modern Japanese Literature in Translation—3
- JPNS 3841 Tradition and Transgression: Modern Japanese Literature in Translation—3
- JPNS 3851 Studies in Japanese Popular Culture—3
- JPNS 3861 Imagining the Samurai in Japanese Literature and Culture—3
- JPNS 3871 Horror and the Macabre in Japanese Literature, Film, Culture—3
- JPNS 3881 Environment, Nature and Disaster in Japanese Literature and Culture—3
- JPNS 3891 Travel/Travel Writing in Japanese Literature and Culture—3
- JPNS 4030 Japanese Syntax—3
- JPNS 4050 Japanese Sociolinguistics: Japanese Language and Society—3
- JPNS 4070 Second Language Acquisition of Japanese—3
- JPNS 4080 Kanji in Japanese Orthography—3

- JPNS 4110\* Advanced Readings in Modern Japanese 1—3
- JPNS 4120\* Advanced Readings in Modern Japanese 2—3
- JPNS 4150 Japanese to English Translation: Theory and Practice—3
- JPNS 4210 Contemporary Japanese 1: Current Issues—3
- JPNS 4220 Contemporary Japanese 2: Current Issues—3
- JPNS 4300 Open Topics: Readings in Japanese—3
- JPNS 4310\* Classical Japanese 1—3
- JPNS 4320\* Classical Japanese 2—3
- JPNS 4400 Critical Theory and Japanese Literature and Culture—3
- JPNS 4900 Independent Study—1—3
- JPNS 4950 Honors Thesis—3

*\*Transfer credit for these courses, from Universities in this country or abroad, will be considered only in exceptional cases; normally, no credit toward the major will be given for these courses unless taken in residence.*

## Graduating in Four Years with a BA in Japanese

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in Japanese, students should meet the following requirements:

- Declare the major in the first semester.
- Students wishing to major in Japanese and who have no prior knowledge of the language should begin the required major courses no later than the sophomore year.
- Students must consult with a major advisor to determine adequate progress toward completion of the major.

## Minor Program in Japanese

A minimum of 18 credit hours must be taken in Japanese language and literature courses, including a total of 13 upper-division credit hours; these credits will include JPNS 2120, 3110, 3120 and at least one additional upper-division 3 credit JPNS course. *Pass/fail* work will not apply to the minor. Students are allowed to apply no more than 9 credit hours, including 6 upper-division hours, of transfer work toward a minor. For more information, please see the Department of Asian Languages and Civilizations Undergraduate Advisor.

## Courses Taught in English

The department offers several courses in translation. These courses require no previous study of the language, history or culture of the area involved and are open to all interested students, whether majors in this department or not. They provide excellent introductions to Chinese or Japanese literary and cultural history.

CHIN 1051 is a core curriculum course in the area of literature and the arts that focuses on the great books of China, both ancient and modern. CHIN 2441 and CHIN 3371 concentrate on film and culture. CHIN 3311, 3321, 3331 and 3341 concentrate, respectively, on medieval, ancient, late imperial and modern Chinese culture, while CHIN 3342 focuses on literary culture in contemporary China. CHIN 3334 focuses on the major works of Chinese narrative tradition from the fourth to the nineteenth century. CHIN 3351 and 3361 are devoted to issues in fiction and on women and the supernatural. CHIN 4750 (cross-listed with RLST) focuses on the historical

development of Daoism.

CHIN 1012 provides an interdisciplinary introduction to the history, literature, religion and art of China. JPNS 1012 provides an interdisciplinary introduction to the history, literature, religion and art of Japan. Both of these are core curriculum courses in the area of human diversity.

CHIN/JPNS 3200 is a core curriculum course in the area of written communication that provides an introduction to the academic study of Chinese and Japanese literature and culture with a focus on writing skills in English through a survey of standard academic writing conventions.

JPNS 1051 is a core curriculum course in the area of literature and the arts that focuses on the great books of Japan, both ancient and modern. JPNS 2441 focuses on film and culture, JPNS 2811 explores illustrated fiction and narrative painting of twelfth–through–nineteenth century Japan, JPNS 3441 explores language and society, JPNS 3511 explores post-1945 Japanese literature with attention to their relationship to traditional arts and global trends, while JPNS 3851 studies popular culture. JPNS 3811, 3821, 3831 and 3841 focus, respectively, on classical, medieval, early modern and modern Japanese literature. JPNS 3861 explores the rich history of the imagination of the samurai in Japan across multiple genres from the earliest times to the present, while JPNS 3871 explores Japanese horror texts from both the pre-modern and modern eras in a variety of genres. JPNS 3881 explores the significance of the environment, nature and disaster in Japanese literature and culture through readings in a variety of genres. JPNS 3891 explores literary and cultural texts of the modern and contemporary eras, particularly those that treat various aspects of travel and travel literature/writing. JPNS 4400 examines Japanese literary and cultural texts as developed by Japanese and non–Japanese thinkers and academicians.

## Study Abroad

The department strongly encourages all students to participate in Study Abroad to enrich their studies in our programs. The University of Colorado is affiliated with Study Abroad programs throughout the world, including Beijing, Nanjing and East China Normal Universities in China and National Chengchi University in Taiwan; there are also Study Abroad programs in India, Jordan, Morocco, and Korea. Additionally, the department has exchange programs with Kansai Gaidai, Sophia University and Akita International University in Japan. For further information, contact the Office of International Education.

## Concurrent Bachelor's/Master's Program

### BA/MA in Asian Languages and Civilizations

The concurrent BA/MA degree program in Asian Languages and Civilizations offers a challenging and focused academic experience for exceptional students who demonstrate the ability to express their ideas clearly, both orally and in written form, using standard English. Highly motivated students who are accepted into the program begin graduate work no later than the senior year and earn both the BA and MA in five years. Students must have a minimum 3.25 GPA for all courses taken at CU-Boulder and should have completed all MAPS and core requirements by the end of the sophomore year.

Application is open only to CU-Boulder students. Students must complete a written application, which will include a statement of purpose, a writing sample and three letters of recommendation, at least one from a full-time member of the Chinese or Japanese faculty, by September 1 of their junior year (or, in exceptional circumstances, during a student's senior year).

Applications will be reviewed by the graduate faculty of Chinese or Japanese. For specific requirements and the application form, please contact the Department of Asian Languages and Civilizations graduate advisor.

## BA/MSIB Program (Bachelor of Arts in Chinese or Japanese/Master of International Business)

The Department of Asian Languages and Civilizations, in conjunction with the Business School at the University of Colorado Denver, offers a degree track in either Japanese or Chinese leading to accelerated admission to the UC Denver MSIB program. Students complete the standard requirements for the Japanese or Chinese major and the business minor in Boulder Leeds School of Business. The Leeds courses are counted toward prerequisites by the UC Denver Business School, allowing ALC graduates to enter the MSIB courses directly.

### Graduate Degree Program(s)

## Graduate Study in Asian Languages and Civilizations

Applicants to the graduate program in Asian Languages and Civilizations (Chinese or Japanese emphasis) should have successfully completed the equivalent of the undergraduate major in Chinese or Japanese language and literature with advanced competence in modern Chinese or Japanese, an introduction to classical Chinese or Japanese, an understanding of the interrelationship of Chinese or Japanese language and society and a familiarity with the history, major writers and works of Chinese or Japanese literature.

Foreign applicants must submit results from a TOEFL exam, no older than 2 years, with a minimum acceptable score of 560 (paper-based test) or 220 (computer-based test) or 83 (internet-based test). All applicants should have an undergraduate GPA of at least 3.00. Applicants with a GPA of less than 3.00 but at or above 2.50 may be admitted provisionally. The Chinese and Japanese graduate programs at CU have been selected for inclusion in the Western Regional Graduate Program (WRGP). Through the WRGP, graduate students who are residents of the 15 participating states may enroll in certain distinctive programs at public institutions on an in-state resident tuition basis. Please visit the department website ([alc.colorado.edu](http://alc.colorado.edu)) or contact the appropriate graduate advisor for additional information.

## Master's Program

The MA in Asian Languages and Civilizations offers specializations in Chinese or Japanese. All entering students in the Chinese program must take CHIN 5010 at the earliest opportunity. Students employed as teaching assistants also must take either CHIN/JPNS 5980 on methods of teaching Asian languages. Selection of courses beyond these are made in consultation with the graduate advisor. Prospective graduates will be required to present either 24 hours of approved coursework plus a Master's thesis (Plan I), or 30 hours of approved coursework without a thesis (Plan II). The 24 hours must be completed at the 5000 level or above. Up to six credits from other departments may be completed at the 3000 or 4000 level at the discretion of the department.

## PhD Program

**Prerequisites.** The PhD in Asian Languages and Civilizations offers specializations in Chinese or Japanese with concentrations in literary and/or cultural studies of either the premodern or modern periods. Academic preparation is expected in both classical and modern language. The department will evaluate all applications for admission based on previous academic achievements and on the quality of the writing sample.

All international students whose native language is not English must score at least 620 (paper-based test) or 260 (computer-based test) or 105 (internet-based test) on the Test of English as a Foreign Language (TOEFL) to be considered for admission. Graduate Record Examination (GRE) General Test scores are not mandatory for admission. However, applicants wishing to be considered for competitive university fellowships will be strongly encouraged to take the GRE general test and submit the scores.

**Language Requirement.** In addition to the requirements of the University of Colorado Graduate School for regular degree students, the department requires all entering students to have superior proficiency in the target language and broad general knowledge of the literary and cultural traditions of their region of concentration.

**General Requirements.** The PhD in Asian Languages and Civilizations will require a minimum of 45 credit hours in graduate courses numbered 5000 or above in Chinese or Japanese; some graduate or advanced undergraduate course work from related fields may also be included, in accordance with Graduate School rules. Some course work completed for the MA degree at CU or other similarly rigorous institutions may count toward the 45 credit hours required. PhD students may transfer to the department up to 21 hours of acceptable graduate-level credit. All PhD students must take at least 24 credit hours of graduate course work at the University of Colorado Boulder in addition to 30 credit hours of dissertation work beyond the course work required.

## Dual Degree Programs

### MA in Asian Languages and Civilizations with MA in either History or Religious Studies

The Department of Asian Languages and Civilizations also participates in a dual master's program with the Departments of History and Religious Studies. Students interested in exploring this option should contact the department for specific requirements.

## Certificate Program(s)

### Certificate in Middle Eastern and Islamic Studies

The region commonly referred to as the Middle East includes over 20 Arabic speaking countries, as well as Iran, Turkey, and Israel and spans Southwest Asia and North Africa. A culturally, religiously and linguistically diverse region, the Middle East today is one of the most geopolitically critical regions in the world. It is the birthplace of the three major monotheistic faiths, Judaism, Christianity and Islam; the home of medieval Islamic civilizations; and home to rich literary, architectural and religious traditions. Islam, a monotheistic faith that began in the Arabian Peninsula in the 7th century, is today practiced by over one billion people and is diversely expressed through a vast geographic, linguistic and cultural terrain, from West Africa to East Asia. The Certificate in Middle Eastern and Islamic Studies provides students the opportunity to formally explore the cultural, political and religious diversity of the Middle East and the Islamic worlds.

Students currently pursuing the requirements of the MEIS Certificate or interested in doing so should complete the Statement of Intent form. Students who have completed the requirements for the MEIS certificate and are graduating in December or May must complete the Program of Study form and the Certificate Completion form and submit them to the office of the certificate director, Haytham Bahooora, 215 Humanities, two months prior to graduation.

#### **Requirements**

The certificate requires a total of 19 credit hours to include both language and content courses.

- One year of either Arabic or Farsi language courses beginning at the intermediate level (2000 level) and earning a grade of C or better. Advanced Arabic language courses can also fulfill content course requirements.
- Students must complete nine additional credit hours (three upper-division courses), at least one of which must be a course designated ARAB. These nine credit hours may be selected from the list of approved content courses and are to be completed with a grade of C- or

better.

- As a certificate program with a focus on Islamic studies, at least one of the three content courses must have a specific focus on Islam and the Islamic world.
- Students should also consult with the Middle Eastern and Islamic Studies Certificate advisor annually and must fulfill the requirements for an undergraduate degree at CU-Boulder.

For a list of approved courses, see the Department of Asian Languages and Civilizations website [alc.colorado.edu](http://alc.colorado.edu).

## Certificate in South Asian Languages and Civilizations

South Asia—comprising India, Pakistan, Sri Lanka, Bangladesh, Nepal and Tibet—has emerged as a key center of economic, political and cultural power in the 21st century. South Asia in ancient times drove the economy of Central and Southeast Asia, exported a cosmopolitan Sanskrit literary culture and was the spiritual home of Hinduism and Buddhism. South Asia in medieval times was a major hub of global trade and the pride of a wide-ranging Persianate civilization. Its Mughal Empire was far more populous and wealthy than the Ottomans and Safavids combined. South Asia today is home to over 100 officially recognized languages and most of the world's major religious traditions. With some 500 million speakers, Hindi-Urdu is one of the most popular languages in the world, alongside Mandarin, English and Spanish. Hindi-Urdu boasts thriving contemporary literary and media cultures, and—with Bollywood—the world's largest and most influential film industry.

In the 21st century, international companies and government agencies are searching for employees with language skills in Hindi-Urdu and a broad understanding of South Asia. The Certificate in South Asian Languages and Civilizations is designed to help prepare CU students for these emerging careers.

### *Requirements*

The certificate requires a total of 19 credit hours to include both language and content courses.

- A fundamental component of the certificate is the study of Hindi-Urdu. Students must complete at least one year of Hindi-Urdu language courses beginning at the intermediate level (2000 level) and earning a grade of C or better. No other languages will count towards the certificate.
- Students must complete nine additional credit hours (three upper-division courses), at least one of which must be a course designated HIND. These nine credit hours may be selected from the list of approved content courses and are to be completed with a grade of C- or better.
- Students should also consult with the South Asian Languages and Civilizations Certificate advisor annually, and must fulfill the requirements for an undergraduate degree at CU-Boulder.

For a list of approved courses, see the Department of Asian Languages and Civilizations website [alc.colorado.edu](http://alc.colorado.edu).



[□](#) [General Information](#) [Programs of Study](#) **[Colleges & Schools](#)** [Admission](#) [Courses](#)

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## Asian Studies

The Center for Asian Studies offers a broad interdisciplinary undergraduate major and minor in Asian Studies as well as a Graduate Certificate in Asian Studies. In addition, a number of departments offer graduate training with an emphasis on Asia such as the Leeds School of Business which offers the Global Business Certificate: Asian Studies Tracks.

Students planning to major in Asian Studies may participate in study abroad programs with prior approval from the Asian Studies Program and the Office of International Education.

For additional information on the major program, see the Bachelor's Degree in Asian Studies below or contact Colleen Berry at [colleen.berry@colorado.edu](mailto:colleen.berry@colorado.edu) or **303-735-5224**.

**Course code for this program is ASIA.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Asian Studies

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below: 42 credits minimum, 18 of which must be upper division (College of Arts and Sciences minimum).

### *Required Courses and Semester Credit Hours*

## Asian Language

4 semesters of a single Asian language (12 to 20 credits)

- Arabic (sequence of three years offered)
- Chinese (sequence of four years offered)
- Farsi (sequence of four years offered)
- Hindi (sequence of three years offered)
- Japanese (sequence of four years offered)
- Korean (sequence of three years offered)
- Sanskrit and Tibetan are also available through Continuing Education

## Traditional Asian Civilizations

Students take any two of the following introductory courses, focusing on two different civilizations (East Asia, South Asia, West Asia); 6 credits minimum, lower division.

### East Asian Civilization

- CHIN 1012 Introduction to Chinese Civilization (3-4 credits)

### □ Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations

### • Asian Studies

- Astrophysical and Planetary Sciences
- Atmospheric and Oceanic Sciences
- Behavioral Genetics
- Biological Sciences
- British and Irish Studies
- Central and East European Studies
- Chemistry and Biochemistry
- Classics
- Cognitive Science Studies
- Comparative Literature
- Computer Science
- Distributed Studies

- HIST 1618 Introduction to Chinese History to 1644
- HIST 1708 Introduction to Japanese History
- JPNS 1012 Introduction to Japanese Civilization (3-4 credits)
- HIST 1438 Introduction to Korean History
- KREN 1011 Introduction to Korean Civilization
- RLST 2620 Religions of East Asia

### South Asian Civilization

- HIND 1011 Introduction to South Asian Civilization
- HIST 1518 Introduction to South Asian History to 1757
- RLST 2610 Religions of South Asia

### West Asian Civilization

- ANTH 1135 Exploring a Non-Western Culture: Mesopotamia 2nd Millennium BC
- ARAB 1011 Introduction to Arab and Islamic Civilizations
- ARAD 2231 The World of Classical Arabic Literature
- FRSI 1011 Introduction to Persian Civilization
- HIST 1308 Introduction to Middle Eastern History
- RLST 2202 Foundations of Islamic Traditions

## Modern Asian Civilizations

Students take one course; 3 credits, lower division or upper division.

### ANTH (all modern Asian anthropology courses)

- ANTH 1100 Exploring a Non-Western Culture: The Tamils
- ANTH 1105 Exploring a Non-Western Culture: Tibet
- ANTH 1135 Exploring a Non-Western Culture: Japan
- ANTH 1135 Exploring a Non-Western Culture: Papua New Guinea
- ANTH 4020 Explorations in Anthropology: Global Islams
- ANTH 4180 Theory in Cultural Anthropology: Nepal and the Himalayas
- ANTH 4505 Globalization and Transnational Culture
- ANTH 4690 Anthropology of Tibet
- ANTH 4750 Culture and Society in South Asia
- ANTH 4760 Ethnography of Southeast Asia and Indonesia

### ARTH

- ARTH 4919 Capstone Seminar: Contemporary Asian Art
- ARTH 4919 Capstone Seminar: China!
- ARTH 4919 Capstone Seminar: Contemporary Art in the Middle East
- ARTH 4919 Capstone Seminar: Contemporary Art of the Himalayas

### ECON

- ECON 4534 Chinese Economic History in Comparative Perspective

### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

**ENGL**

- ENGL 4018 Global, Transnational and Postcolonial Approaches to Post-1900 Literature: Israel/Palestine
- ENGL 4287 Special Topics in LGBT, Multicultural and Postcolonial Literature: Post-Orientalism

**GEOG** (all modern Asian geography courses)

- GEOG 3822 Geography of China
- GEOG 3832 Geographies of South Asia
- GEOG 4762 Geographies of Political Islam
- GEOG 4822 Environment and Development in China
- GEOG 4832 Geography of Tibet

**HIST** (all modern Asian history courses)

- HIST 1528 Introduction to South Asian History since 1757
- HIST 1628 Introduction to Chinese History since 1664
- HIST 2110 History of Early Modern Societies: Early Modern China 960-1842
- HIST 2166 The Vietnam Wars
- HIST 3628 Seminar in Recent Chinese History
- HIST 4020 Capstone: Comparative History - British Empire India 1760-1947
- HIST 4020 Capstone: Comparative History - Modernity in China and Japan
- HIST 4109 WWII in Asia and the Pacific
- HIST 4166 The Vietnam War in Politics and Culture
- HIST 4328 The Modern Middle East, 1600 to the Present
- HIST 4329 Islam in the Modern World
- HIST 4338 History of Modern Israel/Palestine
- HIST 4538 History of Modern India
- HIST 4548 Women in Modern India
- HIST 4558 Modern Indian Intellectual History
- HIST 4618 Early Modern China 960-1842
- HIST 4628 Modern China: Collapse of Imperial Brilliance 1644-1949
- HIST 4638 Contemporary China: Radicalism and Reform, 1944 to Present
- HIST 4648 Inventing Chinese Modernity, 1800-Present
- HIST 4658 China and Islam from the 7th Century to the 20th Century
- HIST 4688 Window on Modern China
- HIST 4728 Modern Japanese History
- HIST 4738 History of Early Modern Japan
- HIST 4758 History of Postwar Japan, 1945 to Present
- HIST 4109 WWII in Asia and the Pacific
- HIST 4329 Islam in the Modern World

**HUMN**

Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

- HUMN 3341 Literature and Popular Culture in Modern China
- HUMN 3841 Tradition and Transgression: Modern Japanese Literature in Translation

#### **IAFS**

- IAFS 4500 The Post-Cold War World: Contemporary China - International Views
- IAFS 4500 The Post-Cold War World: Cultural Revolution - China 1966-79
- IAFS 4500 The Post-Cold War World: China in the Global Economy
- IAFS 4500 The Post-Cold War World: Afghanistan and Iraq
- IAFS 4500 The Post-Cold War World: South Asia-Conflict/Resolution

#### **JWST**

- JWST 4338 History of Modern Israel/Palestine

#### **JOUR**

- JOUR 4211 East Asian Media and Culture

#### **PSCI** (all modern Asian politics courses)

- PSCI 3072 Government and Politics of Southeast Asia
- PSCI 3102 South Asian Politics
- PSCI 4022 Chinese Foreign Policy
- PSCI 4052 Chinese Politics
- PSCI 4242 Middle Eastern Politics
- PSCI 4312 Politics and Language

#### **RLST** (all modern Asian religion courses)

- RLST 3820 Topics in Religious Studies: Religion in Modern China
- RLST 4250 Topics in Buddhism
- RLST 4650 Islam and the Modern World

#### **WMST** (all Asian Women's Studies courses)

- WMST 3220 Women in Islam
- WMST 3410 Gender, Sexuality and Culture in the Modern Middle East

#### **Plus all modern Asian literature courses**

- ARAB 3230 Islamic Culture and the Iberian Peninsula
- ARAB 3330 The Arabic Novel
- ARAB 3350 Narrating the City: Literary Mappings of the Urban Landscape
- ARAB 3410 Gender, Sexuality and Culture in the Modern Middle East
- ARAB 4250 Arabic Media
- CHIN 2441 Film and the Dynamics of Chinese Culture
- CHIN 3331 Culture and Literature of Late Imperial China
- CHIN 3341 Literature and Popular Culture in Modern China
- CHIN 3342 Literary Culture in Contemporary China
- CHIN 3371 Topics in Chinese Film
- FILM 2513 Major Asian Filmmakers

- FILM 4023 Contemporary Asian Cinema
- HIND 3441 Screening India: A History of Bollywood Cinema
- HIND 3651 Living Indian Epics: The *Ramayana* and the *Mahabharata* in the Modern Political Imagination
- HIND 3661 South Asian Diasporas: Imagining Home Abroad
- HIND 3811 The Power of the Word: Subversive and Censored 20th Century Indo-Pakistani Literature
- JPNS 2441 Japanese Culture through Film and Animation
- JPNS 3331 Business Japanese
- JPNS 3441 Language and Japanese Society
- JPNS 3511 From Rebellion to Calamity: Contemporary Japanese Literature in Translation
- JPNS 3831 The Floating World of Play and Passion: Early Modern Japanese Literature in Translation
- JPNS 3841 Tradition and Transgression: Modern Japanese Literature in Translation
- JPNS 3851 Studies in Japanese Popular Culture
- JPNS 4050 Japanese Sociolinguistics: Japanese Language and Society
- JPNS 4210 Contemporary Japanese 1: Current Issues
- JPNS 4220 Contemporary Japanese 2: Current Issues
- KREN 2441 Film and Korean Culture
- KREN 3841 Modern Korean Literature in English Translation

## Electives

Students take at least three courses; 9 credits, lower division or upper division.

- ANTH 1100 Exploring a Non-Western Culture: The Tamils
- ANTH 1105 Exploring a Non-Western Culture: Tibet
- ANTH 1135 Exploring a Non-Western Culture: Japan
- ANTH 1135 Exploring a Non-Western Culture: Mesopotamia—2nd Millennium BC
- ANTH 1135 Exploring a Non-Western Culture: Papua New Guinea
- ANTH 4020 Explorations in Anthropology: Ethnography of Southeast Asia
- ANTH 4020 Explorations in Anthropology: Global Cultures—Islam
- ANTH 4050 Anthropology of Jews and Judaism/Cultures of Israel and Palestine
- ANTH 4180 Anthropological Perspectives: Contemporary Issues/Theory in Cultural Anthropology—Nepal and the Himalayas
- ANTH 4430 Biblical Archaeology
- ANTH 4505 Globalization and Transnational Culture
- ANTH 4690 Anthropology of Tibet
- ANTH 4750 Culture and Society in South Asia
- ANTH 4760 Ethnography of Southeast Asia and Indonesia
- ARAB 1011 Introduction to Arab and Islamic Civilizations
- ARAB 2231 The World of Classical Arab Literature

- ARAB 3230 Islamic Culture and the Iberian Peninsula
- ARAB 3231 In the Footsteps of Travelers: Travel Writing in Arabic Language
- ARAB 3330 The Arabic Novel
- ARAB 3340 Representing Islam
- ARAB 3350 Narrating the City: Literary Mappings of the Urban Landscape
- ARAB 3410 Gender, Sexuality and Culture in the Modern Middle East
- ARAB 4200 Advanced Readings in Arabic
- ARAB 4250 Arabic Media
- ARAB 4840 Independent Study
- ARTH 2409 Introduction to Asian Art
- ARTH 3619 The Arts of China
- ARTH 3629 The Arts of Japan
- ARTH 3929 Special Topics in Art History: Asian Art—Gods, Kings and Power
- ARTH 3929 Special Topics in Art History: Art in Asian Religions
- ARTH 4169 Topics in Ancient and Classical Art and Archaeology: Persian Empire
- ARTH 4269 Art and Archaeology of the Ancient Near East
- ARTH 4919 Capstone Seminar: Topics in Art History—Contemporary Asian Art
- ARTH 4919 Capstone Seminar: Topics in Art History—China!
- ARTH 4919 Capstone Seminar: Topics in Art History—Contemporary Art in the Middle East
- ARTH 4919 Capstone Seminar: Topics in Art History—Contemporary Art of the Himalayas
- ARTH 4929 Special Topics in Art History—Art of Buddhism
- ARTH 4929 Special Topics in Art History—Art of the Himalayas/Tibet
- ARTH 4929 Special Topics in Art History—Politics/Propaganda Asian Art
- ASIA 4300 Open Topics in Asian Literature and Culture
- ASIA 4840 Independent Study
- ASIA 4930 Engage Asia: Internship in Asian Studies
- CHIN 1051 Masterpieces of Chinese Literature in Translation
- CHIN 2441 Film and the Dynamics of Chinese Culture
- CHIN 3200 Advanced Writing Topics on Chinese and Japanese Literature and Civilization
- CHIN 3311 The Dao and the World in Medieval China
- CHIN 3321 Culture and Literature of Ancient China
- CHIN 3331 Culture and Literature of Late Imperial China
- CHIN 3334 Chinese Narrative Tradition
- CHIN 3341 Literature and Popular Culture in Modern China
- CHIN 3342 Literary Culture in Contemporary China
- CHIN 3351 Reality and Dream in Traditional Chinese Fiction
- CHIN 3361 Women and the Supernatural in Chinese Literature
- CHIN 3371 Topics in Chinese Film

- CHIN 4210 Introduction to Classical Chinese
- CHIN 4220 Readings in Classical Chinese
- CHIN 4300 Open Topics: Readings in Chinese Literature
- CHIN 4750 Daoism
- CHIN 4900 Independent Study
- CHIN 4980 Practicle Issues in Chinese Pedagogy
- EDUC 4800 Special Topics: Asia
- EMUS 1467 World Music Ensemble Japanese
- EMUS 1467 World Music Ensemble Gamelan
- EMUS 3467 World Music Ensemble Japanese
- EMUS 3467 World Music Ensemble Gamelan
- ENGL 4018 Global, Transnational and Postcolonial Approaches to Post-1900 Literature: Israel/Palestine
- ENGL 4287 Special Topics in LGBT, Multicultural and Postcolonial Literature: Post-Orientalism
- FRSI 1011 Introduction to Persian Civilization
- FILM 2513 Major Asian Filmmakers
- FILM 4023 Contemporary Asian Cinema
- GEOG 3822 Geography of China
- GEOG 3832 Geographies of South Asia
- GEOG 4232 Geography of Tibet
- GEOG 4762 Geographies of Political Islam
- GEOG 4822 Environment and Development in China
- HIND 1011 Introduction to South Asian Civilizations
- HIND 3400 Special Topics
- HIND 3441 Screening India: A History of Bollywood Cinema
- HIND 3651 Living Indian Epics: The *Ramayana* and the *Mahabharata* in the Modern Political Imagination
- HIND 3661 South Asian Diasporas: Imagining Home Abroad
- HIND 3811 The Power of the Word: Subversive and Censored 20th Century Indo-Pakistani Literature
- HIND 3831 The Many Faces of Krishna in South Asia Literature and Culture
- HIND 3851 Devotional Literature in South Asia
- HIST 1308 Introduction to Middle Eastern History
- HIST 1438 Introduction to Korean History
- HIST 1518 Introduction to South Asian History to 1757
- HIST 1528 Introduction to South Asian History since 1757
- HIST 1618 Introduction to Chinese History to 1644
- HIST 1628 Introduction to Chinese History since 1644
- HIST 1708 Introduction to Japanese History

- HIST 1800 introduction to Global History: Maritime Asia 1500-1800
- HIST 1818 Introduction to Jewish History: Bible to 1492
- HIST 2110 History of Early Modern Societies: Early Modern China 960-1842
- HIST 2166 The Vietnam Wars
- HIST 2220 History of War and Society: Warfare and Culture in South Asia
- HIST 2220 History of War and Society: Militarism in Japanese History
- HIST 2220 History of War and Society: Korea through Wars
- HIST 2629 China in World History
- HIST 3109 Seminar in Asian History
- HIST 3328 Seminar in Middle Eastern History
- HIST 3628 Seminar in Recent Chinese History
- HIST 3718 Seminar in Japanese History
- HIST 4020 Capstone: Comparative History—British Empire India 1760-1947
- HIST 4020 Capstone: Comparative History—Modernity in China and Japan
- HIST 4109 WWII in Asia and the Pacific
- HIST 4166 The Vietnam War in Politics and Culture
- HIST 4328 The Modern Middle East, 1600 to the Present
- HIST 4329 Islam in the Modern World: Revivalism, Modernism and Fundamentalism 1800-2001
- HIST 4338 History of Modern Israel/Palestine
- HIST 4339 Borderlands of the British Empire
- HIST 4348 Topics in Jewish History: Jews under Islam
- HIST 4348 Topics in Jewish History: Tel Aviv—Urban History and Culture
- HIST 4349 Decolonization of the British Empire
- HIST 4378 History of Modern Jewish Muslim Relations
- HIST 4528 Islam in South and Southeast Asia (1000 to the Present)
- HIST 4538 History of Modern India
- HIST 4548 Women in Modern India
- HIST 4558 Buddha to Gandhi: A History of Indian Nonviolence
- HIST 4618 Early Modern China 960-1842
- HIST 4619 Women in East Asian History
- HIST 4628 Modern China
- HIST 4638 Contemporary China
- HIST 4648 Inventing Chinese Modernity, 1800 to Present
- HIST 4658 China and Islam from the 7th Century to the 20th Century
- HIST 4688 Window on Modern China
- HIST 4718 Ancient, Classical and Medieval Japanese History
- HIST 4728 Modern Japanese History
- HIST 4738 History of Early Modern Japan (1590-1868)

- HIST 4758 History of Postwar Japan, 1945 to Present
- HIST 4808 Special Topics in World Areas History: Chinese and Japanese Modernity
- HUMN 3093 Topics in Humanities: Representing Islam
- HUMN 3093 Topics in Humanities: The Arabic Novel
- HUMN 3093 Topics in Humanities: Narrating the City
- HUMN 3321 Culture and Literature of Ancient China
- HUMN 3341 Literature and Popular Culture in Modern China
- HUMN 3811 Classical Japanese Literature in Translation
- HUMN 3841 Modern Japanese Literature in Translation
- HUMN 4100 Writing the World in Traditional China
- IAFS 3000 Special Topics in International Affairs: Political Economy/Middle East
- IAFS 3000 Special Topics in International Affairs: Turkey—Mediator/Arab Spring
- IAFS 3000 Special Topics in International Affairs: Gender, Geopolitics and Islam
- IAFS 3300 Economy, Politics and Society in the Middle East
- IAFS 3520 Israel
- IAFS 3650 History of the Arab-Israeli Conflict
- IAFS 4500 The Post-Cold War World: Contemporary China/International Views
- IAFS 4500 The Post-Cold War World: Cultural Revolution/China 1966-79
- IAFS 4500 The Post-Cold War World: China in the Global Economy
- IAFS 4500 The Post-Cold War World: Afghanistan and Iraq
- IAFS 4500 The Post-Cold War World: South Asia/Conflict/Resolution
- INBU 3300 International Business and Management
- INBU 3301 Doing Business in China
- INBU 4151 International Operations in Hong Kong
- INBU 4200 International Financial Management
- JPNS 1012 Introduction to Japanese Civilization
- JPNS 1051 Masterpieces of Japanese Literature in Translation
- JPNS 2441 Film and Japanese Culture
- JPNS 2811 Heroes and the Supernatural: Word and Image in Old Japan
- JPNS 3200 Advanced Writing Topics on Chinese and Japanese Literature and Civilization
- JPNS 3331 Business Japanese
- JPNS 3441 Language and Japanese Society
- JPNS 3551 From Rebellion to Calamity: Contemporary Japanese Literature in Translation
- JPNS 3811 Classical Japanese Literature in Translation
- JPNS 3821 Medieval Japanese Literature in Translation
- JPNS 3831 Early Modern Japanese Literature in Translation
- JPNS 3841 Modern Japanese Literature in Translation
- JPNS 3851 Studies in Popular Japanese Culture

- JPNS 3861 Imagining the Samurai in Japanese Literature and Culture
- JPNS 3871 Horror and the Macabre in Japanese Literature, Film and Culture
- JPNS 3881 Environment, Nature and Disaster in Japanese Literature and Culture
- JPNS 3891 Travel/Travel Writing in Japanese Literature and Culture
- JPNS 4050 Japanese Sociolinguistics: Japanese Language and Society
- JPNS 4070 Second Language Acquisition of Japanese
- JPNS 4080 Kanji in Japanese Orthography
- JPNS 4150 Japanese to English Translation: Theory and Practice
- JPNS 4210 Contemporary Japanese 1: Current Issues
- JPNS 4220 Contemporary Japanese 2: Current Issues
- JPNS 4300 Readings in Japanese Literature
- JPNS 4310 Classical Japanese
- JPNS 4320 Classical Japanese
- JPNS 4400 Critical Theory and Japanese Language and Culture
- JPNS 4900 Independent Study
- JPNS 4980 Practicle Issues in Japanese Language Pedagogy
- KREN 1011 Introduction to Korean Civilization
- KREN 2441 Film and Korean Culture
- KREN 3841 Modern Korean Literature in English Translation
- KREN 4900 Independent Study
- MDST 4211 Asian Media Culture
- MDST 4341 International Media and Global Crises
- MUEL 2772 World Musics: Asia and Oceania
- MUSC 2772 World Musics: Asia and Oceania
- MUSC 4152 East Asian Music
- PHIL 1600 Philosophy and Religion
- PHIL 3800 Open Topics in Philosophy: Buddhism as Philosophy
- PSCI 3072 Government and Politics in Southeast Asia
- PSCI 3102 South Asian Politics
- PSCI 4022 Chinese Foreign Policy
- PSCI 4028 Special Topics: Politics of Southeast Asia
- PSCI 4028 Special Topics: Middle East Politics
- PSCI 4052 Chinese Politics
- PSCI 4242 Middle Eastern Politics
- PSCI 4312 Politics and Language
- RLST 2202 Foundations of Islamic Traditions
- RLST 2600 Judaism, Christianity and Islam
- RLST 2610 Religions of South Asia

RLST 2612 Yoga: Ancient and Modern

- RLST 2620 Religions of East Asia
- RLST 3100 Judaism
- RLST 3200 Hinduism
- RLST 3300 Foundations of Buddhism
- RLST 3400 Japanese Religions
- RLST 3530 Jews and Muslims: The Multiethnic History of Istanbul
- RLST 3600 Islam
- RLST 3800 Chinese Religions
- RLST 3820 Topics in Religious Studies: Religion in Modern China
- RLST 3820 Topics in Religious Studies: Buddhist Art and Ritual
- RLST 3820 Topics in Religious Studies: Buddhist Literature in Tibet
- RLST 3820 Topics in Religious Studies: Islam, Politics and Militancy
- RLST 3820 Topics in Religious Studies: The Story of the Quran
- RLST 3820 Topics in Religious Studies: Art in Asian Religions
- RLST 4200 Topics in Hinduism
- RLST 4250 Topics in Buddhism: Buddhist Literature in Tibet
- RLST 4250 Topics in Buddhism: Transnational Buddhism
- RLST 4250 Topics in Buddhism: Buddhist Ethics
- RLST 4250 Topics in Buddhism: Buddhism and Society
- RLST 4250 Topics in Buddhism: Buddhist Philosophy
- RLST 4250 Topics in Buddhism: Buddhist Esotericism
- RLST 4260 Topics in Judaism: Bible in Judaism/Christianity
- RLST 4650 Islam and the Modern World
- WMST 2600 Gender, Race and Class in a Global Context
- WMST 3012 Women and Development
- WMST 3220 Women in Islam
- WMST 3410 Gender, Sexuality and Culture in the Modern Middle East
- WMST 3500 Global Gender Issues
- WMST 3730 Women in Buddhism
- WMST 4619 Women in East Asian History

AND other courses (including some study abroad and special topics courses) approved by the Asian Studies faculty advisor.

## Minor Program

To minor in Asian Studies, students must take 21 credits minimum, 12 of which must be upper-division (usually four three-credit courses). Students take Gateway to Asian Studies (ASIA 2000), two courses in Traditional Asian Civilizations (two different civilizations) and one in Modern Asia. The remaining credits are fulfilled through a variety of available electives, which can be selected from any non-language Asian Studies courses listed under the major. When

these courses are completed, students take the Asian Studies Capstone. For more information on the minor, see <http://www.colorado.edu/cas/academics/asian-studies-minor>.

## Certificate Program(s)

### Graduate Certificate in Asian Studies

#### Program Requirements

- 12 hours (four courses, unless otherwise determined) of approved graduate courses
- Specialization allowed in East Asia, South Asia, Central Asia, Southeast Asia or West Asia/Middle East
- Two courses in a single discipline or department
- Two courses from outside of the discipline or department
- Thematic courses that have at least 50% Asia content may also be counted, dependent on approval by the Certificate Director and Committee
- Up to three credit hours may be taken a independent study on an Asia-related topic at the 5000 level or higher with approval from the Certificate Director
- Nine credits must be at or above the 5000 level
- Two years' college-level proficiency in an Asian language relevant to specialization (does not count toward the certificate credit hours)
- All coursework must be completed with a B or higher

For more information on the Graduate Certificate, see [www.colorado.edu/cas/academics/asian-studies-graduate-certificate](http://www.colorado.edu/cas/academics/asian-studies-graduate-certificate).

### Global Business Certificate: Asian Studies Track

This certificate entails courses focusing on global topics related to Management, Marketing and Finance plus additional requirements that build up on the students' understanding of the functional areas of business and provide them with an appreciation of the global environment. The certificate supplies students with a framework for developing the appropriate mindset to be effective in a global marketplace, with an emphasis in Asia.

For more information on this certificate, see <http://www.colorado.edu/business/student-resources/global-initiatives/global-business-certificate>.

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## Astrophysical and Planetary Sciences

The undergraduate major has two tracks—one in general astronomy and one in astrophysics/physics (see the department website at [aps.colorado.edu](http://aps.colorado.edu)).

The **bachelor's degree in astronomy with a concentration in general astronomy track** is designed to meet student needs for basic, undergraduate training in space sciences (astronomy, astrophysics, planetary sciences and space physics). Undergraduates are prepared for both academic research assistant careers and the industrial market (aerospace, computer software, instrumentation and other technical areas) as well as for science education, science journalism and space policy. This track provides a broad program in the science of astronomy, observations and technology as well as core training in astronomical sciences and mathematics, applied physics and computational and instrumental technology for professions in the space sciences. The track can focus on observations (ground-based telescopes, rocket probes, space-borne observatories) or on K–12 science education, for which astronomy provides excellent science content for motivating young students. It also offers broad training for careers in science policy and science writing.

The **bachelor's degree in astronomy with a concentration in the astrophysics/physics track** is directed toward students interested in pursuing graduate studies in astrophysics by focusing on multidisciplinary work in physics and mathematics together with astronomy. Graduates are provided with scientific and technological training in the space sciences, including mathematical, physical, computational and instrumental expertise. An honors thesis or other research work is encouraged but not required.

Specific goals for both tracks are to provide:

- both theoretical and practical knowledge of astronomy and astrophysics. The Department of Astrophysical and Planetary Sciences is one of the few programs that combines both astrophysics and planetary science, providing a unified view of space sciences, the solar system and comparative planetology, stellar and galactic astronomy and cosmology.
- courses and significant hands-on experience with telescopes, optics, instrumentation, as well as data analysis and image processing and numeric modeling. These skills are useful for students wishing to pursue graduate degrees or careers in aerospace, technical or computer industries.
- opportunities for faculty-advised research and senior (honors) theses.

**Course code for this program is ASTR.**

### [Bachelor's Degree Program\(s\)](#)

## Bachelor's Degree in Astrophysical and Planetary Sciences

### □ Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies

### • Astrophysical and Planetary Sciences

- Atmospheric and Oceanic Sciences
- Behavioral Genetics
- Biological Sciences
- British and Irish Studies
- Central and East European Studies
- Chemistry and Biochemistry
- Classics
- Cognitive Science Studies
- Comparative Literature
- Computer Science

## General Astronomy Track

This is appropriate for someone aiming for a career in K–12 education, science journalism, science policy, information technology, science management or technical work that does not require a graduate degree.

### Required Courses and Semester Credit Hours

- APPM 1350 and 1360 or MATH 1300 and 2300 Calculus 1 and 2—8-10
- ASTR 1030 and 1040 Accelerated Introductory Astronomy 1 and 2 (or ASTR 1010 and 1020 Introductory Astronomy 1 and 2 with permission)—8
- PHYS 1110, 1120 and 1140 General Physics 1 and 2—9
- One of the following four courses:  
 ASTR 2500/ASEN 1400 Gateway to Space—3  
 ASTR 2600 Computational Techniques—3  
 PHYS 2130 General Physics 3—3  
 PHYS 2170 Foundations of Modern Physics—3
- Minimum of two additional courses selected from:  
 ASTR 2000 Ancient Astronomies—3  
 ASTR 2010 Modern Cosmology—3  
 ASTR 2020 Introduction to Space Astronomy and Exploration—3  
 ASTR 2030 Black Holes—3  
 ASTR 2040 Life in the Universe—3  
 ASTR 2500 Gateway to Space—3  
 ASTR 2600 Computational Techniques—3  
 ASTR 3300 Extraterrestrial Life—3
- One other science sequence with lab. Can be satisfied by any sequence that satisfies arts and sciences core curriculum in natural sciences with lab, for example:  
 CHEM 1113, 1114 and 1131, 1134; EBIO 1210–1230, GEOL 1010, 1020 and 1030, ATOC 1050, 1060 and 1070, or equivalent—7-10
- One upper-division course sequence:  
 ASTR 3720 Planets and their Atmospheres and ASTR 3750 Planets, Moons and Rings **or**  
 ASTR 3730 Astrophysics 1: Stellar and Interstellar and ASTR 3830 Astrophysics 2: Galactic and Extragalactic—6
- Four additional courses from the following or from those sequence courses not used for the upper-division sequence requirement, above:  
 ASEN 4010 Introduction to Space Dynamics—3  
 ASTR 3510 Observations and Instrumentation 1—4  
 ASTR 3520 Observations and Instrumentation 2—4  
 ASTR 3710 Formation and Dynamics of Planetary Systems—3  
 ASTR 3740 Cosmology and Relativity—3  
 ASTR 3760 Solar and Space Physics—3  
 ASTR 3800 Scientific Data Analysis and Computing—3  
 ASTR 4330 Cosmochemistry—3  
 ASTR 4800 Space Practice and Policy—3  
 ASTR 5760 Astrophysical Instrumentation (with instructor's permission)—3  
 ATOC 4720 Atmospheric Physics and Dynamics—3

A minor is available that may be satisfied by taking various combinations of courses among the diverse possibilities offered by the department (*see below*).

## Astrophysics/Physics Track

- Distributed Studies Program
- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language

## *(Jointly supervised by the APS and Physics Departments)*

For students aiming for a graduate program in astronomy or planetary sciences. Similar to Physics Plan 2 (Astrophysics), with additional astrophysics instrumentation labs and different electives.

### **Required Courses and Semester Credit Hours**

- APPM 1350, 1360, 2350; or MATH 1300, 2300 and 2400 (Calculus 1, 2 and 3); and APPM 2360 or MATH 3130 and 4430 (Linear Algebra and Differential Equations)—16-20
- ASTR 1030 and 1040 Accelerated Introductory Astronomy—8
- One upper-division course sequence: ASTR 3720 Planets and their Atmospheres and ASTR 3750 Planets, Moons and Rings; or ASTR 3730 Astrophysics 1: Stellar and Interstellar and ASTR 3830 Astrophysics 2: Galactic and Extragalactic—6
- PHYS 1110, 1120 and 1140 General Physics 1 and 2 and PHYS 2150, 2170, and 2210 Sophomore Physics—16
- PHYS 3310 and 3320 Electromagnetism and PHYS 3210 and 3220 Classical and Quantum Mechanics—12
- Suggested electives: PHYS 4230 Thermodynamics and Statistical Mechanics or PHYS 4410 Quantum Mechanics II or PHYS 4420 Nuclear and Particle Physics or PHYS 4510 Optics or PHYS 4150 Plasma Physics
- Three additional courses from the following or any of 3720, 3750, 3730, 3830 not used for the requirement above:
  - ASEN 4010 Introduction to Space Dynamics—3
  - ASTR 3510 Observations and Instrumentation 1—4
  - ASTR 3520 Observations and Instrumentation 2—4
  - ASTR 3710 Formation and Dynamics of Planetary Systems—3
  - ASTR 3740 Cosmology and Relativity—3
  - ASTR 3760 Solar and Space Physics—3
  - ASTR 3800 Scientific Data Analysis and Computing—3
  - ASTR 4330 Cosmochemistry—3
  - ATOC 4720 Atmospheric Physics and Dynamics—3
- Any 5000- or 6000-level physical and planetary sciences course with instructor's permission —3
- Total credit hours for the major 23 hours minimum in astrophysics and 28 hours minimum in physics (this must include at least 15 upper-division hours in astrophysics and 12 in physics).

## Minor Program in Astrophysical and Planetary Sciences

Declaration of a minor in astrophysical and planetary sciences is open to any student enrolled at CU-Boulder, regardless of college or school. Course work applied to the minor may be applied to another major or toward core curriculum requirements. Minimum requirements for a minor include:

- A minimum of six ASTR courses, including at least three advanced courses (numbered above 3500).
- All course work applied to a minor must be completed with a grade of C- or better (no *pass/fail* work may be applied). The GPA for all minor degree course work must be equal to 2.00 (C) or higher.
- Students pursuing an individually structured major or a major in distributed studies are not eligible to earn a minor.

- and Hearing Sciences
- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

- Students are allowed to apply no more than three courses, including two advanced courses, of transfer work toward a minor.

### Course Requirements (six courses required)

#### Elementary (maximum of three courses)

- ASTR 1030 and 1040 Accelerated Introductory Astronomy 1 and 2 (or ASTR 1010 and 1020 Introductory Astronomy 1 and 2 with permission)—4
- ASTR 2000 Ancient Astronomies of the World—3
- ASTR 2010 Modern Cosmology: Origin and Structure of the Universe—3
- ASTR 2020 Introduction to Space Astronomy—3
- ASTR 2030 Black Holes—3
- ASTR 2040 Life in the Universe—3
- ASTR 2500/ASEN 1400 Gateway to Space—3
- ASTR 2600 Computational Techniques—3
- ASTR 3300 Extraterrestrial Life—3

#### Advanced (minimum of three courses)

Two courses from an upper-level course sequence:

- **Planetary Sequence:** ASTR 3720 Planets and Their Atmospheres and ASTR 3750 Planets, Moons and Rings—6  
*or*
- **Astrophysics Sequence:** ASTR 3730 Stellar and Interstellar and ASTR 3830 Galactic and Extragalactic—6

Plus one course from the following:

- ASTR 3510 Observations and Instrumentation 1—4
- ASTR 3520 Observations and Instrumentation 2—4
- ASTR 3710 Formation and Dynamics of Planetary Systems—3
- ASTR 3720 Planets and Their Atmospheres—3
- ASTR 3730 Astrophysics 1—3
- ASTR 3740 Cosmology and Relativity—3
- ASTR 3750 Planets, Moons and Rings—3
- ASTR 3760 Solar and Space Physics—3
- ASTR 3830 Astrophysics 2—3
- ASTR 4330 Cosmochemistry—3
- ASTR 4840 Independent Research—1-8
- ATOC 4720 Introduction to Atmospheric Physics and Dynamics—3

Additional information is available from any faculty mentor. See [http://aps.colorado.edu/undergrad\\_main.html](http://aps.colorado.edu/undergrad_main.html).

## Graduate Degree Program(s)

# Graduate Study in Astrophysical and Planetary Sciences

The curriculum and research in the department emphasizes three major areas: astrophysics, planetary sciences and solar and space physics.

**Departmental Requirements.** Those wishing to pursue graduate work in APS leading to candidacy for an advanced degree should carefully read requirements for advanced degrees in the Graduate School section. The following are special departmental requirements.

## Master's Degree

The Department of Astrophysical and Planetary Sciences does not normally admit students for a terminal master's degree program.

**Prerequisites.** A thorough undergraduate preparation in physics and mathematics is necessary for graduate study. Courses should include thermodynamics, mechanics, electricity and magnetism, quantum mechanics, atomic physics and mathematics at least through complex variables and differential equations.

**Qualifying Examination.** The Graduate Record Examination aptitude tests and advanced test in physics are used in place of a qualifying examination, and this examination should be taken before the time of application to the department.

**Preliminary Interview.** Students in the Department of Astrophysical and Planetary Sciences are given an oral interview prior to the beginning of the fall semester of their first year. This oral interview examines fundamental knowledge in undergraduate physics and mathematics. Students are required to overcome any academic deficiencies within a year in order to remain in the program.

**Course Requirements.** Under Plan I, a student must present a thesis for 6 credit hours plus 24 credit hours of course work, at least 12 of which must be APS courses numbered 5000 or above. Under Plan II, additional hours of approved graduate courses must be presented for a total of 30 credit hours, of which at least 16 must be APS courses numbered 5000 or above. The master's examination under Plan I covers the thesis and related topics. The examination under Plan II is more comprehensive and may be either written or oral or both. Master's examinations are given after other degree requirements have been completed, but may be given during the last semester of residence if the student is making satisfactory progress on required courses.

## Doctoral Degree

In addition to the master's degree requirements above, PhD students must complete the following:

**Course Requirements.** A minimum of 39 semester hours of work (including 4 hours of graduate seminars) in courses numbered 5000 or above is required; however, the overall emphasis is on independent study and research. A minimum of 30 semester hours of PhD dissertation credits are required.

**Language Requirement.** None.

**Examinations.** Students in the PhD program are required to remove any deficiencies identified at the preliminary interview, to pass a two-part comprehensive examination composed of a written test on graduate course material and an oral exam on a research paper based on a semi-independent research project, and satisfactorily defend the thesis before a faculty committee. The department offers the PhD degree. During the first year of graduate study, students generally obtain a broad background in courses regarded as basic to all three areas in

addition to more specialized studies. Many students take graduate-level courses in other departments (e.g., Departments of Physics, Atmospheric and Oceanic Sciences, Geological Sciences, Applied Mathematics or Aerospace Engineering), depending upon their particular interests or participation in interdisciplinary programs (see below). The departmental core courses in the three areas are:

- ASTR 5110 Atomic and Molecular Processes
- ASTR 5120 Radiative and Dynamical Processes
- ASTR 5400 Introduction to Fluid Dynamics
- ASTR 5540 Mathematical Methods
- ASTR 5550 Observations, Data Analysis and Statistics

Descriptions of more specialized courses follow. Students interested in applying to this department are invited to write to Graduate Program Assistant, Department of Astrophysical and Planetary Sciences, University of Colorado Boulder, 391 UCB, Boulder, CO 80309-0391.

## Astrophysics

The department offers a broad range of courses and research in this area, leading to the PhD degree. Graduate-level courses are offered in the following subjects:

- ASTR 5140 Astrophysical and Space Plasmas
- ASTR 5700 Stellar Structure and Evolution
- ASTR 5710 High-Energy Astrophysics
- ASTR 5720 Galaxies
- ASTR 5730 Stellar Atmospheres and Radiative Transfer
- ASTR 5740 Interstellar Astrophysics
- ASTR 5760 Astrophysical Instrumentation
- ASTR 5770 Cosmology
- ASTR 6000 Seminar in Astrophysics

Research in observational and theoretical astrophysics is conducted in the following areas:

- Stellar atmospheres, radiative transfer, stellar winds of hot/cool stars
- Formation of stars and planetary systems
- Solar physics
- Interstellar and intergalactic medium
- Cosmology and large-scale structure of the universe; galaxy formation
- Stellar interiors, black holes and neutron stars
- Gravitational physics
- Cosmic X-ray sources, supernovae and their remnants and accretion phenomena, jets and clusters of galaxies
- Galactic evolution, quasars and active galaxies
- Radio and sub-millimeter astronomy, microwave background
- Plasma astrophysics and MHD
- Astrophysical fluid dynamics

- UV, optical, IR, submillimeter, radio and X-ray instrumentation
- Instrument and detector development
- Sounding rocket and balloon astronomy

**Departmental Equipment and Research.** Research is carried out with the ARC 3.5m Apache Point telescope and with national telescopes and laboratories and international collaborators: High Altitude Observatory (HAO) in Boulder (solar physics), National Optical Astronomical Observatories in Tucson and Chile (optical astronomy), Caltech Sub-Millimeter Observatory, National Radio Astronomy Observatory (NRAO), the Very Large Array (VLA), the Green Bank Telescope (GBT), the Hubble Space Telescope (HST), the Chandra, SWIFT, and XMM X-ray telescopes, the Fermi Gamma-Ray Space Telescope and the National Solar Observatory (NSO). CU-Boulder also is involved with the Messenger (Mercury), MAVEN (Mars), JUNO (Jupiter), Cassini (Saturn) and New Horizons (Pluto) missions, and the HST Cosmic Origins Spectrograph.

Locally, APS operates a 24-inch Cassegrain-Coude and 16- and 18-inch Cassegrain telescopes through Sommers-Bausch Observatory, available for photographic, photometric and spectrographic observations, as well as for instrument and detector development. Opportunities for graduate research also are found with the university's Laboratory for Atmospheric and Space Physics (LASP), the Center for Astrophysics and Space Astronomy (CASA) and JILA. See Graduate School for more information.

## Planetary Sciences

As planetary sciences is an interdisciplinary field, students can obtain degrees from the Departments of Astrophysical and Planetary Sciences, Atmospheric and Oceanic Sciences, Geological Sciences, Physics or Aerospace Engineering. Boulder is also home to a division of the Southwest Research Institute, with over 25 planetary scientists, many of whom work with CU students. Research and courses related to the physics and dynamics of the atmospheres of other planets, planetary surfaces and interiors and other solar system studies are available in programs leading to the MS and PhD degrees. Courses related to the physics and dynamics of the Earth's atmosphere are offered through ATOC. Graduate-level courses in these areas are:

- ASTR 5140 Astrophysical and Space Plasma
- ASTR 5300 Introduction to Magnetospheres
- ASTR 5330 Cosmochemistry
- ASTR 5410 Fluid Instabilities, Waves and Turbulence
- ASTR 5800 Planetary Surfaces and Interiors
- ASTR 5810 Planetary Atmospheres
- ASTR 5820 Origin and Evolution of Planetary Systems
- ASTR 5830 Topics in Planetary Science
- ASTR 5835 Seminar in Planetary Science
- ATOC 5050 Physical Processes of the Atmosphere and Ocean
- ATOC 5560 Radiative Processes in Planetary Atmospheres
- ATOC 5960 Theories of Climate and Climate Variability

Research in theoretical, observational and laboratory atmospheric and planetary science is conducted in the following areas:

- Planetary disks, Kuiper Belt objects, extra-solar planets;

- Dynamics and chemistry of planetary atmospheres, planetary clouds and planetary climates; evolution of planetary atmospheres; and comparison of planetary and terrestrial atmospheres;
- Planetary aeronomy, airglow and aurora, UV and IR spectroscopy, noctilucent clouds, structure and composition of planetary atmospheres (Venus, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto), planetary magneto-spheres and cometary physics;
- Satellite monitoring of the Earth's atmosphere and environment, including remote sensing of mesospheric ozone, stratospheric trace species, convection, outgoing radiation and magnetospheric dynamics; and
- Planetary geology, planetary interiors and surfaces and planetary geophysics.

Graduate research opportunities exist with individual faculty members, as well as jointly with academic and research units such as the Departments of Geological Sciences, Physics and Aerospace Engineering, as well as the Department of Atmospheric and Oceanic Sciences (ATOC), the National Center for Atmospheric Research (NCAR), the National Oceanic and Atmospheric Administration (NOAA) and the Laboratory for Atmospheric and Space Physics (LASP). The latter is involved in space investigations of the Earth, Sun and planets. Financial support is available in connection with all of the above research activities.

## Graduate Interdisciplinary Study

### Atmospheric and Oceanic Sciences

This interdisciplinary program provides an educational and research environment to examine the dynamical, physical and chemical structures of the atmosphere, ocean and land surface and the manner in which they interact. For further information, see the ATOC listing. APS participates in the master's degree program in computational science (under applied math).

### Geophysics

The department participates in the interdepartmental PhD program in geophysics. For further information, refer to the discussion of the geophysics program in the Graduate School section.

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## Atmospheric and Oceanic Sciences

The Department of Atmospheric and Oceanic Sciences (ATOC) is an interdisciplinary program that provides an educational and research environment to examine the dynamical, physical and chemical processes in the atmosphere, ocean and land surface, and the manner in which they interact. A major theme is the establishment of a physical basis for understanding, observing and modeling climate and global change.

ATOC does not offer an undergraduate bachelor's degree program. However, the department does offer an undergraduate minor for students pursuing a bachelor's degree in another academic department. A total of 18 credit hours is required for the minor, with at least nine credit hours at the upper-division course work level. A full list of approved courses for the minor is available online and in the ATOC administrative offices.

Graduate students admitted to ATOC are eligible to receive an advanced degree in atmospheric and oceanic sciences. Graduate students outside of ATOC can pursue the Graduate Certificate in Atmospheric and Oceanic Sciences while earning a graduate degree from another department at CU-Boulder, or while taking course work as a non-degree-seeking student through Continuing Education's ACCESS Program provided they have already earned a bachelor's degree and meet the course prerequisites. In addition, students inside and outside the department may pursue a Graduate Certificate in Oceanography. For more information on graduate certificate programs, see the Graduate School/Interdisciplinary Programs section.

For more information about ATOC programs and application procedures, call the ATOC office at **303-492-6633** or visit [www.colorado.edu/atoc](http://www.colorado.edu/atoc).

**Course code for this program is ATOC.**

### ATOC Undergraduate Minor Program

The Department of Atmospheric and Oceanic Sciences (ATOC) does not offer an undergraduate bachelor's degree program. However, the department does offer an undergraduate minor for students pursuing a bachelor's degree in another academic department. The ATOC minor is offered through the College of Arts and Sciences and is noted on the official CU transcript.

Although the ATOC minor is primarily designed for students who are interested in developing a knowledge base in atmospheric science with an emphasis on the Earth's climate, there is considerable latitude within the program for students to design a course of study that is tailored to their individual interests.

**Course Requirements.** A total of 18 credit hours with at least 9 credit hours at the upper-division course work level. Please see list below.

#### Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
- **Atmospheric and Oceanic Sciences**

- Behavioral Genetics
- Biological Sciences
- British and Irish Studies
- Central and East European Studies
- Chemistry and Biochemistry
- Classics
- Cognitive Science Studies
- Comparative Literature
- Computer Science
- Distributed Studies

## Required Courses and Semester Credit Hours

### Lower-Division

- ATOC 1050 Weather and the Atmosphere—3
- ATOC 1060 Our Changing Environment—3

### Upper-Division

- ATOC 3050 Principles of Weather—3
- ATOC/GEOL 3070 Introduction to Oceanography—3
- ATOC 3180 Aviation Meteorology—3
- ATOC 3300 Analysis of Climate and Weather Observations—3
- ATOC 3500/CHEM 3151 Air Chemistry and Pollution—3
- ATOC 3600/ENVS 3600/GEOG 3601 Principles of Climate—3
- ATOC/ASTR 3720 Planets and Their Atmospheres—3
- ATOC 4200 Biogeochemical Oceanography—3
- ATOC/ASEN 4215 Descriptive Physical Oceanography—3
- ATOC 4500 Special Topics—3
- ATOC 4550 Mountain Meteorology—3
- ATOC 4700 Weather Analysis and Forecasting—3
- ATOC 4710 Intro to Atmospheric Physics—3
- ATOC 4720 Intro to Atmospheric Dynamics—3
- ATOC 4750 Desert Meteorology—3
- ATOC 4770 Wind Energy Meteorology—3
- ATOC 4800 Policy Implications of Climate Controversies—3
- ATOC 4900 Independent Study—3

All course work applied to the minor must be completed with a grade of C- or better (no *pass/fail* work may be applied). The GPA for all minor degree work must be equal to 2.00 (C) or higher. Course work applied toward a minor may also be applied toward general education (core curriculum or college list) and major requirements. Students are allowed to apply no more than 9 credit hours, including 6 upper-division level credit hours, of transfer work to a minor.

## Graduate Degree Program(s)

### Graduate Degrees in Atmospheric and Oceanic Sciences

The interdisciplinary Department of Atmospheric and Oceanic Sciences (ATOC) provides an educational and research environment to examine the dynamical, physical and chemical processes that occur in the atmosphere and the ocean. A major theme is the establishment of a physical basis for understanding, observing and modeling climate and global change. Graduate students, research staff and faculty work together on a wide range of research topics, such as large-scale dynamics of ocean and atmosphere, air-sea interaction, radiative transfer and remote sensing of ocean and atmosphere, sea ice and its role in climate, cloud-climate interactions, atmospheric chemistry and aerosols, atmospheric technology, extended weather and climate prediction, hydrological processes and boundary-layer measurement and modeling.

ATOC offers a comprehensive graduate program with a core course structure that emphasizes the fluid dynamical, chemical and physical processes in the atmosphere and ocean.

All PhD students are required to take a total of six ATOC core courses, or their equivalent, from one of the two following ATOC core course tracks:

#### Atmosphere Track (A-Track)

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

- ATOC 5050 Atmospheric Thermodynamics and Dynamics
- ATOC 5051 Introduction to Physical Oceanography
- ATOC 5060 Dynamics of the Atmosphere and Oceans
- ATOC 5151 Atmospheric Chemistry
- ATOC 5235 Introduction to Atmospheric Radiative Transfer and Remote Sensing
- ATOC 5600 Physics and Chemistry of Clouds and Aerosols

## Oceanography Track (O-Track)

- ATOC 5050 Atmospheric Thermodynamics and Dynamics
- ATOC 5051 Introduction to Physical Oceanography
- ATOC 5060 Dynamics of the Atmosphere and Oceans
- ATOC 5200 Biogeochemical Oceanography
- ATOC 5235 Introduction to Atmospheric Radiative Transfer and Remote Sensing

Plus one of the following as the sixth course:

- ATOC/ASEN 5215 Descriptive Physical Oceanography
- ATOC/ASTR 5400 Introduction to Fluid Dynamics
- GEOL 5270 Marine Chemistry and Geochemistry
- GEOL 5430 Paleooceanography and Paleoclimatology
- MCEN 5021 Introduction to Fluid Dynamics

The degree will be in atmospheric and oceanic sciences, regardless of track chosen. The master's thesis or doctoral dissertation topic is not constrained by choice of track.

ATOC offers many graduate elective courses, and students are encouraged to take related electives offered by other departments.

**Prerequisites.** An undergraduate degree in mathematics, physics, engineering, chemistry or another natural science is recommended. The general prerequisites expected of incoming graduate students include undergraduate courses in calculus, linear algebra, differential equations and computer programming; as well as one-year sequences of undergraduate calculus-based physics and chemistry. Upper-division undergraduate courses in physics, chemistry, engineering and mathematics are strongly recommended. Undergraduate courses in atmospheric and oceanic sciences are useful, but not expected, as part of the undergraduate background.

## Master's Degree

**Course Requirements.** For both thesis and nonthesis options, a total of 30 credit hours is required with at least 15 credit hours of ATOC courses numbered 5000 and above. Other specific course requirements are in the *ATOC Graduate Handbook*.

**Examinations.** For the thesis option, the final examination consists of an oral exam on the thesis. There is a written final exam for the nonthesis option.

## Doctoral Degree

**Course Requirements.** A total of 36 credit hours is required including the 18 credit hours in ATOC core courses listed above, as well as a graduate-level course in applied or computational

Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

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mathematics. In addition, 30 dissertation hours are required. Other specific course requirements are covered in the *ATOC Graduate Handbook*.

**Examinations.** Students must pass a two-part comprehensive examination before admission into candidacy. Part I of the comprehensive examination is a written exam based on course material and is normally taken in the second year. Part II of the comprehensive examination is normally taken in the third year and is an oral examination based on an original research paper prepared by the student. After a preliminary copy of the dissertation has been accepted for defense by the student's committee, a final examination on the dissertation and related topics is conducted.

## Certificate Program(s)

### Atmospheric and Oceanic Sciences Certificates

In addition to doctoral and master's degrees, ATOC offers graduate certificates in **Atmospheric and Oceanic Sciences (ATOC)** and **Oceanography**. Students majoring in atmospheric and oceanic sciences or other associated departments may wish to consider obtaining one of these certificates to emphasize on their vita that they have specialized in that additional area. Students who are not enrolled in a graduate degree program, but have received a BA or BS degree and meet the course prerequisites, may also enroll in courses to obtain the ATOC Certificate or the Oceanography Certificate through the ACCESS program of Continuing Education.

### Graduate Certificate in Atmospheric and Oceanic Sciences (ATOC)

Students who wish to obtain the Graduate Certificate in Atmospheric and Oceanic Sciences (ATOC) must complete four ATOC graduate level courses\* or their cross-listed equivalents (i.e., ATOC 5151 or CHEM 5151) provided the cross-listed equivalents are not offered through the student's home department(s). To satisfactorily complete a course, students must earn a grade of *B* or better.

\*ATOC graduate level courses are considered those above the 5000 level. ATOC 5000 Critical Issues in Climate and the Environment cannot be applied towards the ATOC certificate requirements.

Students must meet course prerequisites prior to enrollment. Most of the ATOC Graduate Certificate courses require at least one year of calculus and one year of calculus-based physics.

Upon Completion of the ATOC Graduate Certificate requirements, students must complete a Graduate Certificate Request Form and submit it, together with a copy of their unofficial CU transcript, to the ATOC graduate program assistant ([atocasst@colorado.edu](mailto:atocasst@colorado.edu)).

### Graduate Certificate in Oceanography

Students who wish to obtain the Graduate Certificate in Oceanography must complete at least three oceanography core courses (see below) passed with a letter grade of *B* or better. In addition, students may take an independent study course to replace one of the core courses.

#### Courses for the Oceanography Certificate

- ATOC 5051 Introduction to Physical Oceanography
- ATOC 5061 Dynamics of Oceans
- ATOC 5200 Biogeochemical Oceanography

- ATOC 5300 The Global Carbon Cycle
- ASEN/ATOC 5215/4215 Descriptive Physical Oceanography
- ASEN 5307/4307 Engineering Data Analysis Methods
- ASTR/ATOC 5400 Introduction to Fluid Dynamics
- ASTR/ATOC 5410 Fluid Instabilities, Waves and Turbulence
- GEOL 5060 Oceanography
- GEOL 5270 Marine Chemistry and Geochemistry
- GEOL 5430 Paleoceanography and Paleoclimatology

For additional information about the ATOC Certificate or the Oceanography Certificate, contact the Department of Atmospheric and Oceanic Sciences, University of Colorado Boulder, 311 UCB, Boulder, CO 80309-0311, **303-492-7167** or [atocasst@colorado.edu](mailto:atocasst@colorado.edu).

## Graduate Certificate in Remote Sensing

The Graduate Certificate in Remote Sensing is administered by the Department of Aerospace Engineering Sciences. For more information see [www.colorado.edu/aerospace/current-students/graduates/curriculum/remote-sensing-earth-space-science/remote-sensing-certificate](http://www.colorado.edu/aerospace/current-students/graduates/curriculum/remote-sensing-earth-space-science/remote-sensing-certificate) or contact the Remote Sensing Graduate Committee:

University of Colorado  
Aerospace Engineering Sciences  
Graduate Advisor/RSS certificate committee  
429 UCB  
Boulder, Colorado 80309-0429  
[aerograd@colorado.edu](mailto:aerograd@colorado.edu)



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## Behavioral Genetics

The Institute for Behavioral Genetics (IBG) offers a training program in behavioral genetics. The goal of the program is to train scientists in the study of genetic contributions to individual differences in behavior. This is accomplished by requiring students to obtain strong training in a primary academic discipline, by providing training in the interdisciplinary field of behavioral genetics, and by providing an atmosphere in which close interactions among scholars with different perspectives may be established.

While no undergraduate degree is currently offered, the Undergraduate Research Opportunities Program (UROP) enables students to work closely with a professor on the research of their choice, preparatory to graduate work in behavioral genetics. For more information, see [enrichment.colorado.edu/urop](http://enrichment.colorado.edu/urop).

### Graduate Degree Program(s)

#### Graduate Study in Behavioral Genetic

The graduate program features a core set of courses and continuous research training with one or more IBG faculty members, and furnishes valuable opportunities for interaction among scholars with widely varying academic backgrounds. A student wishing to specialize in behavioral genetics must be regularly enrolled as a graduate student in an academic department of the university. The training program requires completion of:

- four core courses (Genetics, Molecular and Behavioral Genetics, Statistics, and Scientific Integrity)
- one course from core quantitative electives (Quantitative Genetics, Biometrical Methods in Behavioral Genetics, and Statistical Genetics)
- one course from core basic science electives (Bioinformatics and Genomics, Neuropharmacology)
- one "Concepts" or "Seminar" course in behavioral genetics

Students also must participate in a weekly journal club and monthly colloquia series.

Each trainee works as a teaching assistant for one semester in a course relevant to his or her professional specialty. An IBG trainee's doctoral dissertation research must be conducted on a topic directly relevant to animal or human behavioral genetics. A student in the interdisciplinary certificate program must have an IBG faculty member as an advisor and an advisory committee composed of faculty from both IBG and the academic department. The advisory committee evaluates the student's progress and may impose additional requirements. Information about the IBG interdisciplinary certificate program may be obtained at [www.colorado.edu/ibg/education\\_and\\_training/affiliated.html](http://www.colorado.edu/ibg/education_and_training/affiliated.html) or by contacting the Institute for Behavioral Genetics, University of Colorado Boulder, 447 UCB, Boulder, CO 80309-0447; **303-492-7362**; fax **303-492-8063**.

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  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences

#### • Behavioral Genetics

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- British and Irish Studies
- Central and East European Studies
- Chemistry and Biochemistry
- Classics
- Cognitive Science Studies
- Comparative Literature
- Computer Science

- Distributed Studies Program
- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
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## Biological Sciences

Course work and degree programs in the biological sciences are offered through the following departments:

- Ecology and Evolutionary Biology (formerly the Department of Environmental, Population and Organismic Biology)
- Molecular, Cellular and Developmental Biology
- Integrative Physiology

Students should refer to program and course descriptions listed for each department.

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### • Biological Sciences

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- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
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## British and Irish Studies

The Center for British and Irish Studies encourages students to develop programs that include a focus on British and Irish culture, history and contemporary life from a variety of disciplinary perspectives. At the undergraduate level, the center offers a certificate in British and Irish studies for students who have taken 24 credit hours in British and Irish literature, history and/or other fields.

For graduate students, it offers occasional interdisciplinary seminars. These offer exposure to methods and sources outside the students' own departments and provide preprofessional training in presenting research. The center offers travel fellowships for graduate students for research and conference presentations.

For more information, contact the Center for British and Irish Studies at [katherine.eggert@colorado.edu](mailto:katherine.eggert@colorado.edu). For more information go to [www.colorado.edu/artssciences/british](http://www.colorado.edu/artssciences/british).

### Certificate Program(s)

## Certificate in British and Irish Studies

Undergraduates interested in the literature, history and culture of Britain and Ireland are encouraged to develop an interdisciplinary concentration in British and Irish Studies. Completed in addition to a regular departmental major, this work will lead to a Certificate in British and Irish Studies. The certificate demonstrates that the student has done serious work in several aspects of British and Irish Studies and will be advantageous when applying to graduate school or for jobs. It is open to students in any school or college.

Students will gain a diverse perspective of Britain. Upon successful completion of requirements, students will be awarded an official Certificate in British and Irish Studies, signed by the Director of the Center for British Studies and the Dean of Arts and Sciences. The certificate may be used by the student in applying for graduate school or employment, as evidence of a sustained interdisciplinary concentration in British and Irish Studies.

### Requirements

Total of 24 credits in British and Irish Studies (normally eight courses of 3 hours each) with a grade of C- or better in all classes.

The courses should be distributed as follows:

- In the department of primary focus (either English or history, depending on the student's own interests), any four courses in British or Irish studies. CBIS will provide a list of possible courses (*see below*).
- In the secondary department (either history, English or political science, depending upon primary area), a minimum of two courses and a maximum of four courses. CBIS will provide

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#### • **British and Irish Studies**

- Central and East European Studies
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a list of possible courses (*see below*). Topics courses may be substituted with approval of the director.

- Students may take one or two courses in departments other than English, history or political science, chosen from the list below, in place of courses in the secondary department. Students are encouraged to do some work of an explicitly interdisciplinary nature such as team-taught courses offered by two departments or an independent study or honors thesis spanning two disciplines.
- Studying in Britain or Ireland would be a fine addition to the certificate. Contact the Office of International Education, Center for Community S355, 303-492-6016, for information on CU's Study Abroad programs.

## Approved Courses

- ECON 4514—3
- ENGL 1500—3, 2222—3, 2503—3, 2504—3, 2767—3, 3000—3, 3010—3, 3068—3, 3078—3, 3164—3, 3523—3, 3533—3, 3544—3, 3553—3, 3563—3, 3564—3, 3573—3, 3583—3, 3604—3, 4003—3, 4113—3, 4224—3, 4513—3, 4514—3, 4524—3, 4583—3, 4624—3, 4634—3, 4693—3
- HIST 1113—3, 1123—3, 3113—3, 3133—3, 4013—3, 4053—3, 4063—3, 4083—3, 4123—3, 4125—3, 4133—3, 4143—3, 4153—3, 4339—3, 4349—3
- PSCI 2004—3, 3074—3, 4002—3, 4213—3, 4302—3

## Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
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## Central and East European Studies

Students who seek in-depth, interdisciplinary knowledge of the region are encouraged to pursue the Certificate in Central and East European Studies (CEES). The certificate program offers students the opportunity to explore the culture, history and politics of the nations of central and eastern Europe from a variety of disciplinary perspectives.

The purpose of the certificate program is to enhance, rather than to replace, the department major. Students work with CEES faculty advisors to plan an appropriate certificate program. The certificate is issued by the dean of the College of Arts and Sciences, and is awarded in addition to a bachelor's degree in another field.

Contact the director of Central and East European Studies, Professor Laura Osterman at **303-492-7729** or [Laura.Osterman@colorado.edu](mailto:Laura.Osterman@colorado.edu) for information.

**Course code for this program is CEES.**

### Certificate Program(s)

#### Certificate in Central and East European Studies (CEES)

The certificate program involves 24 hours of credit, including an introductory course (CEES/HIST 1626) and at least one course from each of three core clusters (historical, social science and literature/culture). Students pursuing the CEES certificate are strongly encouraged to take advantage of a recognized study abroad program in eastern Europe affiliated with CU-Boulder. Courses taken in such a program, as approved by an advisor, count toward the certificate in CEES. Only 9 credits that apply to the major can be used to fulfill requirements for the CEES certificate.

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  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - **Central and East European Studies**
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
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Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
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## Chemistry and Biochemistry

The undergraduate degree in chemistry and biochemistry emphasizes knowledge and awareness of:

- the basic principles of chemistry—atomic and molecular theory, reactivities and properties of chemical substances and the states of matter;
- the basic subfields of chemistry—organic, physical, analytical and inorganic chemistry (and biochemistry for biochemistry majors);
- mathematics sufficient to facilitate the understanding and derivation of fundamental relationships and to analyze and manipulate experimental data;
- the basic principles of physics (and for biochemistry majors, knowledge of biology); and
- safe chemical practices, including waste handling and safety equipment.

In addition, students completing the degree in chemistry or biochemistry are expected to acquire the ability and skills to:

- read, evaluate and interpret information on a numerical, chemical and general scientific level;
- assemble experimental chemical apparatus, design experiments and use appropriate apparatus to measure chemical composition and properties (for biochemistry students, this includes properties of proteins, nucleic acids and other biochemical intermediates); and
- communicate results of scientific inquiries verbally and in writing.

**Course code for this program is CHEM.**

### Bachelor's Degree Program(s)

## Undergraduate Study in Chemistry and Biochemistry

A student can earn a bachelor's degree in either chemistry or biochemistry. For either option, students must complete the general requirements of the College of Arts and Sciences and the required courses listed below.

### BA in Chemistry Option

#### **Required Courses and Semester Credit Hours**

- CHEM 1400 and 1401 Foundations of General Chemistry lecture and lab and CHEM 2100 and 2101 Chemical Energetics and Dynamics lecture and lab, or CHEM 1113/1114 and CHEM 1133/1134, General Chemistry 1 and 2 lecture and lab, or CHEM 1251 and CHEM 1271, General Chemistry 1 and 2 for Chemistry and Biochemistry majors also accepted.—  
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- CHEM 3451 Organic Chemistry 1 for Chemistry and Biochemistry majors, and CHEM 3471 Organic Chemistry 2 for Chemistry Majors or CHEM 3391 Organic Chemistry 2 for Biochemistry Majors. CHEM 3311 and 3331 Organic Chemistry 1 and 2, also accepted.—8
- CHEM 3361 and 3381 Laboratory in Organic Chemistry 1 and 2 for chemistry majors—4
- CHEM 4011 Inorganic Chemistry—3
- CHEM 4171 Instrumental Analysis 1—3
- CHEM 4181 Instrumental Analysis 2—3
- CHEM 4511 and 4531 Physical Chemistry 1 and 2 or—6
- CHEM 4581/4591 Physical Chemistry Labs 1 and 2—3
- PHYS 1110 and 1120 General Physics 1 and 2—8
- PHYS 1140 Experimental Physics 1—1
- MATH 1300, 2300 and 2400, Analytical Geometry, and Calculus 1, 2 and 3 or APPM 1350, 1360 and 2350—12/14
- All students, and especially those intending to go on to graduate school in chemistry, will benefit from additional advanced courses. Recommended electives include the following: CHEM 3151, 3251, 4021, 4131, 4141, 4251, 4261, 4271, 4611, 4700, 4720, 4740, 4901, graduate courses in various fields of chemistry or advanced courses in mathematics or physics.

## BA in Biochemistry Option

### *Required Courses and Semester Credit Hours*

- CHEM 1400 and 1401 Foundations of General Chemistry lecture and lab or CHEM 1113/1114 and CHEM 1133/1134, General Chemistry 1 and 2 lecture and lab, or CHEM 1251 and CHEM 1271, General Chemistry 1 and 2 for Chemistry and Biochemistry Majors, also accepted.—5/10
- CHEM 3451 Organic Chemistry 1 for Chemistry and Biochemistry Majors, and CHEM 3391 Organic Chemistry 2 for Biochemistry Majors or CHEM 3471 Organic Chemistry 2 for Chemistry Majors. CHEM 3311 or 3331 Organic Chemistry 1 and 2, also accepted.—8
- CHEM 3321 and 3341 Laboratory in Organic Chemistry 1 and 2 or CHEM 3361 and 3381 Laboratory in Organic Chemistry for Majors 1 and 2.—2/4
- CHEM 4400 Core Concepts in Physical Chemistry for Biochemists, or CHEM 4511 and 4531 Physical Chemistry 1 and 2.—4/6
- CHEM 4700 Foundations of Biochemistry.—4
- CHEM 4720 Metabolic Pathways and Human Disease, or CHEM 4740 Biochemistry of Gene Transmission, Expression and Regulation.—4
- CHEM 4761 Biochemistry Laboratory.—4
- PHYS 1110 and 1120 General Physics 1 and 2.—8
- PHYS 1140 Experimental Physics.—1
- MATH 1300 and 2300 Analytical Geometry and Calculus 1 and 2, or APPM 1350 and 1360.—8/10
- MCDB 1150 Introduction to Molecular Biology, MCDB 1151 Introduction to Molecular Biology Lab, MCDB 2150 Principles of Genetics and MCDB 2151 Principles of Genetics Laboratory or EBIO 1210 and 1220 General Biology 1 and 2, and EBIO 1230 and 1240 General Biology Laboratory 1 and 2.—8

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- Spanish and Portuguese
- Speech, Language and Hearing

- Three of the following: CHEM 4720 (if not taken as a required major course), CHEM 4740 (if not taken as a required major course; cannot also count MCDB 3135 as a required ancillary course), CHEM 4621, CHEM 4751, CHEM 4791, CHEM 4011, CHEM 4171, CHEM 4181, CHEM 5341, MCDB 3135 (cannot also count CHEM 4740 as a required ancillary course), MCDB 3145, MCDB 3150, MCDB 3280, MCDB 3501, MCDB 3650, MCDB 3990, MCDB 4310, MCDB 4410, MCDB 4471, MCDB 4520, EBIO 2070 (cannot also count MCDB 2150 as a required ancillary course), EBIO 3400, EBIO 4530, IPHY 3430, IPHY 3470, IPHY 3480 and 2151.—9/12
- All students, and especially those intending to go onto graduate school in biochemistry, will benefit from additional advanced courses. Recommended electives include graduate courses in various fields of chemistry, or advanced courses in biology or mathematics.

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain progress in chemistry and biochemistry, students should meet the following requirements:

- Declare chemistry or biochemistry as the major in the first semester.
- Students must consult with a major advisor to determine adequate progress toward completion of the major.

## Chemistry Honors Program

Opportunity is provided for qualified chemistry and biochemistry majors to participate in the departmental honors program and graduate with honors (*cum laude*, *magna cum laude*, or *summa cum laude*) in chemistry or biochemistry. Students interested in the honors program should contact the departmental honors advisor during their junior year.

## Transfer Students

Transfer students who plan to take a chemistry or biochemistry major must complete at the Boulder campus a minimum of 12 credit hours of upper-division work covering at least two subdisciplines: organic, physical, analytical and inorganic for chemistry majors; organic biochemistry and physical for biochemistry majors.

A more detailed listing of the bachelor’s degree program, together with advising information and alternate course options, is available at the undergraduate office in the Department of Chemistry and Biochemistry.

## Minor Programs

Minors are offered in chemistry and in biochemistry. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school. The College of Arts and Sciences will allow a maximum of 9 hours of transfer credit, including 6 upper-division credit hours to count toward a minor. Students may transfer in through organic chemistry only. All courses required for the minor must be completed with a grade of C- or better, and the overall GPA in all CHEM courses taken must be a 2.00. Students who have taken CHEN 1211 and CHEM 1221 may substitute them for General Chemistry 1. Engineering students who have taken CHEM 4521 may use this to satisfy the Physical Chemistry 1 requirement for both minors. Required courses are listed below.

## Minor in Chemistry

- CHEM 1113/1114 and 1133/1134 General Chemistry 1 and 2. CHEM 1251 and CHEM 1271 General Chemistry 1 and 2 for Chemistry and Biochemistry Majors, also accepted—10

### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

- CHEM 3311, 3331, 3321, and 3341 Organic Chemistry 1 and 2 lecture and lab. CHEM 3351, 3371, 3361 and 3381 Organic Chemistry 1 and 2 lecture and lab for Chemistry and Biochemistry Majors, also accepted—10-12
- CHEM 4411 Physical Chemistry 1 with Biological Applications or CHEM 4511 Physical Chemistry 1 (It should be noted that Physical Chemistry 1 has a prerequisites of Calculus 3 and a prerequisite or co-requisite of PHYS 1120.)—3
- CHEM 4431 Physical Chemistry 2 with Biological Applications, CHEM 4531 Physical Chemistry 2, CHEM 4011 Inorganic Chemistry or CHEM 4171 Principles of Instrumental Analysis—3

## Minor in Biochemistry

- CHEM 1113/1114 and CHEM 1133/1134 General Chemistry 1 and 2. CHEM 1251 and 1271 General Chemistry 1 and 2 for Chemistry and Biochemistry Majors, also accepted—10
- CHEM 3311, 3331, 3321 and 3341 Organic Chemistry 1 and 2 lecture and lab. CHEM 3351, 3371, 3361 and 3381, Organic Chemistry 1 and 2 lecture and lab —10-12
- CHEM 4400, Core Concepts in Physical Chemistry for Biochemists or CHEM 4411, Physical Chemistry 1 with Biological Applications or CHEM 4511, Physical Chemistry 1.
- CHEM 4611, Survey of Biochemistry or CHEM 4700 Foundations of Biochemistry and one of: CHEM 4720 Metabolic Pathways and Human Disease or CHEM 4740, Biochemistry of Gene Transmission, Expression and Regulation.

## American Chemical Society Certification

The American Chemical Society maintains a certification program in which a student graduating with a specified minimum program is certified to the society upon graduation. To be certified, a graduate must satisfy requirements in addition to the minimum for graduation. The department offers this certificate for the chemistry or chemistry/biochemistry double majors only. A list of these requirements may be obtained from the undergraduate chemistry and biochemistry advising office.

## Graduate Degree Program(s)

### Graduate Study in Chemistry and Biochemistry

Students wishing to pursue graduate work in chemistry or biochemistry leading to candidacy for an advanced degree should read carefully requirements for advanced degrees in the Graduate School section. For information on the doctoral program in chemical physics offered jointly with the Department of Physics, see below. Following are some of the special departmental requirements. Copies of more detailed rules are available on the [department website](#).

**Prerequisites.** An undergraduate major in chemistry, biochemistry or a related field is desirable since entering graduate students are required to take examinations and complete selected course work covering the major fields of chemistry or biochemistry. The GRE general test is required for admission and for fellowship consideration. Either the GRE subject test in chemistry or the test in biochemistry, cell and molecular biology is optional, but highly recommended.

### Master's Degree

Students are not admitted for the master's degree but may be transferred to the MS plan if they are unable to meet the demands of the PhD program.

**Language.** The department does not require foreign language proficiency for the master's degree.

**Examinations.** Administration of preliminary examinations varies, depending on students' entering field. Candidates opting for MS Plan I must pass a master's thesis defense examination at the time they complete their work. MS Plan II does not require a final oral examination.

**Course Requirements.** There are two methods of obtaining a master's degree from the Department of Chemistry and Biochemistry. Plan I requires 30 credit hours, including 15 credit hours of formal course work, 15 credit hours in research/seminar courses, the completion of a research investigation and the presentation of a thesis. Plan II requires 30 credit hours including 21 credit hours of formal course work plus 9 credit hours of research/seminar and presentation of a research report, but no thesis; both plans are available only with departmental approval.

## Doctoral Degree

**Language.** The department does not require foreign language proficiency for the PhD degree.

**Examinations.** Administration of preliminary examinations varies, depending on students' entering field. These examinations are used in an advisory capacity. The minimum course work is 30 credit hours at the 5000, 6000 or 7000 level, of which 15 credit hours must be in formal course work. In addition, a minimum of 30 credit hours of dissertation work (CHEM 8991) is required. PhD students must pass a comprehensive examination consisting of written exams and an oral examination. Students entering with a master's degree may take the oral examinations in their second semester; others start them in their fourth semester. Candidates must write a research proposal during their studies, complete a research investigation and present a thesis and pass a PhD final oral examination at the time they complete their work.

## Doctoral Degree in Chemical Physics

Chemical physics is a discipline at the interface between chemistry and physics. Chemical physics applies physical methods and theory to study molecular and collective properties of matter. The focus is on understanding complex phenomena from gas phase molecular dynamics, to nanoscale, mesoscale and biological phenomena, through model systems and fundamental physical principles.

Students wishing to pursue the doctoral degree in chemical physics should apply for admission to either the Department of Chemistry and Biochemistry or the Department of Physics.

The chemical physics program allows students to strike a balance between core courses and courses that are better suited to address the student's specific research goals and interests. Students must consult with the chemical physics graduate advisors in their parent departments, either chemistry and biochemistry or physics, to plan their formal course work.

After completing an approved curriculum of formal course work, the student advances to candidacy in chemical physics by passing an oral exam.

The program is administered by an interdepartmental committee. For further information, contact the graduate program assistant in either the Department of Chemistry and Biochemistry or the Department of Physics.

## Certificate Program(s)

### Graduate Certificate in Molecular Biophysics

This program introduces graduate students to the field of biophysics, its methodologies and the state-of-the-art biophysical research efforts being carried out in diverse laboratories and departments on the CU-Boulder campus. It creates interdepartmental connections that provide the breadth of training needed to develop biophysical scholars.

Students must be admitted through the regular admissions process to a PhD program in one of the following departments:

- chemical and biological engineering;
- chemistry and biochemistry;
- molecular, cellular and developmental biology; or
- physics

They must satisfy all of their home department's requirements to receive a PhD.

## Requirements

- Participation in one to three laboratory rotations outside the thesis lab, which provide experience with a range of biophysical methods. Subsequently the student joins one of the member laboratories of the training program for thesis work.
- Completion of two courses chosen from a list of approved courses. Currently this list includes 15 courses in areas ranging from theoretical physics to molecular and cellular biophysics.
- Annual meeting with a faculty advisory committee that provides helpful feedback on the thesis research.
- Students are expected to take part in a seminar series, which presents internationally renowned speakers and their research. They also are required to participate in supergroup meetings and symposia, which provide forums for them to present their own research in front of their colleagues and advisory committee.

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## Classics

Through consultation with the undergraduate advisor, the bachelor's degree in classics is tailored to the student's interests in the field. Major and minor programs can be arranged with a concentration in either Latin or Greek or a combination of the two, with a focus on classical literature, culture and thought (including mythology, literature, philosophy, religion, art, archaeology and history) or with a particular emphasis on classical history, art and archaeology. Prospective majors and minors should consult with the undergraduate advisor.

The undergraduate degree in classics emphasizes knowledge and awareness of:

- the fundamental outlines of the history of Greek and Roman literature, from Homer to the end of classical antiquity;
- the historical and cultural contexts of particular works; and
- the art, religion and philosophy of ancient Greece and Rome and their roles in world cultural history.

In addition, students completing the degree in classics are expected to acquire the ability and skills to:

- read, understand and interpret written documents and works of literature in ancient Greek or Latin where relevant, as well as in translation;
- communicate in spoken and written form with adequate clarity and complexity for the relevant audience; and
- read and think critically.

Interested students are encouraged to consult [classics.colorado.edu/undergraduate](http://classics.colorado.edu/undergraduate) for more information.

**Course codes for this program are CLAS, GREK and LATN.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Classics

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below. Students must complete the College of Arts and Sciences major requirements, including: a minimum of 36 hours, all with a grade of a C- or better, in the major; a minimum 2.00 GPA for courses in the major; and a minimum of 18 upper-division hours in the major.

### Track I: Greek, Latin or Greek and Latin

#### *Required Courses and Semester Credit Hours*

#### □ Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry

#### • Classics

- Cognitive Science Studies
- Comparative Literature
- Computer Science
- Distributed Studies

- Greek and/or Latin—30

*Note: Students should designate either Greek or Latin as the primary field of language study. The introductory sequence, GREK 1013-1023 or LATN 1014-1024, of the primary language does not count toward the major. If a student also takes the second language, all credits taken in that language as well as any other Greek and Latin credits above the 1000-level count toward the major. If a student has learned the equivalent of the introductory sequence in the primary language before beginning language study at CU and begins language instruction in the department at the 2000-level or above, all credits in both languages immediately count toward the major.*

- Electives (classical literature, culture and thought or ancient history, art and archaeology courses listed under Tracks II and III)—6

## Track II: Literature, Culture, and Thought

### Required Courses and Semester Credit Hours

- Classical literature, culture and thought (CLAS 1010, 1030, 1100, 1110, 1115, 1120, 1140, 2020, 2100, 2110, 2610, 3820, 4040, 4110, 4120, 4130, 4140, 4840; HEBR 1030; PHIL 3000)—18
- Ancient history, art, and archaeology (CLAS 1051, 1061, 1509, 2039, 2041, 2049, 3009, 3019, 4021, 4031, 4041, 4061, 4071, 4081, 4091, 4109, 4119, 4129, 4139, 4149, 4169, 4199, 4209, 4219, 4761, 4849; HIST 3011)—12
- Greek and/or Latin—6  
*Note: Students should designate either Greek or Latin as the primary field of language study. The introductory sequence, GREK 1013-1023 or LATN 1014-1024, of the primary language does not count toward the major. If a student also takes the second language, all credits taken in that language as well as any Greek and Latin credits above the 1000-level count toward the major. If a student has learned the equivalent of the introductory sequence in the primary language before beginning language study at CU and begins language instruction in the department at the 2000-level or above, all credits in both languages immediately count toward the major.*

## Track III: History, Art and Archaeology

### Required Courses and Semester Credit Hours

- Ancient history, art and archaeology (CLAS 1051, 1061, 1509, 2039, 2041, 2049, 3009, 3019, 4021, 4031, 4041, 4061, 4071, 4081, 4091, 4109, 4119, 4129, 4139, 4149, 4169, 4199, 4209, 4219, 4761, 4849; HIST 3011)—18
- Classical literature, culture and thought (CLAS 1010, 1030, 1100, 1110, 1115, 1120, 1140, 2020, 2100, 2110, 2610, 3820, 4040, 4110, 4120, 4130, 4140, 4840; HEBR 1030; PHIL 3000)—12
- Greek and/or Latin—6  
*Note: Students should designate either Greek or Latin as the primary field of language study. The introductory sequence, GREK 1013-1023 or LATN 1014-1024, of the primary language does not count toward the major. If a student also takes the second language, all credits taken in that language as well as any Greek and Latin credits above the 1000-level count toward the major. If a student has learned the equivalent of the introductory sequence in the primary language before beginning language study at CU and begins language instruction in the department at the 2000-level or above, all credits in both languages immediately count toward the major.*

## Graduating in Four Years

### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here refers only to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in classics, students should meet the following requirements:

- Declare the classics major by the beginning of the second semester.
- Students must consult frequently with a major advisor to determine adequate progress toward completion of the major.

## Minor in Classics

The department offers a minor in classics for students who would like to study the world of antiquity, but don't have the time to devote to a major. Students are subject to the College of Arts and Sciences minor requirements, including:

- A minimum of 18 hours, all with a grade of C- or better, in the minor
- A minimum 2.00 GPA for courses in the minor
- A minimum of 9 upper-division hours in the minor

The specific requirements for completion of the classics minor are as follows:

### *Required Courses and Semester Credit Hours*

#### Track I: Greek and/or Latin Language and Literature

- Greek and/or Latin—12  
*Note: Students should designate either Greek or Latin as the primary field of language study. The introductory sequence, GREK 1013-1023 or LATN 1014-1024, of the primary language does not count toward the minor. If a student also takes the second language, all credits taken in that language as well as any other Greek and Latin credits above the 1000-level count toward the minor. If a student has learned the equivalent of the introductory sequence in the primary language before beginning language study at CU and begins language instruction in the department at the 2000-level or above, all credits in both languages immediately count toward the minor.*
- Electives (classical literature, culture and thought; or ancient history, art and archaeology courses listed under Track II)—6

#### Track II: Classical Studies

- Classical literature, culture and thought (CLAS 1010, 1100, 1110, 1115, 1120, 1140, 2100, 2110, 2610, 3330, 3820, 4040, 4110, 4120, 4130, 4140, 4840; PHIL 3000)—6 or 9
- Ancient history, art and archaeology (CLAS 1041, 1051, 1061, 1509, 2020, 2039, 2049, 2100, 2110, 3009, 3019, 4021, 4031, 4041, 4051, 4061, 4081, 4091, 4119, 4139, 4149, 4169, 4199, 4761, 4849, HIST 3011)—6 or 9
- Greek and/or Latin—3  
*Notes: Students must elect 6 hours each in the Classical Literature, Culture and Thought group and the Ancient History, Art and Archaeology group. 3 remaining hours may be elected in either group.*
- *Note: Students should designate either Greek or Latin as the primary field of language study. The introductory sequence, GREK 1013-1023 or LATN 1014-1024, of the primary language does not count toward the minor. If a student also takes the second language, all credits taken in that language as well as any Greek and Latin credits above the 1000-level count toward the minor. If a student has learned the equivalent of the introductory sequence in the primary language before beginning language study at CU and begins language*

#### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

*instruction in the department at the 2000-level or above, all credits in both languages immediately count toward the minor.*

## Graduate Degree Program(s)

### Master's Degrees in Classics

Candidates may choose to emphasize Greek, Latin, classical art and archaeology, classical antiquity or the teaching of Latin (MAT). Visit [classics.colorado.edu/graduate-degrees-classics](https://classics.colorado.edu/graduate-degrees-classics).

It is expected that students opting for the teaching of Latin either have achieved accreditation at the secondary level or are planning to do so through the School of Education. The MA degree alone does not satisfy the state requirements for certification.

**Degree Requirements.** Candidates for the **MA degree in Latin or Greek** are required to complete at least six graduate level courses in Greek and/or Latin and to pass a written examination in translation of the major language. Students intending to pursue the PhD in classics are strongly advised to develop proficiency in both Latin and Greek, and to acquire a reading knowledge of German, French or Italian.

Candidates for the **MA degree in classical art and archaeology** are required to complete at least two graduate-level courses in Greek and/or Latin and five graduate-level courses in ancient and/or medieval art and archaeology. In addition, they must pass written examinations on Greek and Roman art and archaeology. Students intending to pursue the PhD in classical archaeology are strongly recommended to develop proficiency in both Latin and Greek and to acquire a reading knowledge of German, French or Italian. With the approval of the associate chair for Graduate Studies, graduate-level classes in Greek or Latin may be substituted for classical archaeology or history.

Candidates for the **MA degree with emphasis on classical antiquity** are required to complete at least two graduate-level courses in Greek and/or Latin and must pass a written examination in two of the following fields: history, art and archaeology, religion and mythology, philosophy and political theory and Greek or Latin translation.

Candidates for the **MA Plan I** (24–27 hours of course work at the 5000-level or above, plus 3–6 credit hours of thesis) take an oral comprehensive examination in defense of the thesis. Candidates for the **MA Plan II** (30 credit hours at the 5000-level or above, without thesis) must have departmental approval and pass an oral comprehensive examination covering their course work and reading lists for their exams.

Candidates for the **MA degree with emphasis on the teaching of Latin** must pass a written examination in Latin translation and an oral comprehensive examination on teaching methods and their own Latin teaching project. Thirty hours of course work, including one Latin workshop and a special project, are required. Plan I is not offered for the MA degree with emphasis on teaching.

### Doctoral Degrees in Classics

Candidates for the PhD in classics must meet the following requirements (see [classics.colorado.edu/graduate](https://classics.colorado.edu/graduate)):

1. A minimum of 42 hours of course work at the 5000 level or above (excluding thesis and accelerated courses). Course work completed in the MA program at the University of Colorado, or up to 21 hours of graduate credit transferred from another institution, may be applied toward this requirement. Courses should be distributed as follows:
  - a. Four 7000-level graduate seminars (at least one each in Greek and Latin).
  - b. Two courses in ancient history and/or classical archaeology.

- c. One course in either Greek or Latin prose composition.
  - d. Two courses in special fields such as epigraphy, law, linguistics, literary theory, medieval studies, palaeography, papyrology, philosophy or religion, as approved by the associate chair for graduate studies.
2. A minimum of 30 hours of doctoral dissertation credit with no more than 10 of these hours in any one semester. No more than 10 dissertation hours may be taken preceding the semester of taking the Oral Comprehensive Examination. Up to 10 hours may be taken during the semester in which the student passes the comprehensive examination.
  3. A reading knowledge of German and one other modern foreign language (normally Italian or French). Proficiency is tested by a one-hour written translation test using a dictionary. Students may take a Foreign Language Exam at any time by arrangement with the associate chair for graduate studies. Students are encouraged to pass both modern language exams before the end of the third semester and required to do so before the end of the fourth semester in the PhD program.
  4. **Preliminary Examinations in Greek and Latin.** Two written examinations of three hours each, each consisting of two hours of translation and one hour of analysis of texts. The translation portion of each exam will consist of two out of three prose passages and two out of three verse passages for a total of about 100 lines. On each exam, four of the passages for translation (two prose and two poetry) will be drawn from the relevant reading list posted on the department's website; the other two will not. Each written examination will be followed by a one-hour oral examination that covers the range of Greek or Latin literature represented by the reading list and tests the candidate's general knowledge of the primary sources and literary history. There will be two administrations of each exam per year, in the fall and spring. Students are required to pass both exams by the end of the second semester in the PhD program (or the second semester beyond the MA). Successful completion of the MA in Track I or the equivalent at another university, as determined by the graduate committee, will satisfy one of these examination requirements.
  5. **Comprehensive Examination.** Two written examinations of three hours each on two topics or authors chosen in consultation with faculty members selected by the student and approved by the graduate committee, to be chosen from the following broad areas: language and literature, ancient history, archaeology, philosophy or religion. In selecting the topics for these examinations, students are required to demonstrate balance in the fields of Greek and Roman culture, as determined by the graduate committee. The written comprehensive examinations will be administered twice per year, typically during the last two weeks of the term. Successful completion of the written examination is followed by a two-hour oral exam on Greek and Roman culture within the area of the student's chosen specialization, which should coincide with the student's intended dissertation topic. Students are required to complete these exams by the end of their fourth semester in the PhD program.
  6. **Dissertation Prospectus.** To be circulated to the dissertation advisory committee for approval by the end of the fifth semester in the PhD program.
  7. **Dissertation.** To be completed by the end of the eighth semester in the PhD program.
  8. **Final Examination** (upon submission of dissertation). Two hours of oral defense of the dissertation.



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## Cognitive Science Studies

The **Institute of Cognitive Science** offers academic programs for both graduate and undergraduate students. Cognitive science is the study of human knowledge, of which one aspect is the study of how knowledge is acquired, stored and represented in the mind, including the mind's underlying biological mechanisms. Another aspect of cognitive science concerns how knowledge is understood, remembered, communicated and used in the performance of activities, including the acquisition and application of skills and information. This latter aspect provides the practical applications of cognitive science, and thereby ensures a demand for graduates in both academic and industrial markets. Training for graduates in cognitive science prepares students admirably for many of the fields that are targeted as the major growth fields of the 21st century: **telecommunications, information processing, medical analysis, data retrieval, education and multimedia services.**

The undergraduate program includes courses in the six core departments, with basic courses and two of four possible advanced skill sequences of courses. For more information on undergraduate study, visit [www.colorado.edu/ics/undergraduate-program](http://www.colorado.edu/ics/undergraduate-program).

### Graduate Degree Program(s)

#### Graduate Study in Cognitive Sciences

CU graduate students can apply to a certificate program or a combined PhD in conjunction with their home department PhD program. The combined PhD program allows for interdisciplinary study that adds cognitive science or cognitive neuroscience to the PhD program in the student's home department. There are currently two graduate certificate programs: one has a general science focus, the other focuses on human language technology. Undergraduates may also apply for a certificate program. The Cognitive Science Academic Certificate Programs are interdisciplinary programs for majors in the Departments of Psychology; Philosophy; Linguistics; Education; Speech, Language and Hearing Sciences; Computer Science; and Environmental Design.

For more information, either visit [www.colorado.edu/ics](http://www.colorado.edu/ics) or call Donna Caccamise at **303-735-3602**.

#### Doctoral Degree in Cognitive Science

The cognitive science academic program includes a combined PhD degree between cognitive science and a core discipline, as well as a combined PhD plan of study tailored for students interested in cognitive neuroscience. In addition, there are two certificates at the graduate level of study. The first of these is a certificate in general issues in cognitive science that can be tailored to the individual student's area of interest. The cognitive science curriculum for this certificate is designed to provide broad as well as in-depth training in the cognitive sciences. The second graduate certificate is in Human Language Technology (HLT) and is specifically designed to provide interested graduate students with a rich and broad background in

#### □ Arts & Sciences

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- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - **Cognitive Science Studies**
    - Comparative Literature
    - Computer Science
    - Distributed Studies

computational tools for human language processing. These programs are administered by the Institute of Cognitive Science (ICS) of the University of Colorado Boulder. Graduate students in cognitive science are admitted to graduate programs in participating departments that have cognitive science faculty and must meet the requirements for admission and degree completion in their home department.

Students wishing to attain a degree or certificate in cognitive science must formally apply to the director of Academic Programs of ICS. To be admitted they must be a student affiliate of ICS, which requires being a graduate student in good standing in a member department and they must be sponsored by an ICS faculty member. Students who enter the Graduate School without a master's degree may be admitted to the program upon completion of their first year of study; students with a master's degree may be admitted during their first year.

The degree and certificate programs in cognitive science require students to demonstrate acceptable performance in interdisciplinary course work and courses outside their home department. The courses must be offered by the departments of computer science; education; linguistics; philosophy; psychology; speech/language/hearing sciences; architecture, planning, and design; or another department in which there is an ICS faculty member. Details about requirements for the degree and certificate programs can be obtained through the Director of Academic Programs for ICS, or by contacting the ICS main office.

For further information contact the University of Colorado Boulder, Institute of Cognitive Science, 344 UCB, Boulder CO 80309-0344; **303-492-5063**; [cogsci@colorado.edu](mailto:cogsci@colorado.edu).

## Certificate Program(s)

These certificate programs are administered by the Institute of Cognitive Science (ICS) of the University of Colorado Boulder. Graduate students in cognitive science are admitted to graduate programs in participating departments that have cognitive science faculty and must meet the requirements for admission and degree completion in their home department.

## Graduate Certificate in Cognitive Science

Tailored to the individual student's area of interest, the cognitive science curriculum for this certificate is designed to provide broad as well as in-depth training in the cognitive sciences. Graduate students in good standing in one of the participating academic units—Psychology and Neuroscience, Philosophy; Computer Science; Linguistics; Speech, Language, Hearing Sciences; Education; and Architecture and Planning—may apply to earn a Graduate Certificate in Cognitive Science. Earning such a certificate can significantly enhance a student's academic knowledge and career choices. The Graduate Certificate consists of course requirements only. Review the cognitive science course catalog for course offerings, and also review the program completion checklist to determine progress toward earning the certificate.

## Graduate Certificate in Human Language Technology (HLT)

The growth of the World Wide Web and the vast improvements in computing power of the last decade have led to a greater need for education and research in human language technology. This interdisciplinary field includes key technological and scientific areas such as automatic speech recognition and synthesis, natural language understanding and generation conversational agents, augmentative and alternative communication, audio and text-based information retrieval and grammar and spelling aids. The curriculum for the certificate includes five core courses, consisting of a computer programming foundation course plus four courses in human language technologies (e.g., natural language processing, morphology and syntax, speech processing and recognition). At least two of the language technologies courses must be outside the student's home department. Students are required to major in computer science,

### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
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- Peace and Conflict Studies
- Philosophy
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- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

electrical and computer engineering, linguistics or speech, language and hearing sciences. The program is available to master's or PhD students at CU-Boulder, including students in concurrent bachelor's/master's programs. For further information see [colorado.edu/linguistics/current-students/graduates](http://colorado.edu/linguistics/current-students/graduates), or Institute of Cognitive Science at [www.colorado.edu/ics](http://www.colorado.edu/ics).

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- Writing and Rhetoric, Program for
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## Comparative Literature

The Comparative Literature Graduate Program enables students to study the production, reception and interpretation of written texts and related media from a comprehensive perspective involving at least two national literatures. Comparative literature has long crossed national linguistic frontiers. The discipline today questions the very basis of such boundaries, exploring the construction of national literatures, languages and traditions and, insofar as this can be read in and out of verbal and other media, of nations and national consciousness itself. Extending its reflections on limits still further and in dialogue with other disciplines, the interpretive perspectives of comparative literature are not only crossdisciplinary, multi-media and multilingual, but global. The aim is to analyze the world's cultures both as expressions of the various interdependent histories that have framed them, and as manifestations of the multifacetedness inscribed in the different forms by which human beings shape and communicate their experience. These forms can range from a single literary genre, period, movement or tradition to larger concepts and constructs such as gender, sexuality, theory or culture. Areas of analysis may also include authorship and the literary work, literacy, genre, literary history and the canon. Students wishing to pursue graduate work in comparative literature should read the guidelines for the MA degree in this field, which is available at [complit.colorado.edu](http://complit.colorado.edu).

**Course code for this program is COML.**

### Graduate Degree Program(s)

#### Master's Degree

**Prerequisites.** In addition to an undergraduate major in a relevant field, students applying for admission to the master's program in comparative literature should have completed three years of college-level study or its equivalent in one foreign language. Students are also encouraged to begin study of a second foreign language before applying.

**Course Work Requirements.** Candidates for the MA in comparative literature must take a total of 10 courses (representing 30 credit hours). Half the required credit hours are in courses offered by the Comparative Literature Graduate Program. At least 9 hours are in the department of the student's primary national literature, and an additional 6 hours are in the department of the secondary national literature.

**Examinations and Thesis.** Candidates for the MA in comparative literature must submit and defend orally a master's thesis.

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## Computer Science

Computer science is an exciting and challenging field with impact on much of modern life. Computer scientists craft the technologies enabling the digital devices used every day; developing the large-scale software powering business and industry, advancing the computational techniques and writing the software scientists use to identify and analyze patterns in the behavior of social groups and human behavior in social networks and the applications humanists and linguists use to research language development. Many new applications of computing technology remain to be discovered and computing will be at the heart of future revolutions in business, science and society. Students who study computer science now will be at the forefront of those important advances.

Computer science is concerned with how computers are constructed, how they are used to store and process data, used in problem-solving and used to assess the quality of solutions to problems.

Creating software for a variety of users requires understanding how software interacts with the hardware on which it runs. Computer science goes well beyond the machine to the study of how people interact with the technologies around them. Applications of computer science reach far and wide.

### Career Possibilities

Computer science graduates from CU-Boulder are engaged in a variety of jobs with organizations worldwide in fields such as communications, finance, publishing and research. They are software developers, teachers, writers, doctors, lawyers, scientists, military leaders and entrepreneurs. Many computer science graduates lead highly successful companies that they themselves have founded.

### Facilities, Programs and Opportunities

The Department of Computer Science supports its own domain ([www.colorado.edu/cs](http://www.colorado.edu/cs)) and a modern computing infrastructure facilitating its research and educational missions. The department has a variety of computing facilities for use by faculty, staff and students including general purpose computing labs provided by the university, additional instructional labs and administrative computing resources provided by the department and specialized labs for individual research groups. The variety of computing resources provides students the opportunity to learn about and use cutting-edge equipment and software.

The Undergraduate Research Opportunities Program (UROP) offers students a chance to work alongside a faculty sponsor on original research. Students learn to write proposals, conduct research, pursue creative work, analyze data and present the results. For more information, call UROP at **303-492-2596** or visit [enrichment.colorado.edu/urop](http://enrichment.colorado.edu/urop).

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  - British and Irish Studies
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The department also provides students networking opportunities throughout the year with companies offering paid internships. CU's location near Boulder's tech start-up community, national research labs and traditional tech companies such as Google, IBM, Oracle and Microsoft, gives students with computer science skills many employment opportunities while earning their degrees.

**The course code for this program is CSCI.**

## Bachelor's Degree Program(s)

### BA in Computer Science

The bachelor of arts <sup>[SEP]</sup>in computer science is granted by the College of Arts and Sciences. It may be earned by completing the general requirements of the College of Arts and Sciences, including approximately 46 semester hours of credit in the core curriculum and the required courses listed below. Credits in the major may also apply toward these core courses. A student may not earn both the BS in computer science and the BA in computer science degrees from CU-Boulder. A student may not earn both the BA in computer science and the minor in computer science from CU-Boulder.

NOTE: In order for the College of Arts and Sciences four-year guarantee to apply, an arts and sciences student would need to have enrolled in the BA in computer science major and have taken Calculus 1 and CSCI 1300 CSCI 1310 by their second semester.

#### *Required Courses and Semester Credit Hours*

#### Foundation (all required)

- CSCI 1300 Computer Science 1: Starting Computing or CSCI 1310 CS1: Starting Computing - Experienced—4
- CSCI 2270 Computer Science 2: Data Structures—4
- CSCI 2400 Computer Systems—4
- CSCI 2824 Discrete Structures—3 or other CS department approved Discrete Math course

#### Core Courses (choose four courses from below) <sup>[SEP]</sup>

- CSCI 3002 User Centered Design—3
- CSCI 3104 Algorithms—4
- CSCI 3155 Programming Languages—4
- CSCI 3202 Artificial Intelligence—3
- CSCI 3287 Database and Information Systems—3
- CSCI 3308 Software Development Methods and Tools—3
- CSCI 3434 Theory of Computation—3
- CSCI 3656 Numerical Computation—3
- CSCI 3753 Operating Systems—4
- CSCI 4448 Object Oriented Analysis and Design—3

#### Mathematics

One of the following Calculus sequences: <sup>[SEP]</sup>

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
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- Molecular, Cellular and Developmental Biology
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- Peace and Conflict Studies
- Philosophy
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- Psychology and Neuroscience
- Religious Studies
- Sociology
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- Speech, Language and Hearing

APPM 1350/APPM 1360—8

- APPM 1340/APPM 1345/APPM 1360-10
- MATH 1300/MATH 2300—10

One of the following courses in either Linear Algebra or Probability/Statistics:

Linear Algebra:

APPM 3310 Matrix Methods—3

CSCI 2820 Linear Algebra with Computer Science Applications—3

MATH 3130 Linear Algebra—3

OR

Probability/Statistics:

APPM 3570 Applied Probability—3

APPM 4570 Statistical Methods—3

ECON 3818 Introduction to Statistics with Computer Science Applications—4

MATH 3510 Probability and Statistics—3

MATH 4510 Introduction to Probability Theory—3

## Upper-Division

Three or four additional upper-division CSCI courses—12-15

For more information, visit the department in Engineering Center, ECOT 727 or visit [www.colorado.edu/cs](http://www.colorado.edu/cs).

## Minor in Computer Science

The Department of Computer Science offers a minor in computer science. For more information, visit [www.colorado.edu/cs/bsms-degree/minor](http://www.colorado.edu/cs/bsms-degree/minor).

### Sciences

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- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
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## Distributed Studies Program

Admission to the distributed studies track requires completion of 60 credits or more and permission from the dean's office. The distributed studies track is intended for students who have accumulated a significant number of credit hours toward the completion of one or more majors and are not eligible to continue in those majors.

An individually structured track also is available in the distributed studies program. Students pursuing the individually structured track must write and defend a thesis based on original scholarly or creative work.

For more information, contact the College of Arts and Sciences Academic Advising Center in Woodbury 109.

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## Ecology and Evolutionary Biology

Ecology seeks to understand the processes that control the abundance and distribution of organisms and how they interact with one another in a changing environment. Evolutionary biology provides a unifying conceptual framework for all of biology, including the characteristics of organisms and biological diversity. Taken together, ecology and evolutionary biology form a fundamental, broad, diverse and interdisciplinary area of scientific inquiry. Study in both areas is necessary for understanding the complex biological issues of today, including fighting diseases, understanding of the responses of life and humankind to Earth's changing environment and learning how species develop, thrive and decline. Also, ecology and evolutionary biology are working toward solving some of the world's most demanding problems, including sustainability and the future of life on earth, human health and welfare and wise stewardship of our planet. Students majoring in Ecology and Evolutionary Biology (EBIO) apply scientific approaches to issues in ecology and evolution, with an emphasis on critical evaluation of the literature, generating and testing hypotheses, designing and carrying out experiments to test predictions and articulating, in oral or written form, the results of investigations.

In light of the broad importance of ecology and evolution for fundamental understanding of living systems, the undergraduate EBIO degree emphasizes knowledge and problem-solving in areas of:

- the ecology of organisms, populations and communities
- the distribution and function of terrestrial, freshwater and marine ecosystems
- principles and patterns of evolution, including natural selection and the history of life on Earth
- comparative, systematic, evolutionary and environmental aspects of botany, microbiology and zoology
- adaptation of organisms to the physical and biotic environment
- animal behavior and emotion
- molecular evolution and population genetics
- developmental biology and the evolution of development
- conservation biology and management of ecosystems
- the relevance of mathematics, chemistry and physics to biology
- the development of biological thought
- infectious disease ecology
- landscape and ecosystem ecology
- sustainability and human-nature systems
- energy and biofuels

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  - Classics
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- Darwinian medicine
- health and population genetics
- genetically engineered organisms

EBIO majors include students who:

- have strong and compelling interests in the natural world and who are interested in making a difference
- are interested in pursuing advanced graduate degrees in science, especially biology
- want careers in the areas of natural resources management, environmental consulting, environmental law, environmental science, science teaching and scientific journalism, among other professions
- are passionate about making a difference in the lives of others by improving their physical and mental health
- are interested in many different areas of biology, from the molecular to ecosystem levels<sup>[L]</sup><sub>[SEP]</sub>
- are fascinated with the complexity and diversity of nature

A bachelor of arts (BA) degree in EBIO provides excellent training, education and experience, preparing students for many successful careers and for admission to and success in graduate study or medical school and other health professions:

- because ecology and evolution are subjects of central importance for understanding the ways all organisms live, grow and survive—everything from microbes to humans<sup>[L]</sup><sub>[SEP]</sub>
- because the department and its classes provide students a broad learning experience in the biological sciences
- because the department's faculty provide EBIO majors with excellent classes and research opportunities

**Course code for this program is EBIO.**

## Bachelor's Degree Program(s)

### Bachelor's Degree in Ecology and Evolutionary Biology

Students in EBIO gain a well-rounded education in the sciences and mathematics, with an emphasis in ecology and evolutionary biology. In addition to the general College of Arts and Sciences requirements, students in EBIO must complete 15 credits selected from chemistry, physics and mathematics, plus a statistics course and 38 hours of course work in EBIO. Up to 12 credit hours of courses taken in other departments may be counted toward the 38 credit hours required for the EBIO major. A list of acceptable courses can be obtained from the EBIO advisor. All required courses must be completed with a grade of C- or better. Students with scores of 4 or 5 on the AP biology test receive 8 hours of credit and are exempt from the general biology sequence (EBIO 1210 and 1220 General Biology 1 and 2, and EBIO 1230 and 1240 General Biology Lab 1 and 2). Students who score in the 66th percentile or higher on the CLEP test in biology receive 6 hours of credit and are exempt from EBIO 1210 and EBIO 1220. EBIO majors with transfer credit in biology from other institutions or advanced placement credits must consult with the EBIO undergraduate advisor. Transfer students must complete at least 12 upper-division (3000-level or above) EBIO courses on the Boulder campus. A maximum of 6 credits of Independent Study/Research may be applied toward the major. A maximum of 6 credits of internship may be applied toward the major.

#### *Required Courses and Semester Credit Hours*

#### Program

- **Ecology and Evolutionary Biology**

- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language

- Biology sequence (EBIO 1210 and 1220 General Biology 1 and 2, and EBIO 1230 and 1240 General Biology Lab 1 and 2)—8
- EBIO 2040 Principles of Ecology—4
- EBIO 2070 Genetics: Molecules to Populations—4
- EBIO 3080 Evolutionary Biology—4
- One EBIO laboratory or field course, 3000 level or above. Possible choices include:  
EBIO 3170/3175 Arctic and Alpine Ecology  
EBIO 3240 Animal Behavior  
EBIO 3400 Microbiology  
EBIO 3630 Parasitology  
EBIO 3770 Animal Diversity: Vertebrates  
EBIO 3850 Animal Diversity: Invertebrates  
EBIO 4100 Mountain Research Station  
EBIO 4500 Plant Biodiversity and Evolution  
EBIO 4510 Plant Anatomy and Development  
EBIO 4520 Plant Systematics  
EBIO 4660 Insect Biology  
EBIO 4750 Ornithology  
EBIO 4760 Mammalogy
- EBIO 4000-level or above (at least 6 credits). \* Possible choices include:  
EBIO 4030 Limnology  
EBIO 4060 Landscape Ecology  
EBIO 4140 Plant Ecology  
EBIO 4100, 4110 or 4120 Advanced Ecology  
EBIO 4160 Introduction to Biogeochemistry  
EBIO 4175 Ecosystem Management of Public Lands  
EBIO 4180 Ecological Perspectives on Global Change  
EBIO 4290 Molecular Systematics and Evolution  
EBIO 4350 Biological Field Studies  
EBIO 4410 Biometry  
EBIO 4630 Field Techniques  
EBIO 4740 Biology of Amphibians and Reptiles  
EBIO 4800 Critical Thinking  
EBIO 4840, 4870 Independent Study/Research
- EBIO electives to bring total in major to 38  
**Statistics:** EBIO 1010, MATH 2510, MATH 2520, MATH 3510, IPHY 2800, PSYC 3101 or EBIO 4410 (of these, only EBIO 4410 counts toward the 38 hours of EBIO credit required for the major.)

*\* These 6 hours must include one course taken at the CU Boulder campus or Mountain Research Station and may include a maximum of 3 hours of independent study or independent research.*

## Ancillary Course Work

Choose three classes from the following:

- \*CHEM 1113/1114 General Chemistry 1 and Lab—5
- \*CHEM 1133/1134 General Chemistry 2 and Lab—5
- PHYS 1110 General Physics 1 (calculus-based)—4
- PHYS 2010 General Physics 1 (algebra-based)—5

- and Hearing Sciences
- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

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- \*PHYS 1120/1140 General Physics 2 and Lab (calculus-based)—5
- PHYS 2020 General Physics 2 (algebra-based)—5
- MATH 1300 Analytical Geometry and Calculus 1 (5 hours), MATH 1310 Calculus, Statistics and Modeling (5 hours) or APPM 1350 Calculus 1 for Engineers (4 hours)
- MATH 2300 Mathematics for the Environment (5 hours) or APPM 1360 Calculus 2 for Engineers (4 hours)

\* *Students must take the lecture and lab for these courses*

## Minor Program

A minor is offered in ecology and evolutionary biology. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school.

- A total of 20 credit hours in EBIO with grades of C- or better.
- A 2.00 GPA or higher for all course work attempted in EBIO.
- 9 hours of upper-division credits in EBIO.
- 6 hours of 4000-level credits in EBIO.
- A minimum of 12 credit hours must be taken on the Boulder campus, including a minimum of 6 of the 9 upper-division credits. Mountain Research Station is considered the Boulder campus.
- All courses must have an EBIO prefix.
- EBIO 1030, 1040, 1050, 1300 and 3010 do not count toward the minor requirement.
- Up to 3 credits of any combination of the following can count toward the EBIO minor: Independent study, Independent research or internship credit.

### **Required Courses and Semester Credit Hours**

- EBIO 1210 General Biology 1—3
- EBIO 1220 General Biology 2—3
- EBIO 1230 General Biology Lab 1—1
- EBIO 1240 General Biology Lab 2—1
- Complete 3 credit hours of lower- or upper-division EBIO courses—3
- Complete 3 credit hours of 3000-or 4000-level EBIO courses—3
- Complete 6 credit hours of 4000-level EBIO courses—6

### **Minimum total hours for the minor—20**

## Concurrent Bachelor's/Master's Program

### BA/MA in Ecology and Evolutionary Biology

A combined bachelor's (BA) and master's (MA) degree with thesis is offered for highly motivated undergraduate students. The BA/MA program allows students to take advanced courses at an accelerated pace, engage in an independent research project and obtain both degrees in five years. In addition to preparing graduates for additional graduate study or medical school, the program is expected to position them for employment in areas such as environmental consulting, teaching at the high school or community college level or by businesses with an environmental or biomedical emphasis. Applications from sophomores and juniors for the BA/MA degree are considered on a competitive basis. Applicants must have an overall GPA of

3.00 or higher in the EBIO major and the support of a faculty research advisor. Applications are available from the EBIO graduate coordinator, and are due on October 15 and March 15.

Candidates for this degree must complete all college core requirements by the end of the senior year. To be awarded both BA and MA degrees, a student must maintain a GPA of 3.00 or better and complete at least 144 credit hours. The BA/MA program requires 24 hours of graduate credit at the 5000-level or above and 4–6 hours of thesis credit. In addition to writing a thesis based on original research, students are examined by their thesis committee in the fifth year on general knowledge in ecology and/or evolutionary biology. The final examination consists of a defense of the thesis before the committee; it should be scheduled by the end of the fifth year.

Students interested in this program are encouraged to consult with the EBIO associate chair for graduate studies early in their undergraduate career. No financial support is available from the department for students enrolled in this program.

## Graduate Degree Program(s)

### Graduate Study in Ecology and Evolutionary Biology

The EBIO department offers programs leading to the master of arts (MA) and doctor of philosophy (PhD) degrees in a wide variety of biological disciplines ranging from biogeochemistry to community ecology to evolutionary genetics and others (*see description of the undergraduate program above*). Modern laboratory facilities for graduate study are located in the Ramaley building. In addition, the department has strong ties with the University Museum, the Institute of Arctic and Alpine Research (INSTAAR), the Institute of Behavioral Genetics (IBG), the Cooperative Institute for Research in Environmental Sciences (CIRES), the Environmental Studies Program (ENVS) and the Departments of Integrative Physiology, Geology, Geography, Anthropology and Molecular, Cellular and Developmental Biology. INSTAAR operates the Mountain Research Station, an alpine field laboratory 25 miles from campus. Graduate student support is available in the form of fellowships, part-time instructorships, teaching assistantships, research assistantships and research grants.

Admission information is provided on the EBIO website ([ebio.colorado.edu/index.php/graduate-admissions](http://ebio.colorado.edu/index.php/graduate-admissions)). Foreign applications are due by December 1 and U.S. domestic applications by December 31 for consideration for admission during the subsequent academic year. A completed domestic application includes a statement of intent, three letters of recommendation, official transcripts and scores on the GRE General Test. Applicants are encouraged to communicate with potential faculty sponsors well before the application deadline. Applications for spring semester admission are not accepted. Students are required to have a bachelor's degree in biology or an equivalent.

### MA I Program

The EBIO MA I program (with thesis) is intended to be a two year course of study that prepares students for admission to PhD programs, teaching positions or a variety of forms of employment as professional biologists. MA I students' studies are focused on a research project culminating in a thesis. Prospective students are urged to consult with faculty advisors to determine whether application for the MA I or PhD program is more appropriate. Applications for the MA I program are considered on a competitive basis; the department only admits students for whom financial support is available. Thirty hours of course work are required for the degree, at least 24 of which must be at the 5000 level or above, including 4–6 hours of thesis credit. The thesis topic is presented to the thesis committee as a written research proposal in the second semester of the program, and the committee administers in the third semester an examination on general knowledge in ecology and/or evolutionary biology. The final examination consists of the thesis defense, which should be scheduled during the second year for full-time students.

## MA II Program

A non-thesis master's degree is offered through the EBIO department's MA II program for students interested in furthering their knowledge of ecology and/or evolutionary biology but not in graduate training beyond the MA. This program is suitable for secondary school teachers and others whose career choices do not require a research thesis. Applicants are required to attain sponsorship from a faculty member prior to submitting application materials. Applicants are considered on a competitive basis; financial support is not guaranteed for MA II students. Thirty credit hours of course work are required for the degree, at least 24 of which must be at the 5000 level or above, including 4 hours of independent research leading to a paper to be presented to the faculty sponsor. An examination on general knowledge in ecology and/or evolutionary biology is administered by the advisory committee in the third semester, and this committee may also require a final oral examination.

## PhD Program

The PhD is a research degree, involving the production of a major piece of original research (the dissertation). The program is intended to be a five year course of study that produces graduates who subsequently teach and conduct research at colleges or universities or hold research or leadership positions at other private or government institutions. Applicants are encouraged to communicate directly with potential advisors before applying. Applications are considered on a competitive basis and academic year stipends (teaching or research assistantships) are provided to students in good standing. Students are expected to form a dissertation committee of five faculty members (including one from outside EBIO) after beginning their studies. This committee aids the student in designing a research program and choosing relevant coursework. In addition to the final examination upon completion of the dissertation, the dissertation committee administers an examination (typically in the third semester) on general knowledge in ecology and/or evolutionary biology and a comprehensive examination (typically in the fifth semester) on a written research proposal submitted by the student.

A total of 30 hours of course work must be taken, although independent study credit may be included in this total. A total of 30 hours of dissertation credits must also be taken. PhD students are required to teach for at least one academic year, typically as a teaching assistant for one of the many laboratory courses offered by the department.

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# Economics

The undergraduate degree in economics emphasizes knowledge and awareness of:

- the conditions for efficiency in free market production and exchange;
- contemporary theories concerning economic growth, inflation, unemployment, distribution of income and international environment;
- specialized fields of economics, such as international economics and finance, natural resources and environment, the economics of gender and discrimination and public economics;
- the descriptive statistics commonly used by economists; and
- the institutional characteristics of the U.S. economy, and how these differ from those in other economies.

In addition, students completing the degree in economics are expected to acquire the ability and skills to:

- apply the tools of microeconomic theory to reach sound conclusions for simple economic problems;
- follow arguments concerning macroeconomic theory, to distinguish between sound and fallacious reasoning and to understand how differences in policy prescription may arise;
- perform statistical analysis such as multiple regression and understand similar analyses performed by others; and
- communicate economic reasoning in writing, understand similar writing by others and appreciate the diversity of views that may reasonably exist about economic problems.

**Course code for this program is ECON.**

## Bachelor's Degree Program(s)

### Bachelor's Degree in Economics

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below with **total credits required for the major of 38-44**.

#### *Required Courses and Semester Credit Hours*

#### **Economics (total 32-33)**

- ECON 2010 Principles of Microeconomics and ECON 2020 Principles of Macroeconomics—  
8
- ECON 3070 Intermediate Microeconomic Theory and ECON 3080 Intermediate

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  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

## Macroeconomic Theory—6

- ECON 3818 Introduction to Statistics with Computer Applications—4
- ECON 4818 Introduction to Econometrics, ECON 4848 Applied Econometrics or ECON 4858 Financial Econometrics—3
- Electives in 4000-level ECON courses—12

## Math (total 6-10)

- ECON 1078 Math Tools for Economists 1 and ECON 1088 Math Tools for Economists—6
- MATH 1071 Finite Mathematics and MATH 1081 Calculus for Social Science/Business—6
- MATH 1150 Precalculus and MATH 1300 Analytic Geometry and Calculus—9
- Mathematics at or above the level of MATH 1300 (or APPM 1350) plus any one mathematics course above the level of MATH 1300 (MATH 2380 Probability and Statistics courses not applicable)—6-10

Students who enter the program with just an approved, equivalent calculus course but not ECON 1078, MATH 1071, MATH 1150 or other finite-level/precalculus equivalent must either complete MATH 2300 Calculus 2 (or APPM 1360) for their second required math course or a second quantitative economics course (ECON 4070, 4808, 4818, 4838, 4848 or 4858).

Note that ECON 4818, 4848 and 4858 cannot be used to simultaneously meet this requirement and the major's requirement for ECON 4818, 4848 and 4858.

*Note: Transfer students majoring in economics must complete at least 12 credit hours of upper-division economics courses at CU-Boulder.*

## Graduating in Four Years

Consult the “Four-Year Guarantee Requirements” for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in economics, students should meet the following requirements:

- Declare economics as a major by the beginning of the second semester
- Complete ECON 2010 and 2020 and all mathematics requirements by the end of the fourth semester
- Complete ECON 3070, 3080 and 3818, as well as 4818, 4848 or 4858 by the end of the sixth semester
- Complete at least 12 credit hours of additional upper-division economics credit by the end of the eighth semester

## Economics Honors Program

The honors program in economics provides an opportunity for highly motivated majors to undertake individualized research and to graduate with honors (*cum laude*, *magna cum laude*, *summa cum laude*) in economics. Economics majors with senior standing and both economics and overall GPAs of 3.40 or better are eligible to participate. Participants enroll in the economics honors seminars, which provide instruction in research methodology essential to the preparation of the honors thesis. Students interested in the economics honors program should contact the departmental honors advisor during their junior year.

## Minor Program

### Program

- Ecology and Evolutionary Biology

### • Economics

- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

A minor is offered in economics. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school. Completion of the minor requires a total of 20 credit hours in economics.

#### **Required Courses and Semester Credit Hours**

- ECON 2010 Principles of Microeconomics and ECON 2020 Principles of Macroeconomics—8
- ECON 3070 Intermediate Microeconomic Theory and ECON 3080 Intermediate Macroeconomic Theory—6
- Electives in upper-division ECON courses—6

*NOTE: Students must complete at least one 4000-level course as an upper-division elective. ECON 3818 and equivalent substitutes and **not** allowed to count as an upper-division elective.*

All course work applied to the minor must be completed with a grade of C- or better. No *pass/fail* work may be applied. The GPA for all minor degree course work must equal 2.00 or higher.

Students will be allowed to apply no more than 9 credit hours, including 6 upper-division credit hours, of transfer work toward a minor. If transferred course work includes replacements for ECON 2010 or ECON 2020 that are fewer than a combined 7 credits for both courses, an additional upper-division elective will be added to the requirements for a minor.

Students may elect to take the 3000-level ECON courses that are designed for non-economics majors (e.g., ECON 3403, 3535, 3545 and 3784).

ECON 3070, 3080 and all 4000-level ECON courses require a prerequisite of Calculus 1. Students may take the following courses to meet this prerequisite: ECON 1088; OR MATH 1081; OR MATH 1300; or APPM 1350.

Students pursuing an individually structured major or who are pursuing a major in distributed studies will not be eligible to earn a minor in economics.

## Areas of Emphasis

### Special Emphasis Options

The Economics Department offers four tracks for students who have a relatively high GPA and want to focus their upper-division course work in a specific area of interest. Interested students must have completed at least 6 hours of economics course work at CU in order to declare the special emphasis. Students must have completed two out of three intermediate-level courses (ECON 3070, 3080 and/or 3818) with a minimum of 3.00 GPA in these courses, and must also have a minimum of 3.00 GPA in economics course work at CU by the time of declaration and completion of the special emphasis. Requirements are listed on the economics website at [www.colorado.edu/economics](http://www.colorado.edu/economics).

### Environmental and Natural Resources Emphasis

The environmental and natural resources emphasis is designed for economics majors who are considering careers in fields requiring a thorough understanding of broad range of issues associated with business practices and public policies addressing natural resource use and environmental quality, including environmental regulation and compliance; energy production and consumption, development of energy transportation, urban, rural and regional infrastructures.

### International Emphasis

#### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

The international emphasis is designed for students who have an interest in courses with an international perspective both within economics and outside the department. Courses in international trade and finance are combined with selections of international courses in related social science disciplines. This program may be of particular interest to students seeking careers in international business, international organizations, nongovernmental organizations and government agencies.

### Public Economics Emphasis

The public economics emphasis is designed for students who have an interest in taking courses with a public policy perspective both within economics and outside the department. Courses in public economics are combined with selections of public policy oriented courses from various social sciences. This emphasis is recommended for students with interests in public policy seeking careers in local, state, national or international agencies.

### Quantitative Emphasis

The quantitative emphasis is designed for well-qualified majors with an interest in either theoretical or applied mathematics. Economics courses in quantitative methods are combined with courses from the Department of Mathematics and the Department of Applied Mathematics. This program may be of interest to students planning to pursue graduate studies in economics or those seeking a career in applied quantitative research.

## Graduate Degree Program(s)

### Master's Degree in Economics

The Department of Economics does not currently offer a stand-alone MA degree program, although students enrolled in our PhD program will earn their MA degree as they progress toward their doctorate. See more information below.

### Doctoral Degree in Economics

**Admission.** An applicant for admission as a regular degree student must:

- Hold a baccalaureate degree from a college or university of recognized standing, or have done work equivalent to that required for such a degree and equivalent to the degree given at this university. The undergraduate grade point average must be at least 2.75 (2.00=C).
- Have completed intermediate microeconomic and macroeconomic theory courses, 6 semester hours of calculus at the university level or equivalent, and statistics.
- Submit Graduate Record Examination (GRE) scores for aptitude (verbal and quantitative). International applicants whose native language is not English must also submit a TOEFL score with a speaking component, even if they have attended college in an English speaking country.
- Arrange for the submission of three letters of recommendation.

Graduate study in economics is quantitative and analytical. Students should be comfortable with basic calculus (derivatives and integration), linear algebra, matrix algebra and basic statistics.

The university deadline for international applications is December 1 for the following fall semester. The department encourages international applicants to comply with this deadline. Late applications may be considered. However, they may be at a disadvantage with respect to the award of financial aid. United States applicants who wish to be considered for financial assistance should apply by January 15. Students must begin the program in a fall semester.

**Degree Requirements.** Full-time students are expected to complete all requirements for the

PhD degree within five years of entering the program (the maximum time allowed by the Graduate School is six years). The schedule of required courses below is centered on this expectation. Failure to make timely and satisfactory progress toward the degree may result in loss of financial assistance or dismissal from the program.

### Course Requirements

1. Prior to beginning the program, students must demonstrate an acceptable degree of competence in differential and integral calculus and optimization techniques. (This requirement is in addition to the six hours of calculus required to apply to the program.) Such competence is normally demonstrated by taking ECON 7800 (an intensive, three-week preparatory course offered immediately prior to each fall semester) and passing its final examination with a grade of *B-* or better.

Other methods by which the required competence may be demonstrated are:

- Obtain written approval from the Director of Graduate Studies (DGS) to waive the requirement for ECON 7800 due to sufficient mathematical preparation in prior studies; or
- Pass the final examination in ECON 7800 at a level of *B-* without taking the course

Students who fail the examination in ECON 7800 will be given a second opportunity to pass an equivalent examination two weeks later. Students who fail this examination on the second attempt must enter into extensive consultation with the DGS.

2. There are seven core courses in the PhD program: ECON 7010, 7020, 7030, 7040, 7050, 7818 and 7828. Course requirements beyond the core courses include:

- Seven elective courses at the 8000 level. Basic fields of specialization are econometrics, economic development, economic history, industrial organization, international trade and finance, labor and human resources, natural resources and environmental economics and public economics. Ordinarily, a student would take two elective courses in a basic field of specialization in preparation for a dissertation.
- 6 credit hours in a research colloquium.
- At least 30 hours of dissertation credit.

3. At least four of the core courses must be taken on the Boulder campus. Courses transferred for credit must be approved by the DGS. After entry into the PhD program, all remaining courses must be taken on the Boulder campus.

4. All courses for PhD credit taken on the Boulder campus must be passed with a grade of *B-* or better. A student who receives a grade of *C+* or lower in a core course must retake that course the following academic year.

5. No more than 12 credit hours (exclusive of dissertation credit) from a single faculty member may be counted toward PhD requirements. Independent study is allowed only to satisfy elective requirements. No more than 6 credit hours of independent study may be applied to the PhD degree and no more than 3 credit hours of independent study may be taken from a single faculty member. In consultation with the DGS, students may choose to take up to two graduate offerings in other departments as elective courses.

6. Course requirements in the first and second years include:

#### First Year

##### *Fall Semester*

- ECON 7010 Microeconomic Theory 1

- ECON 7020 Macroeconomic Theory 1
- ECON 7818 Mathematical Statistics for Economists

### ***Spring Semester***

- ECON 7030 Microeconomic Theory 2
- ECON 7040 Macroeconomic Theory 2
- ECON 7828 Econometrics

### **Second Year**

#### ***Fall Semester***

- ECON 7050 Advanced Economic Theory
- Elective course
- Elective course

#### ***Spring Semester***

- Elective course
- Elective course
- Elective course

7. Course requirements in the third year include:

- ECON 8209 (fall) and ECON 8219 (spring), which constitute the third-year research colloquium
- Remaining elective course(s)
- Dissertation research, if practicable.

8. Course requirements in the fourth and fifth years consist of relevant dissertation credit hours.

**Preliminary Examinations.** Written preliminary examinations in microeconomic theory, macroeconomic theory and econometrics must be taken in the examination period following the successful completion of core courses in these areas. Under most circumstances this period would be in August prior to the second year. An examination attempted and failed must be taken again and passed in the next examination period. A second failure results in dismissal from the program, subject to appeal to the GCRC under extraordinary circumstances. In no case are attempts beyond the third granted.

Students who have failed any of the core courses are ineligible to take the preliminary examination in the area of failure. These students must retake the failed course(s) in the following year and attempt the relevant preliminary examination in the first scheduled examination period after they pass.

Students who fail to pass all three preliminary examinations within two-and-one-half years of beginning the PhD program must exit the program.

**MA Degree.** An MA degree will be awarded to students who have successfully completed all core courses in the PhD program, completed 30 hours of graduate credit with a 3.00 GPA and performed satisfactorily within two attempts on at least two out of three preliminary examinations.

**Third-Year Research Colloquium.** Third-year students are expected to register for 3 credit hours per semester in the research colloquium, which will meet weekly under the direction of a faculty member. The purpose of the colloquium is to provide students the opportunity and guidance to complete the required third-year paper and to facilitate progress toward the dissertation stage.

Under some circumstances, students may delay taking this colloquium until the fourth year with the approval of the DGS.

**Comprehensive Examinations.** Students must take an oral comprehensive examination before admission to PhD candidacy. This examination may occur either at the time of the student's research presentation in ECON 8219 or at a later date and will encompass the materials in the presentation and all relevant course work completed by the candidate. Students who fail this comprehensive examination will be given a second chance during the following semester. For those students for whom the presentation in ECON 8219 does not serve as the oral comprehensive examination, a separate oral examination must be scheduled before admission to candidacy.

**Admission to Candidacy and Dissertation Requirements.** Students are formally admitted to candidacy for the PhD degree after completing all course requirements and all preliminary and comprehensive examinations and after earning four semesters of residency (see the front section of this catalog for details). After admission to candidacy, students must register each fall and spring semester for dissertation credit (ECON 8999) until attaining the degree; the accumulated credit for the thesis must total at least 30 semester credit hours to attain the degree. A student must prepare a written dissertation and successfully pass an oral examination before a dissertation committee and other interested persons on its content before receiving the degree. The minimum residence requirement for the PhD degree is six semesters of scholarly work beyond the bachelor's degree.

**Administration: Examining Committees for Examinations.** Examining committees for preliminary examinations consist of three members of the economics department who teach in the relevant area. Examining committees for comprehensive examinations consist of at least three members of the economics department.

### **Preliminary Examinations.**

1. Written examinations are numbered so that insofar as possible the identity of the student is unknown. Each faculty member grades independently and writes no comments in the examination booklet. A meeting of the graders is called by the chair of the examination committee and the committee grade is submitted to the graduate program coordinator. The possible grades include High Pass or Distinction (used sparingly), Pass and Fail.
2. In cases where there is a question of pass or fail on any exam, if two of the members of the examination committee vote affirmatively, a grade of pass will be recorded; if two of the members of the grading committee vote negatively, a grade of fail will be recorded. If the vote of the grading committee is tied and the third member is absent (but will be available within seven days), the decision to pass or to fail is to be made by the reconvened grading committee. If fewer than two members of the grading committee are present and voting, or if the vote of the grading committee is tied and the third member is not available within seven days, the decision to pass or fail will be made by the Graduate Curriculum and Review Committee (GCRC); in such circumstances the grade is reported as pass or fail, based on a majority vote.
3. When examination results are reported, a student who failed should have an opportunity to discuss his performance with a member of the examining committee.

### **Dissertation Guidelines.**

1. In January of the academic year following the research colloquium, each student must submit a written dissertation proposal and conduct an oral defense of that proposal before his or her basic committee. A dissertation proposal form must be signed by each member of the basic committee and submitted to the graduate program coordinator. The basic committee consists of the student's faculty supervisor and three other faculty members from the department. An acceptable proposal must include a statement of purpose and a justification for the importance of the work; a full literature review and a statement of how this research will contribute to the literature; and a detailed description of the methodologies to be used and of the data bases, if appropriate.
2. Normally students are expected to complete their dissertations by the end of their fifth academic year. The graduate program coordinator provides details on submission of the dissertation and arrangements for the oral defense. The final defense is conducted before a basic committee of four faculty members from the department plus one outside member. After the defense, minor changes are agreed upon between candidate and supervisor before the final dissertation is submitted.

## Certificate Program(s)

### Graduate Certificate in Population Studies

For information on this certificate, see [Geography](#).

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## English

The undergraduate degree in English emphasizes knowledge and awareness of:

- canonical and non-canonical works of English and American literature
- the history of British and American literature
- literary theories, including recent theoretical developments
- the social and historical contexts in which the traditions developed

In addition, students completing the degree in English are expected to acquire the ability and skills to:

- analyze literary texts;
- interpret texts on the basis of such analysis;
- relate analyses and interpretations of different texts to one another; and
- communicate such interpretations competently in written form.

The undergraduate degree in creative writing emphasizes knowledge and awareness of:

- literary works, including the genres of fiction, poetry, playwriting and screenwriting, and the major texts of contemporary writers
- literary history, including the origins and development of genres, major writers of the past and the role of the writer in society
- literary analysis, including theories of literary composition and critical theory

In addition, students completing the degree in creative writing are expected to acquire the ability and skills to:

- write in various poetic modes and styles
- write in various fictive styles
- write in various nonfiction styles
- evaluate other students' written work

**Course code for this program is ENGL.**

### [Bachelor's Degree Program\(s\)](#)

## Bachelor of Arts in English

A minimum of 12 hours of upper-division course work for the English major must be completed on the Boulder campus. English courses taken at other colleges must be evaluated by the

### [□ Arts & Sciences](#)

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  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

Department of English. Courses taken in other departments (except approved cross-listed courses) normally do not count toward the English major. English courses taken on a *pass/fail* basis do not fulfill major requirements. Independent study credit hours cannot fulfill a major requirement unless that requirement is not being offered or available within the year that the student graduates.

Note: For the Advanced Placement examination in English literature and composition, students will receive credit for ENGL 1500 for an exam score of 4 or 5.

Students must complete the general requirements of the College of Arts and Sciences and one of the two programs listed below.

## Literature

Students must complete the major requirements in effect at the time they formally declare the major. A minimum of 36 credit hours must be earned in the Department of English, 18 of which must be upper division. Requirements may be fulfilled by taking specific courses designated by the Department of English.

### **Required Courses and Semester Credit Hours**

- ENGL 2102 Literary Analysis—3
- ENGL 2112 Introduction to Literary Theory—3
- One course from each of the following: British Literature to 1660; British Literature, 1660-1900; American Literature; Studies in Ethnicity, Race, Disability, Gender and Sexuality; and Literatures in English, 1900 to Present—15
- Two courses from: Genre, Media and Advanced Writing—6
- ENGL 4039 Critical Thinking in English Studies—3
- Two elective courses in English—6
- In addition to the 36 hours required for the major, another 9 hours may be taken, for a maximum of 45 hours in English.
- The recommended sequence of courses to be taken during the initial year of the literature program is ENGL 2102 and an English elective for the first semester, and ENGL 2112 and a 2000-level ENGL course for the second semester.

## Creative Writing

Students are subject to those major requirements in effect at the time they formally declare the major.

A minimum of 36 credit hours must be earned in the Department of English, 18 of which must be upper division.

### **Required Courses and Semester Credit Hours**

- ENGL 2102 Literary Analysis—3
- ENGL 2112 Introduction to Literary Theory—3
- One course from either of the following: British Literature to 1660 or British Literature 1660-1900—3
- One course from one of the following: American Literature; Studies in Ethnicity, Race, Disability, Gender and Sexuality; or Literatures in English, 1900 to the Present—3

### Program

- Ecology and Evolutionary Biology
- Economics
- **English**
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

One course from Genre, Media and Advanced Writing—3

- ENGL 4039 Critical Thinking in English Studies—3
- Six creative writing workshops taken in progressive order, three of which must be upper division—18
- In addition to the 36 hours required for the major, another 9 hours may be taken, for a maximum of 45 hours in English.
- The sequence of creative writing workshops must begin with ENGL 1191 Introduction to Creative Writing and proceed through the 2000-level, 3000-level and 4000-level workshops.

Students declare the creative writing track when declaring their English major with the help of an academic advisor. Students should declare no later than the second semester of their junior year. In order to take workshops beyond the 2000-level, students must declare the creative writing track or the creative writing minor. Each workshop may be taken three times for credit, except for ENGL 1191. All students completing the creative writing track must take and complete a 4000-level writing workshop. Students may not take two poetry or two fiction workshops in the department in the same semester. Students must satisfy all prerequisites in sequence with a grade of B or better before moving on to the workshop at the next level.

## Minor Program in Literature

Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school. Students majoring in English, literature or creative writing track, cannot declare a Literature minor. Students are subject to those minor requirements in effect at the time they formally declare the minor.

Completion of the minor requires 18 credit hours with grades of C- or better, at least 12 of which must be upper division.

### **Required Courses and Semester Credit Hours**

- ENGL 2102 Literary Analysis—3
- One additional ENGL course at the 2000-level or above—3
- Two ENGL courses at the 3000-level or above—6
- Two ENGL courses at the 4000-level or above—6

Students may *not* apply creative writing courses toward the English Literature Minor, and this includes ENGL 3041 (“Studies in Fiction and Poetry”). Students must maintain at least a 2.00 (C) GPA in all CU ENGL courses.

Students may apply no more than 9 credit hours of transfer work, including no more than 6 upper division credit hours, towards a minor. *This is a college residency rule for an 18 credit minor.*

## Minor Program in Creative Writing

Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school. Students majoring in English, literature or creative writing track, cannot declare a creative writing minor. Students are subject to those minor requirements in effect at the time they formally declare the minor.

Completion of the minor requires 18 credit hours, at least 9 of which must be upper division.

### **Required Courses and Semester Credit Hours**

Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

- ENGL 1191 Intro to Creative Writing—3
- ENGL 3041 Studies in Fiction and Poetry—3
- Four creative writing workshops, taken in progressive order—12

Admission to the creative writing minor can be made at any time after a student completed ENGL 1191 Introduction to Creative Writing. Three hours of transfer workshop credits can be applied with department approval. Students should ideally apply no later than the second semester of their junior year.

In order to take workshops beyond the 2000-level, students must declare the creative writing track or the creative writing minor. Each workshop may be taken three times for credit, except for ENGL 1191. All students completing the creative writing track must take and complete a 4000-level writing workshop. Students may not take two poetry or two fiction writing workshops in the department in the same semester. Students must satisfy all prerequisites in sequence with a grade of B or better before moving on to the workshop at the next level.

## Advising

Upon declaring an English major, students are assigned an English advisor. The advisors are available to meet with students by appointment or on a drop-in basis. The advisors monitor and evaluate student progress in completing the arts and sciences core curriculum and major requirements, and certify students for graduation. The department encourages students to meet with their primary advisor at least once each semester to update their student file and ensure that they are making satisfactory progress in meeting the core and major requirements.

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in English, students should meet the following requirements:

- Declare the English major and begin course work in the major no later than the beginning of the second semester.
- Successfully complete one-third of the hour requirements for the major by the end of the fourth semester. For literature track majors, this includes ENGL 2102, 2112, an English elective and any 2000-level course for the major. For creative writing track majors, this includes ENGL 2102, 1191, 2112 and 2021 or 2051, as well as formal admission to the program.
- Successfully complete two-thirds of the hour requirements for the major by the end of the sixth semester.
- Successfully complete the remaining major requirements by the end of the eighth semester.

## Departmental Honors

Students interested in pursuing a special program leading to graduation with departmental honors should confer with the associate chair for undergraduate studies as soon as possible, but definitely no later than the beginning of spring term in their junior year.

## Students Who Contemplate Teaching

Sheets listing the curriculum required for a teaching license for secondary schools may be obtained in Education 151. Since fulfilling requirements for both education and English makes a very tight schedule, students should seek early advising to complete their college requirements. For additional information, visit [teaching licensure](#).

## Undergraduate English Awards and Prizes

**The Alex McGuiggan Scholarship** was established in spring 2010 to recognize the achievement of an undergraduate English major studying creative writing with a preference for students whose strength is in writing poetry. The scholarship was established in memory of Alex McGuiggan, an English major at the University of Colorado Boulder.

**The Curtis Michael Gimeno Memorial Scholarship.** This scholarship benefits students with a creative writing emphasis who exemplify promise of talent in communicating through the written language. The scholarship was generously established by Donna Jorgenson Farrell in memory of and as a legacy to her son, Curtis Michael Gimeno, who enjoyed writing.

**The Gentian Ascension Scholarship.** This scholarship is a variable annual award established to benefit an undergraduate student who exhibits a past that demonstrates overcoming academic obstacles and shows budding talent as a writer.

**The Harold D. Kelling Essay Prize.** The Kelling prize is a variable cash award for the best essay on literature submitted by an undergraduate currently enrolled in the university. The essay must have been written for an English class at CU-Boulder.

**The Joanne Easley Arnold Award.** The Joanne Easley Arnold English Scholars Fund is a two-year award designed to recognize and provide financial and intellectual support to a top English major in honor of the donor, Joanne Easley Arnold, who was a dean with the university.

**The Jovanovich Imaginative Writing Prize.** The Jovanovich prize is an annual award for excellence in poetry, fiction, playwriting or nonfiction prose.

**The Katherine Lamont Scholarship.** The Lamont scholarship is a variable annual award to a continuing English major in recognition of sustained excellence and exceptional scholarly performance in the major.

## Graduate Degree Program(s)

### Graduate Study in English

#### Admissions Requirements

**Master's Degree in English.** The MA program combines courses in global literatures in English and literary theory with rigorous training in critical analysis. Applicants must complete the verbal, analytic, and quantitative sections of the GRE General Test and hold a bachelors degree by the time they enter the program.

**Master of Fine Arts Degree in Creative Writing.** Applicants interested in creative writing must complete the verbal, analytic, and quantitative sections of the GRE General Test. A BA degree with an English major or at least 18 credits hours in English is normally required. Each applicant must submit a manuscript of at least 10 pages of poetry or 25 pages of fiction or nonfiction prose (other than literary criticism).

**Doctoral Degree in English.** The PhD program offers rigorous training in critical analysis and research for professional placement. Applicants must complete the verbal, analytic, and quantitative sections of the GRE General Test and hold either an MA or BA degree in English. Those with a BA who apply directly to the PhD program may be considered also for the MA program.

#### Degree Requirements

Students wishing to pursue graduate work in English should note requirements for advanced degrees in the Graduate School section and write the department for a more complete

description of graduate programs in English, or visit [www.colorado.edu/English](http://www.colorado.edu/English).

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## Environmental Studies

The Environmental Studies program at CU-Boulder is a hub for facilitating interdisciplinary collaboration in environment and sustainability. The program nurtures interdisciplinary academic training for undergraduate and graduate students, provides guidance for students with career aspirations in environment and sustainability venues, promotes diverse professional education experiences, fosters fundamental and applied research, forms meaningful connections with communities beyond the university, and integrates innovative, interdisciplinary programs unified by the themes of environment and sustainability.

To complete the ENVS major, students take foundational courses in sciences, policy, ethics, economics, writing, math, an internship or field course, a cornerstone course and a capstone course. Students take 12 credits of upper-division course work to specialize in an area of interest.

See the program website at [www.colorado.edu/envs/current-students/undergraduate-students/curriculum](http://www.colorado.edu/envs/current-students/undergraduate-students/curriculum) for details of the program requirements and current course offerings.

**Course code for this program is ENVS.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Environmental Studies

The interdisciplinary Environmental Studies major is administered through the Environmental Studies Program and draws courses from 16 departments and four colleges on the CU-Boulder campus. The major teaches the integration of science, policy, and values as applied to environmental issues. Students acquire an awareness of the complexity of factors relating to human interaction with the environment. They will become acutely aware that environmental problems have both human and biophysical components, and they gain knowledge of the general principles of human-environmental interaction, global habitability, environmental change, and sustainable human societies.

To complete the ENVS major, students take foundational courses in sciences, policy, ethics, economics, writing, math, an internship or field course, a cornerstone course and a capstone course. Students take 12 credits of upper-division course work to specialize in an area of interest. See the program website at [colorado.edu/envs/current-students/undergraduate-students/curriculum](http://colorado.edu/envs/current-students/undergraduate-students/curriculum) for details of the program requirements and current courses.

Approved courses that fulfill the major requirements are listed on the Environmental Studies Program website at [colorado.edu/envs/current-students/undergraduate-students/curriculum](http://colorado.edu/envs/current-students/undergraduate-students/curriculum), and for current students see #1.

### 1. Natural Sciences Requirements

#### □ Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

*Purpose: Understand the scientific process in the natural sciences, understand how this process generates knowledge, and be able to apply the results of natural scientific research to problems and questions as they relate to what is broadly called the environment.*

- Introduction to Environmental Studies—4
- Biology Sequence—complete one sequence and applicable lab(s)—7-8
- Chemistry or Physics Course—complete one course and lab, if lab is corequisite—3-5
- Earth Science Sequence—complete once sequence and associated lab(s)—7-8
- Intermediate Natural Science—3-4

## 2. Social Sciences Requirement

*Purpose: Develop a familiarity with the drivers of human actions regarding social-ecological systems.*

- Intermediate Social Science—3

## 3. Values Requirements

*Purpose: Examine the economic drivers and the underlying moral beliefs, personal social ethics, principles, and theoretical commitments that might be informing environmental discourse and also driving human actions and decisions.*

- Introductory Economics—4
- Intermediate Environmental or Natural Resource Economics—3
- Environmental Ethics—3

## 4. Policy Requirement

*Purpose: Learn to systematically analyze environmental problems and critically assess the ways in which public policies may help to address these problems. Students will learn a basic knowledge of existing environmental laws and policies and the processes through which environmental policies are made and implemented.*

- Intermediate Policy—3

## 5. Math Requirement

*Purpose: Learn to use mathematical systems as a tool to quantify and understand complex issues and to use mathematical systems to help solve problems.*

- One approved course in Statistics or Calculus 1—3-5

## 6. Writing Requirement

*Purpose: Develop an understanding of rhetorical situations in professional writing and be able to apply critical thinking skills when delivering or receiving information. Learn to frame a problem and develop an idea from knowledge based on research*

- Advanced Writing in Environmental Studies—3

## 7. Application Requirement

*Purpose: Acquire practical and “hands-on” experience applying knowledge and skills outside the classroom. Improve the ability to integrate the knowledge and skills taught in the ENV5*

### Program

- Ecology and Evolutionary Biology
- Economics
- English

### • Environmental Studies

- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

major and emphasize their real-world applications.

- One approved course—2-5

## 8. Cornerstone Requirement

*Purpose: A foundation course to synthesize lower-division environmental science, policy and values courses into a cohesive knowledge base to prepare students for specialization and capstone courses.*

- Complete Environmental Studies Cornerstone course—3

## 9. Specialization Requirement

*Purpose: Allow upper-division students to focus on one aspect of environmental studies to develop a deeper understanding. To explore suggested focus areas and learn how to select courses that align with a student's interests, see the ENVS Guidance Documents at: [colorado.edu/envs/current-students/undergraduate-students/curriculum/guidance-documents](http://colorado.edu/envs/current-students/undergraduate-students/curriculum/guidance-documents).*

- Complete a minimum of 12 credits from the approved list Environmental Studies specialization courses—12

## 10. Capstone Requirement

*The capstone requirement provides an opportunity for students to pursue intellectual integration of the multiple scientific disciplines and allows students to demonstrate competence in integrative analysis and problem solving.*

- Complete one Environmental Studies capstone course—3

## Graduate Degree Program(s)

### Graduate Study in Environmental Studies

Opportunities for interdisciplinary graduate studies and original research, leading to the MS and PhD degrees, are available with a variety of emphases, including sciences, policy and values and theory. Particular programs of study are limited only by course offerings and faculty expertise. A Graduate Certificate in Environment, Policy and Society is also available (see *below*).

For updated information, consult the website at [www.colorado.edu/envs/prospective-students/graduate-students](http://www.colorado.edu/envs/prospective-students/graduate-students).

### Master's Degree

Candidates for the master's degree in environmental studies must complete at least 36 credit hours of graduate course work. Beginning in 2016, only the thesis (Plan I) option is available. Plan I requires that the student write and successfully defend a thesis for 6 research credits. Additional information can be found at [www.colorado.edu/envs/current-students/graduate-students/degree-programs/masters-degree](http://www.colorado.edu/envs/current-students/graduate-students/degree-programs/masters-degree).

### Doctoral Degree

The PhD degree is a research degree, involving the production of a major piece of original research (the dissertation). Candidates for the doctoral degree must complete at least 32 degree-hours from a list of approved ENVS core and elective courses. In addition, 30 semester hours of dissertation credit must be taken. Students are expected to form an advisory committee of five faculty members (including one from outside ENVS) soon after beginning their

#### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

studies. This committee helps the student in designing a research program and in making choices concerning course work. The PhD comprehensive exam is administered by the student dissertation committee and must be taken within the first five semesters of degree work. It consists of a written research proposal on the dissertation topic, a formal presentation summarizing the student research progress, and an oral examination centered on the student research. Upon the student completion of the dissertation, a final examination is administered by the dissertation committee.

Additional information may be found at [www.colorado.edu/envs/current-students/graduate-students/degree-programs/phd-programs](http://www.colorado.edu/envs/current-students/graduate-students/degree-programs/phd-programs).

## Masters of the Environment

The Master of the Environment (MENV) is a professional master's degree program that is administered by the [Environmental Studies Program](#), but partners with units and disciplines across the Boulder campus including the Environmental Design Program, Colorado Law, the Leeds School of Business, and the Department of Economics, and in the community. It is a 17-month, cohort-based, in-residence professional degree program designed for new or early career professionals. MENV is grounded in a core curriculum that emphasizes systems thinking and collaborative leadership in coupled human and natural systems. The program focuses on applications and problem-solving and has five parts: (1) the core curriculum, (2) a choice of topical specializations that are supported by (3) skills and techniques courses, (4) electives, and (5) a capstone project. Throughout the program, students will develop and hone their skills and leadership capacities through workshops, peer-to-peer mentoring, professional skills courses, the capstone project, and other "real-world" opportunities through partnerships with outside firms, agencies and organizations. Students will become conversant in the language, knowledge, techniques and methodologies of various disciplines while developing general analytical skills, problem-solving abilities, and the adaptability that is indispensable to professional success. MENV will provide a foundation of multidisciplinary knowledge and communication and analytical skills that will enable students to address increasingly complex environmental and related social problems.

Degree and application information may be found at [colorado.edu/menv](http://colorado.edu/menv).

## Dual Degree Programs

### MS/MBA

This is a dual degree program offered in conjunction with the Leeds School of Business. It requires 36 hours of graduate work in environmental studies and 43 hours of MBA course work (with 12 hours of environmental studies course work applying toward the required 55 credits for the MBA). The MBA program will be considered the student's primary program. Additional information is available at [www.colorado.edu/envs/current-students/graduate-students/degree-programs/dual-degrees/envsbusiness](http://www.colorado.edu/envs/current-students/graduate-students/degree-programs/dual-degrees/envsbusiness).

### MS/JD or PhD/JD

This is a dual degree program offered in conjunction with the Law School. The Law School will grant credit for acceptable performance in graduate-level environmental studies courses toward the JD degree for up to 9 (for MS students) or 12 (for PhD students) credit hours of the required 89 credits for the JD degree. Environmental studies will grant up to 9 (for MS students) or 12 (for PhD students) credit hours of acceptable performance in law courses. The JD program will be considered the student's primary program. Additional information is available at [www.colorado.edu/envs/current-students/graduate-students/degree-programs/dual-degrees/envslaw](http://www.colorado.edu/envs/current-students/graduate-students/degree-programs/dual-degrees/envslaw).

## Certificate Program(s)

## Certificate in Renewable and Sustainable Energy (RSE)

This undergraduate certificate program is intended to supplement, not replace, undergraduate students' degree programs. Graduates from this certificate program—regardless of their undergraduate major—will have a strong understanding of energy science and technologies, energy alternatives, energy markets and business and energy policy. They will be well-prepared to apply their disciplinary knowledge to the energy challenge. This certificate provides a broad exposure to energy issues, with an emphasis on renewable and sustainable energy. Required course work on energy science and technology, policy and economics; coupled with electives on energy and environment, journalism, ethics and other topics, give students the skills and knowledge to tackle society's pressing energy problems. Solving society's energy-related problems is not just a technical challenge. It will require contributions from law, business, humanities, journalism and other disciplines as well.

In order to earn the certificate, students must apply to and be accepted into the program. The certificate program requires 18 hours of coursework: 9 for core courses, and 9 for electives.

Required:

- ENVS/PHYS 3070 Energy and the Environment provides an understanding of energy science and technology: resources, units of measurement, physical principles and limits, conversion technologies and environmental impacts.
- ENVS 3621 Energy Policy and Society provides an understanding of energy politics, policy and economics: how society makes decisions about energy, what are the policy tools that can influence energy use and how do they work, how stakeholders interact to yield energy policy decisions.
- ENST 4150 Energy Policy is a projects course, in which students' energy knowledge is applied to a specific energy challenge or problem.

These core courses are followed by electives, which allow students to focus on specific areas that are of interest. These electives are varied, however they all share a focus on energy.

Students must take an additional 9 credits of qualifying electives.

For more information, visit [colorado.edu/ses/prospective-students/degrees/certificates/renewable-and-sustainable-energy/undergraduate-rse-program](https://colorado.edu/ses/prospective-students/degrees/certificates/renewable-and-sustainable-energy/undergraduate-rse-program).

## Graduate Certificate in Environment, Policy and Society

In order to understand contemporary environmental issues, today's scholars must transcend historical academic disciplinary boundaries. Indeed, complex issues related to energy, climate change, species preservation and air and water quality are best addressed by valuing insights from multiple perspectives. The Graduate Certificate in Environment, Policy, and Society allows students the opportunity to engage in interdisciplinary exploration of these contemporary environmental problems by drawing from courses across a wide range of social science disciplines.

The certificate curriculum incorporates courses from many departments in the College of Arts and Sciences, including anthropology, biology, economics, geography, philosophy, political science, psychology and sociology. In addition, pertinent courses are available in the Program in Environmental Design, the Leeds School of Business, the College of Engineering and Applied Science, CMCI and the School of Law.

Tracks are available in:

- Environment and Society

- Environmental Policy
- Energy and Society
- Water and Society

Students will be expected to complete the interdisciplinary cornerstone course, an integrative capstone course and 9–12 hours from the menu of courses available for each track.

Admission to the certificate program is open to students in any regular graduate degree program at the University of Colorado. A limited number of individuals already holding master's or doctoral degrees from other institutions may be admitted, provided they meet the normal admission requirements of a participating department.

To receive the certificate, students must complete 18 hours of approved course work, including 6 hours of cornerstone/capstone seminars. At least 12 of the 18 hours must be in courses outside the department in which the student is currently enrolled. The certificate is awarded to recognize the additional coursework beyond that required for the student's regular degree program. Hence, transfer credit for courses taken elsewhere may not be counted toward certificate requirements.

For more information, please consult the Environmental Studies Program website at [www.colorado.edu/envs/current-students/graduate-students/environment-policy-and-society-certificate](http://www.colorado.edu/envs/current-students/graduate-students/environment-policy-and-society-certificate).

## Graduate Certificate in Science and Technology Policy

The graduate certificate in science and technology policy is a rigorous educational program to prepare students pursuing graduate degrees for careers at the interface of science, technology and decision making. Past recipients of the certificate have gone on to positions in the U.S. Congress, academia, NOAA and other policy relevant positions. Students come from such graduate programs as **aerospace engineering, atmospheric and oceanic sciences, biological sciences, chemistry, civil engineering, environmental studies, geography, journalism and mechanical engineering**. Students enrolled receive either a master's or doctoral degree in their department and a certificate in science and technology policy. Each year, the certificate program will begin with a capped enrollment of 18 students per cohort. These 18 students will take three required courses:

- ENVS 5100 Science and Technology Policy
- ENVS 5110 Science, Technology and Society Studies
- ENVS 5120 Quantitative Methods of Policy Analysis

In addition to the above three required courses students are also required to take three additional courses from a list of approved electives. For a list of all required courses and electives see [sciencepolicy.colorado.edu/stcert/curriculum/courses.html](http://sciencepolicy.colorado.edu/stcert/curriculum/courses.html). Successful completion of the certificate program requires the completion of 18 hours of course work (or course work plus internship credit).

For more information, visit [sciencepolicy.colorado.edu/stcert](http://sciencepolicy.colorado.edu/stcert).





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## Ethnic Studies

The field of ethnic studies was born of, and is dedicated to, the struggles for social justice for all people.

The Department of Ethnic Studies at the University of Colorado Boulder draws on this tradition of engaged scholarship to examine how race and the interrelated categories of ethnicity, gender, class and sexuality impact the lives of people in the United States and around the globe.

Our interdisciplinary department offers an undergraduate major and minor, a doctoral degree and a Graduate Certificate in Comparative Ethnic Studies.

Our faculty members engage in a wide variety of research on the cultures, histories, epistemologies and experiences of African American, Asian American, Chicana/o and Native American and indigenous peoples in the U.S. and beyond. Their research and teaching address these topics through critical transnational, queer and comparative perspectives.

### Study Abroad

The Department of Ethnic Studies encourages students to participate in the study abroad programs offered through the Office of International Education. These programs give students a deeper understanding of culture and attitudes of people of color in other parts of the world and their carryover into the United States. CU-Boulder partners with several study abroad organizations that offer summer, semester and full year programs in many locations around the world, most notably in Africa, Asia and Latin America. Programs of special interest include study abroad in Australia, Bolivia, Cuba, Dominican Republic, Ecuador, Ghana, Japan, Mexico, Morocco, Peru, South Africa, Spain and Taiwan.

For additional information, contact the Office of International Education. Students should always consult with their academic advisor prior to choosing their study abroad program.

**Course code for this program is ETHN.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Ethnic Studies

In addition to the general requirements of the College of Arts and Sciences, students must complete 33 credit hours of ethnic studies requirements: 12 hours of required ethnic studies core classes and an additional 21 credit hours in ethnic studies, 15 hours of which must be upper division for a total of 24 upper-division credits in the major (required courses mentioned below are included). The 21 credit hours in ethnic studies can be selected from the current ethnic studies course offerings; they may include courses that are cross-listed with the Department of Ethnic Studies, as listed in this catalog.

#### Arts & Sciences

- Policies & Requirements
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  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

A grade of C- or better must be received in all courses used to satisfy the major requirements, with an overall average of 2.00 in the major. No more than 6 credit hours may be taken in independent study. No *pass/fail* graded courses may satisfy the 33-semester-hour minimum requirement.

#### **Required Courses and Semester Credit Hours**

- ETHN 2001 Foundations of Ethnic Studies—3
- ETHN 3501 Theory, Writing and Methods in Ethnic Studies—3
- ETHN 4951 Senior Seminar in Ethnic Studies—3
- ETHN topic. Select one: ETHN 3101, 3102, 3103, 3104, 3105 or 3106—3, 4102, 4106

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in ethnic studies, students should meet the following requirements:

- Declare ethnic studies as their major.
- Complete at least 12 credit hours toward the ethnic studies major requirements by the fourth semester.
- Complete at least 21 credit hours toward the ethnic studies major requirements by the end of the sixth semester.
- Complete ETHN 2001 Foundations of Ethnic Studies no later than the fourth semester.
- Complete ETHN 3501 Theory, Writing and Methods in Ethnic Studies not later than the seventh semester.
- Complete at least one ethnic studies selected topics course selected from the following: ETHN 3101, 3102, 3103, 3105 or 3106 no later than the eighth semester.
- Complete ETHN 4951 Senior Seminar in Ethnic Studies no later than the eighth semester.

## Minor Program

A minor is offered in ethnic studies. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school. To obtain the ethnic studies minor, students must:

- Declare a minor in ethnic studies
- Complete 18 credits hours in ethnic studies course work; requirements include the following: Complete ETHN 2001 Foundations of Ethnic Studies (3 credit hours)  
Complete 15 credit hours from elective courses in the Department of Ethnic Studies. Nine credit hours of the elective courses must be at the upper-division (3000-4000) level

The minor emphasizes critical thinking, the construction of grounded social theory, data gathering and comparative analysis. The minor also fosters developmental, experiential learning of appropriate skills in research design and implementation. A principal focus of the curriculum is the recognition and incorporation of multicultural definitions and values that can become part of the university’s mission.

## Graduate Degree Program(s)

### PhD in Comparative Ethnic Studies

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies

#### • **Ethnic Studies**

- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

This interdisciplinary program provides students with broad training that enables them to research and analyze the intersectional and relational workings of race, ethnicity, gender, class and sexuality in national and transnational contexts. It draws theoretically and methodologically in interdisciplinary fields including; ethnic studies, women's and gender studies, cultural studies, literary and film studies, border studies and American studies, as well as traditional disciplines including anthropology, history, philosophy and sociology.

In addition, the department offers a 12-credit interdisciplinary Graduate Certificate in Comparative Ethnic Studies (*see below*). The certificate provides specialized training in race/ethnicity and gender studies, Africana studies, Asian American studies, Chicana/o studies, Native American/indigenous studies, comparative ethnic studies, race and sexuality studies and transnational/hemispheric ethnic studies.

## Ethnic Studies Faculty Involvement in Graduate Studies

Faculty actively work to recruit African American, Native American, Asian American and Chicana/o students for graduate studies at the CU-Boulder, with special attention given to students who are interested in carrying out theses and/or dissertations that involve substantive and theoretical work revolving around the broad topic of "ethnicity, race and gender in America." Faculty are further committed to the intellectual mentorship of such students, which might include instruction in graduate courses, directed reading courses, service on students' MA or PhD committees, as well as helping to prepare graduate students for their qualifying examinations. An important dimension of this commitment includes attention to the step-by-step progress of these graduate students through their academic course work and research agendas.

Ethnic studies faculty will also recruit and employ whenever possible such students as graders and teaching assistants in large undergraduate courses, with the intention of providing experience in all aspects of classroom instruction, including syllabus design, design of assignments, grading and issues of pedagogy vis-à-vis course content.

Ethnic studies faculty will mentor such graduate students in the area of writing for publication, and seek to facilitate publication opportunities in journals focusing on "ethnicity, race and gender." After successful completion of graduate studies, faculty will assist graduates with their employment goals.

In sum, by making an active commitment in each of these areas, ethnic studies faculty assume a responsible, proactive role in ensuring a greater diversity in the graduate programs at the University of Colorado.

## Certificate Program(s)

### Graduate Certificate in Comparative Ethnic Studies (GCCES)

In order to enhance the Graduate School training for enrolled graduate students at the University of Colorado Boulder, the Department of Ethnic Studies (DES) has been approved to offer a 12-credit Graduate Certificate in Comparative Ethnic Studies (GCCES). Nine credit hours must be from DES taught courses. These include ETHN 6000: Foundations in Comparative Ethnic Studies and two elective courses. The purpose of the certificate is to provide specialized training opportunities in race/ethnicity and gender studies, research and interdisciplinary training in Africana studies, native American/indigenous studies, Asian American studies, Chicana/o-Latina/o studies, decolonial feminist studies, comparative ethnic studies, race and sexuality studies and transnational/ hemispheric ethnic studies to students pursuing degrees in various disciplines on campus.

Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

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## Film Studies

The Film Studies Program educates students in the history and development of film as an art form and contemporary medium. The curriculum instills an informed analytic awareness of the ways in which film has been used and provides the resources for significant creative exploration of the medium.

The undergraduate degrees in film studies emphasize knowledge and awareness of:

- the major artistic contributions to the evolution of film, from the advent of the moving image to the present;
- the general outlines of world film from the silent period to the present, with emphasis on the historical contributions of major national cinemas; and
- film criticism and film theory.

Students completing either the BA or the BFA degree in film studies are expected to acquire the ability and skills to:

- analyze and interpret films critically;
- communicate such interpretations competently in essay form; and
- make a short creative film or video work (BA Production and BFA only).

NOTE: Admission to any class after the third meeting of the class is contingent on professor permission. The department may drop a student from a class if the student misses the first two classes of the semester.

**Course code for this program is FILM.**

### Bachelor's Degree Program(s)

## Bachelor of Arts in Film Studies, Critical Studies

No more than 6 hours of independent study may be credited toward the major. Students must complete the required film courses with a grade of C or better. The arts and sciences 18-hour minimum of upper-division hours must be met with CU film studies courses.

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below. The Film Studies Program requires a minimum of 44 hours in support of the BA requirements, including film courses and courses taken in other departments.

The Film Studies Program strongly urges the purchase of film and sound media-capable Apple computing systems for those pursuing production classes in the BA degree program (see [www.colorado.edu/filmstudies](http://www.colorado.edu/filmstudies)).

### □ Arts & Sciences

- Policies & Requirements
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  - Art and Art History
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  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

## Required Courses and Semester Credit Hours

### Literature and the Arts Requirement

In addition to the 6-hour literature and the arts core requirement, Film Studies majors must take an additional 6 hours (3 of them upper-division) of literature and the arts core courses to satisfy the degree requirements.

### Required Critical Studies Courses

- FILM 1502 Introduction to Film Studies (Note 1)—3
- FILM 3051 and 3061 Film History 1 and 2 (Note 2)—8
- FILM 3104 Film Theory and Criticism—3

### Critical Studies Elective Requirements

BA students must complete 18 hours from the following courses. At least 12 must be upper division.

- FILM 2002 Recent International Cinema—3
- FILM 2003 Film Topics (Note 3)—3
- FILM 2004 Telluride Film Fest Seminar—3
- FILM 2005 Form, Structure and Narrative Analysis—3
- FILM 2013 Film and the Quest for Truth—3
- FILM 2312 Film Trilogies—3
- FILM 2412 Melodrama and Culture—3
- FILM 2513 Major Asian Filmmakers—3
- FILM 2521 Classics of the Foreign Film: 1960s to the present—3
- FILM 2613 Good/Evil through Film—3
- FILM 3002 Major Film Movements (Note 3)—3
- FILM 3003 Major Film Directors (Note 3)—3
- FILM 3004 Films of Alfred Hitchcock—3
- FILM 3005 Issues in Film Comedy—3
- FILM 3012 Documentary Film—3
- FILM 3013 Women and Film—3
- FILM 3022 Jung, Film and Literature—3
- FILM 3023 Stage Drama into Film: O'Neill and Williams—3
- FILM 3032 Stage Tragedy and Film—3
- FILM 3033 Color and Cinema—3
- FILM 3042 Horror Film—3
- FILM 3043 Topics in Film Critical Studies (Note 3)—3
- FILM 3081 American Film in the 1980s and 1990s—3
- FILM 3091 Post-War American Film/Culture/Politics—3
- FILM 3191 The Golden Age—3

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies

#### • Film Studies

- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

- FILM 3211 History of Russian Cinema—3
- FILM 3301 Contemporary Issues in Russian Film—3
- FILM 3422 Genre: Hollywood Musical—3
- FILM 3503 German Film Through WWII—3
- FILM 3504 Topics in German Film—3
- FILM 3513 German Film After WWII—3
- FILM 3514 German Film and Society after 1989—3
- FILM 3603 Sound and Vision—3
- FILM 3901 Independent Study (Note 4)—1-6
- FILM 3940 Film Studies Internship—1-6
- FILM 4001 Screening Race, Class and Gender in the U.S. and the Global Borderland—3
- FILM 4003 Film and Fiction—3
- FILM 4004 Topics in Film Theory (Note 3)—3
- FILM 4013 Film, Photography and Modernism 3
- FILM 4023 Topics in International Cinema (Note 3)—3
- FILM 4024 Advanced Research Seminar (Note 3)—3
- FILM 4043 Topics in Film Studies: Critical Studies (Note 3)—1-3
- FILM 4105 Advanced Screenwriting—3
- FILM 4135 Art and Psychoanalysis—3
- FILM 4453 Elective Affinities: Avant-garde Film and the Arts—3
- FILM 4604 Colloquium in Film Aesthetics—3
- Any FILM class crosslisted with another department (i.e., foreign language) that has been approved by the film studies chair—3

### Film Elective Requirements

In addition to required Film classes, Film Studies majors must complete an additional six credit hours of FILM courses.

#### Curriculum Notes

1. This course is a prerequisite for FILM 2000 and 3051.
2. Must be taken in chronological order. FILM 1502 is a prerequisite.
3. Course may be taken for credit more than once, provided that the topics vary.
4. Total number of independent study credit hours cannot exceed 6.

### Graduating in Four Years with a BA

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress toward a BA in film studies, students should meet the following requirements:

- Declare a film studies major by the beginning of the second semester
- Complete the lower- or upper-division literature and the arts requirement (3 credit hours)

#### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

and FILM 1502 (3 credit hours) by the end of the fourth semester.

- Complete the upper-division literature and the arts requirement (3 credit hours) and FILM 3051 and 3061 by the end of the sixth semester.
- Complete 6 critical studies elective credit hours and 6 FILM elective credit hours by the end of the seventh semester (at least 3 of these credits must be upper-division credits).
- Complete an additional 12 credit hours of critical studies elective courses, including at least three upper-division courses (9 credit hours), and FILM 3104 (3 credits) by the eighth semester.

## Bachelor of Fine Arts in Film Studies

### Admission to the BFA Program

Students are encouraged to consult with the Film Studies advisor in order to obtain advice and current information.

#### **New Admission Requirements for Students Matriculating after Fall 2015**

The BFA degree is competitive. In order to graduate with a BFA degree, students must first satisfy a number of prerequisites and then submit a formal application to the BFA program at the prescribed time (deadline will be posted each semester on the film studies website). Applicants must have a cumulative GPA at CU Boulder of 2.5 or higher, a FILM GPA of 3.3 or higher and have completed 15 credit hours of FILM coursework, including FILM 1502, 2000 and 2500. Applicants must submit a written application, a writing sample and a sample film. Applicants may also submit one additional “best” example of creative work (see specific admission guidelines for details). Admission into the BFA program is contingent upon approval of the application materials by the BFA committee. Students applying after their fourth semester may apply twice to the BFA; students applying subsequent semesters may only apply once. Complete details on the BFA application procedure are available on the film studies website. Students are required to attend a BFA orientation meeting prior to submitting their application. The program recommends that BFA students purchase film and sound media-capable Apple computing systems (see [www.colorado.edu/filmstudies](http://www.colorado.edu/filmstudies)).

No more than 6 hours of independent study may be credited toward the major. Students must complete the required film courses with a grade of C or better.

Students must complete the general requirements of the College of Arts and Sciences as well as the required courses listed below. The Film Studies Program requires a minimum of 65 hours in support of the BFA degree requirements.

#### ***Required Courses and Semester Credit Hours***

##### **Literature and the Arts Requirement**

In addition to the 6-hour literature and the arts core requirement, Film Studies majors must take an additional 6 hours (3 of them upper division) of literature and the arts core courses to satisfy the degree requirements.

##### **Required Critical Studies Courses**

- FILM 1502 Introduction to Film Studies (Note 1)—3
- FILM 3051 and 3061: Film History 1 and 2 (Note 2)—8
- FILM 2005 Form, Structure, Narrative Analysis or FILM 2105 Intro to the Screenplay—3
- FILM 4604: Colloquium in Film Aesthetics—3

## Required Production Courses

- FILM 2000 Moving Image Foundations I (Note 6)—3
- FILM 2500 Moving Image Foundations II (Note 6)—3
- FILM 3400 Cinema Production 1—3
- FILM 3515 Camera Workshop—3
- FILM 3525 Editing Workshop—3
- FILM 4500 Cinema Production 2, Part 1—3
- FILM 4500 Cinema Production 2, Part II—3

## Production Course Electives

BFA students must take 15 hours of any combination of the following courses—see degree audit for specifics:

- FILM 2010 Moving Image Computer Foundations—3
- FILM 2300 Beginning Filmmaking—3
- FILM 2610 Animation Production—3
- FILM 2900 Lighting Workshop—3
- FILM 3010 Film Production Topics (Note 5)—3
- FILM 3030 Cinema Alternative Process—3
- FILM 3501 Film Production Management or FILM 3563 Producing the Feature Film (Both are usually offered through Continuing Education; only one may count toward the film studies degree.)—3
- FILM 3563 Producing the Film—3
- FILM 3600 Digital Post-production Process—3
- FILM 3620 Experimental Digital Animation—3
- FILM 3700 Digital Audio Design—3
- FILM 3900 Production Independent Study (Note 4)—1-6
- FILM 3920 Professional Seminar—3
- FILM 3940 Internship—1-6
- FILM 3990 Film Practicum (Note 3)—1
- FILM 4000 Advanced Digital Post-production—3
- FILM 4005 Screenwriting: Short Form—3
- FILM 4010 Topics in Film Studies: Production (Note 3)—1-3
- FILM 4021 Directing/Acting for the Camera—3
- FILM 4030 Visiting Filmmakers Seminar—3
- FILM 4075 Scriptwriting Workshop—3
- FILM 4105 Advanced Screenwriting—3
- FILM 4240 Beginning Video Production—3
- FILM 4340 Intermediate Video Production—3
- FILM 4440 Advanced Video Production—3

- FILM 4505 Screenwriting: Long Form—3
- FILM 4600 Creative Digital Cinematography (Note 3)—3

### **Curriculum Notes**

1. This course is a prerequisite for FILM 2000 and 3051
2. Must be taken in chronological order.
3. Course may be taken for credit more than once.
4. Total number of independent study credit hours cannot exceed 6, and they cannot be used to duplicate regular course offerings.
5. Course may be taken for credit more than once, provided the topics vary.
6. Must receive a B- or higher to continue to the next required production course.

### **Critical Studies Elective Requirements**

BFA students must complete 6 hours.

- FILM 2002 Recent International Cinema—3
- FILM 2003 Film Topics (Note 3)—3
- FILM 2004 Telluride Film Fest Seminar—3
- FILM 2005 Form, Structure and Narrative Analysis—3
- FILM 2013 Film and the Quest for Truth—3
- FILM 2312 Film Trilogies—3
- FILM 2412 Melodrama and Culture—3
- FILM 2513 Major Asian Filmmakers—3
- FILM 2521 Classics of the Foreign Film: 1960s to the present—3
- FILM 2613 Good/Evil through Film—3
- FILM 3002 Major Film Movements (Note 3)—3
- FILM 3003 Major Film Directors (Note 3)—3
- FILM 3004 Films of Alfred Hitchcock—3
- FILM 3005 Issues in Film Comedy—3
- FILM 3012 Documentary Film—3
- FILM 3013 Women and Film—3
- FILM 3022 Jung, Film and Literature—3
- FILM 3023 Stage Drama into Film: O'Neill and Williams—3
- FILM 3032 Stage Tragedy and Film—3
- FILM 3033 Color and Cinema—3
- FILM 3042 Horror Film—3
- FILM 3043 Topics in Film Critical Studies (Note 3)—3
- FILM 3081 American Film in the 1980s and 1990s—3
- FILM 3091 Post-War American Film/Culture/Politics—3

- FILM 3104 Film Theory and Criticism—3
- FILM 3191 The Golden Age—3
- FILM 3211 History of Russian Cinema—3
- FILM 3301 Contemporary Issues in Russian Film—3
- FILM 3422 Genre: Hollywood Musical—3
- FILM 3503 German Film Through WWII—3
- FILM 3504 Topics in German Film—3
- FILM 3513 German Film After WWII—3
- FILM 3514 German Film and Society after 1989—3
- FILM 3603 Sound and Vision—3
- FILM 3901 Independent Study (Note 4)—1-6
- FILM 3940 Film Studies Internship—1-6
- FILM 4001 Screening Race, Class and Gender in the U.S. and the Global Borderland—3
- FILM 4003 Film and Fiction—3
- FILM 4004 Topics in Film Theory (Notes 3)—3
- FILM 4013 Film, Photography and Modernism—3
- FILM 4023 Topics in International Cinema 3 (Note 3)—3
- FILM 4024 Advanced Research Seminar (Note 3) 3
- FILM 4043 Topics in Film Studies: Critical Studies (Note 3)—3
- FILM 4105 Advanced Screenwriting—1-3
- FILM 4135 Art and Psychoanalysis—3
- FILM 4453 Elective Affinities: Avant-garde Film and the Arts—3
- FILM 4604 Colloquium in Film Aesthetics—3
- Any FILM class crosslisted with another department (i.e., foreign language) that has been approved by the film studies chair—3

#### **Curriculum Notes**

1. This course is a prerequisite for FILM 2000 and 3051.
2. Must be taken in chronological order. FILM 1502 is a prerequisite.
3. Course may be taken for credit more than once, provided that the topics vary.
4. Total number of independent study credit hours cannot exceed 6.

## Graduating in Four Years with a BFA

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress toward a BFA in film studies, students should meet the following requirements:

- Declare and start the film studies major the first semester freshman year.
- Complete FILM 1502 (3 credit hours), FILM 2000 (3 credit hours), FILM 2005 or 2105 (3

credits) and one lower- or upper-division critical studies course for 3 credits by the end of the third semester.

- Complete the Literature and the Arts lower- or upper-division requirement (3 credit hours), FILM Foundation Elective (3 credit hours) and FILM 2500 (3 credit hours) by the end of the fourth semester.
- Note: In order to graduate in four years, a student must apply and be accepted into the BFA program at the end of the fourth semester. See “Admission to the BFA Program” for details of the application process.
- Complete FILM 3051, FILM 3400 (3 credit hours), 3515 (3 credit hours), and 3525 (3 credit hours) by the end of the fifth semester.
- Complete FILM 3061 (4 credit hours), Digital Elective (3 credit hours), Production Elective (3 credit hours) and FILM 3990 (1 credit hour) by the end of the sixth semester.
- Complete 3 credit hours of FILM 4500, 3 credit hours upper division critical studies elective, FILM 3990 (1 credit hour) by the end of the seventh semester.
- Complete 3 additional credit hours of FILM 4500, FILM 4604, an additional 1 credit of FILM 3990 and 3 more credit hours of production electives by the end of the eighth semester.

## Minor Program

A minor is offered in film studies. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school. To obtain the film studies minor, students must:

- Declare a minor in film studies
- Complete 20 credit hours in film studies course work; requirements including the following:
  - Complete FILM 1502, FILM 3051 and FILM 3061 (11 credit hours)
  - Complete 9 credit hours from elective courses in the Film Studies Program. Six credit hours of the elective courses must be at the upper-division (3000-4000) level

The minor helps students interested in the study of cinema history, culture and aesthetics, but who are too busy to pursue the full major, the opportunity to develop their interest by acquiring critical and comparative skills and understanding the place and importance of cinema as a cultural and social phenomenon. Students in the minor have access to lower and upper division courses on film history, aesthetics, criticism, social and historical contexts, classical genres, and groundbreaking directors from the US and International traditions, acquiring an edge in visual analysis and media literacy.

## Concurrent Bachelor's/Master's Program

### Bachelor of Arts/Master of Arts (BA/MA)

**Overview.** The film studies/art and art history bachelor of arts/master of arts critical studies degree gives highly-motivated BA students the opportunity to earn an MA degree using an accelerated undergraduate program in combination with a fifth year of study.

**Program Description.** The BA/MA degree in film studies (FS) is a critical studies track under the auspices of the Art and Art History (AAH) MA program. This collaboration between AAH and FS is an extension of our common interests in visual art and grows from our current shared MFA in filmmaking. The Film Studies tenured and tenured track faculty also have graduate faculty standing within Art and Art History.

The FS/AAH BA/MA track prepares students for professional careers in teaching and criticism, from the perspective of innovative critical approaches and in preparation for a PhD track at another university. The aim of the BA/MA film program is to aid in the advancement of the scholarly understanding of film art, with emphasis on theoretical and research approaches and

their role in academia. The BA/MA will, therefore, prepare its graduates to assume the responsibilities of the academic study of cinema as one of the fine arts and to pursue careers in teaching, research, curating and the overall advancement of the study of cinema as art.

The program offers studies leading to the MA in the areas of film criticism and theory. Advanced students are encouraged to explore interdisciplinary approaches as well as to enhance their program of study with cognate courses in other departments such as history, comparative literature, anthropology, English, women's studies, ethnic studies, Spanish and Portuguese, French and Italian, Germanic and Slavic languages and literatures and others. Film studies offers a broad selection of seminar topics on their current faculty research interests and in response to student demand. The Visiting Film Artist program brings additional distinguished, innovative film and video artists and critics to campus and students are encouraged to register for their seminars.

### Admission to the Program

- Admission to the program occurs during the second semester of the junior year. Applicant should have a cumulative GPA of 3.3 and have completed all MAPS deficiencies. All applicants will provide a copy of their (internal) CU transcript. (Please note: Applicant should specify on the form that they are applying for the spring term, BA/MA degree, major codes AS-FLM2 and GR-ART). After completing the top portion of the form, the student should make an appointment with the Director, Professor Ernesto Acevedo-Muñoz ([www.colorado.edu/filmstudies/ernesto-acevedo-munoz](http://www.colorado.edu/filmstudies/ernesto-acevedo-munoz)).
- The sole application deadline is the second Monday in October. Please submit the [standard BAMA application form](#) with your package. Note: Applicants should specify on the form that they are applying for the spring term, BA/MA degree, major codes AS-FLM2 and GR-ART2.
- Students will secure the sponsorship and/or advisory commitment of a Film Studies faculty member at the rank of assistant professor or higher. The applicant will include a brief letter or statement from the Faculty member attesting to the advisory relationship.
- Applicants will submit a one-page prospectus detailing a possible research topic for an MA thesis. The prospectus must include a minimum bibliography of 10-15 items.
- "October Surprise": Applicants must successfully complete a writing assignment in the form of a 10-12 page analytical/theoretical or historical argument paper on a film determined by the faculty. Students will pick up a DVD and a "prompt" or question in the Film Studies office at 4pm on the Friday before the application is due. Over the weekend, the applicants must watch the movie, do some research, make an argument, and write the paper, which will be handed in with the application Monday at 9am. The "October Surprise" portion of the application process is designed to have students demonstrate their writing skills and their ability to find, define, and argue a topic in a fairly sophisticated manner for an aspiring Master's student.
- Only currently enrolled, University of Colorado Boulder students, may be considered for admission to the program. Transfer students must complete at least 24 credit hours as a degree-seeking student before applying to the program.
- Student enrolled in the BAMA track cannot pursue a double major or double degree of any kind.

## Graduate Degree Program(s)

### Master of Fine Arts in Film

The Graduate MFA degree in film studies is a filmmaking track integrated into the Art and Art History MFA program in much the same way as the tracks in painting and drawing, ceramics, sculpture, media arts, the IAP and printmaking. The filmmaking track prepares students for professional artistic careers in filmmaking from the perspective of innovative image making. The

aim of the MFA film program is to aid in the advancement of the practice and understanding of art, with emphasis on the moving image and its role in this advancement. The MFA will, therefore, prepare graduates to assume creative leadership roles in filmmaking.

The interdisciplinary nature of the MFA program allows graduate students to work in various areas, in addition to their area of specialization. The MFA guidelines include a second area of the student's choice as a requirement. The thesis project is two-fold, involving 1) the student's creative work (e.g., a film), displayed at the MFA exhibition, and 2) a written thesis that eventually goes to the library.

See the Art and Art History section for descriptions of the MFA ARTF courses.

**Prerequisites.** The following are required for admission to the graduate program:

- Bachelor's degree from an approved college or school of art with a minimum grade point average of 2.75
- Minimum of 34 credit hours of acceptable work in art; 12 credits in fine arts history is preferred
- Submission of films and other examples representing creative work or electronic media. Students should submit a portfolio of creative work to include video and/or audio tapes, film, etc., as appropriate (especially for documentation of performance and/or installations) for screening by the electronic media committee for presentation to the full graduate faculty.

**Degree Requirements.** Effective fall 2008, the MFA program is a two-and-a-half year program. The degree requires a minimum of 54 credit hours of course work, of which 36 must be taken in residence on the Boulder campus, with the following requirements:

***Required Courses and Semester Credit Hours***

- Home studio (major area)—min. 12
- Electives (studio and non-studio; up to 6 credits may be taken in an allied field, at the 3000 level and above)—21
- Art history, theory, or film critical studies—9
- Visiting artist seminar—3
- Graduate art seminar—3
- Thesis—6
- For the Film Track MFA students: ARTF 5030 Visiting Filmmakers Seminar is allowed as a substitute for ARTS 5118 Visiting Artist Seminar; ARTF Critical Studies courses are allowed as alternates to fulfill 3 hours of the art history requirement.

See the art and art history department section of this catalog and [cuart.colorado.edu/programs/studio-art/filmmaking-mfa-track](http://cuart.colorado.edu/programs/studio-art/filmmaking-mfa-track) for more information on requirements.





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- Colleges & Schools**
- Admission
- Courses

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# French and Italian

## French

Beyond providing mastery of the language skills (listening, speaking, reading, writing) of modern French needed for all purposes of daily life, the major introduces students to a central tradition of western and world culture. Since the Middle Ages, French literature, thought, taste and art have helped shape the essential experience and self-understanding of humanity at large.

Survey courses and upper-division seminars offer a range of exposures to the French cultural past and the far-flung ethnic and national diversity of the French-speaking present. The major explores distinctively French contributions to world culture, such as Arthurian romance, troubadour poetry and Gothic architecture; the love sonnets of the Pléiade, the comic novels of Rabelais and the essays of Montaigne; the neoclassical theatre of Corneille, Molière and Racine and the critical philosophy of Descartes and Pascal; the Enlightenment philosophies of Voltaire, Diderot and Rousseau; the psychological refinements of French fiction from Mme de La Fayette to Proust; artistic revolutions like impressionism and surrealism; the renewal of artistic conventions in the Theatre of the Absurd, the New Novel and the cinema of the New Wave; the French-language literature of Africa, Canada and the Caribbean; and the vital presence of French writers in major movements of 20th century thought like existentialism, structuralism, feminism, psychoanalysis and contemporary cultural studies and multiculturalism.

The undergraduate degree in French emphasizes knowledge and awareness of:

- the fundamental outlines of the history of French literature from the Middle Ages to the present;
- significant works of French literature and the literary culture of the French-speaking world;
- the historical context in which particular works were written and the relation between literature and other forms of cultural expression (e.g., art, philosophy, politics, religion);
- contemporary French culture, politics and current events;
- a range of literary genres, their development and reception and relevant critical methodologies; and
- the grammatical structure of modern standard French.

In addition, students completing the degree in French are expected to acquire the ability and skills to:

- speak and understand modern, spoken standard French sufficient for all purposes of daily life and for intellectual discussion in academic settings;
- read and write modern standard French with sufficient fluency and correctness for successful literary or linguistic analysis of French texts;

### Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

- analyze and interpret literary texts in terms of style, plot, structure, characters, themes and the use of literary devices;
- communicate such analyses and interpretations simply in French or at a more sophisticated level in English, and discuss a wide range of topics concerning French culture, civilization and current events; and
- follow with reasonable comprehension French broadcasts or film.

## Italian

The major provides the language skills (listening, speaking, reading, writing) of modern Italian needed for all purposes of daily life. Moreover, by combining courses offered by the faculty of the Department of French and Italian with courses of Italian interest taught in other units, including film studies, fine arts and history, the program promotes an understanding of the role of the Italian literary and cultural tradition within western civilization at large. As the birthplace of Dante, Petrarca, Boccaccio, Ariosto, Tasso, Marino, Michelangelo, Raphael and Da Vinci, Italy is the cradle of the Renaissance. Italy projects a powerful, formative influence into our own day through the work of 19th and 20th century writers like Leopardi, Manzoni, Pirandello, Levi and Calvino; operatic composers like Rossini, Puccini and Verdi; philosophers and critics like Croce, d'Annunzio, Gramsci and Ginzburg; and filmmakers like Fellini, Pasolini and Bertolucci. Thus, in addition to supplying the necessary background for advanced professional study and specialization, the Italian major introduces students to a rich literary, artistic and intellectual history at the roots of the modern world.

Students wishing to major in Italian are required to have a thorough advising session with the Italian program advisor. In this session the student program of study is outlined in detail. Students are required to see the advisor in the event that any of their major courses are canceled so that substitutions and revisions in their programs can be made. The department will not approve a major in Italian unless the student has been advised by the program advisor.

For courses in other departments with an Italian emphasis (e.g., comparative literature, fine arts, history, honors, etc.), see those sections.

The undergraduate degree in Italian emphasizes knowledge and awareness of:

- the fundamental outlines of the history of Italian literature from the Middle Ages to the present;
- significant works of Italian literature and the contribution to world literature of Italian letters;
- the historical context in which particular works were written;
- contemporary Italian culture, politics and current events;
- a range of literary genres, their development and reception and relevant critical methodologies; and
- the grammatical structure of modern standard Italian.

In addition, students completing the degree in Italian are expected to acquire the ability and skills to:

- speak and understand modern, spoken, standard Italian sufficient for all purposes of daily life and for intellectual discussion in academic settings;
- read and write modern standard Italian with sufficient fluency and correctness for successful literary or linguistic analysis of Italian texts;
- analyze and interpret literary texts in terms of style, plot structure, characters, themes and

### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies

### • French and Italian

- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

the use of literary devices;

- communicate such analyses and interpretations simply in Italian or at a more sophisticated level in English, and discuss a wide range of topics concerning Italian culture, civilization, and current events; and
- follow with reasonable comprehension authentic Italian broadcasts or film.

**Course codes for these programs are FREN and ITAL.**

## Bachelor's Degree Program(s)

### Bachelor of Arts in French

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below. Students wishing to pursue an Honors major should also consult the Honors requirements listed below.

Note: Students undertaking a major in French should expect to have regular conferences with a college advisor to ensure that they are making adequate progress and that requirements are being met in a timely way. The department will not certify majors for graduation when a failure to satisfy requirements is the fault of the student.

A minimum of 30 upper-division hours in French must be completed (see below for specific courses). FREN 2120 or its equivalent is the prerequisite for admission to courses required for the major.

#### **Required Courses and Semester Credit Hours**

- FREN 3010 French Phonetics and Pronunciation—3
- FREN 3050, 3060 French Composition 1 and 2—6
- FREN 3100 Critical Reading and Writing in French Literature—3
- FREN 3110, 3120 Main Currents of French Literature 1 and 2—6
- Four or more other courses at the 3000 or 4000 level, of which 9 hours must be at the 4100 level or above (6 of which must be completed at CU)—12
- FREN 4990 Senior Seminar (including a senior essay and oral presentation, except where a student elects to present a senior honors thesis)
- Note: The seminar runs concurrently with one of the three courses taken at the 4100 level or above. See departmental brochure for details.—3

### Honors Requirements

Honors candidates must meet all of the regular requirements for the major plus the following:

- FREN 3200 Introduction to Literary Theory—3
- One semester of independent study.
- NOTE: The semester of independent study is taken concurrently with FREN 4980, and is devoted to one-on-one work on the senior honors thesis with a faculty advisor. See department for details—3

### Graduating in Four Years with a BA in French

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in French,

#### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

students should meet the following requirements:

- Declare French major by the beginning of the second semester of study.
- Complete FREN 3010, 3050, 3060 and 3100 by the end of the second (sophomore) year.
- Complete FREN 3110 and 3120 and two other 3000- or 4000-level courses (including one at the 4100 level or above) by the end of the third (junior) year.

Note: Completion of French requirements includes the successful written and oral presentation of a senior essay or honors thesis by the end of the fourth (senior) year.

## Minor Program in French

A minor program is offered in French. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school.

- A total of 18 upper-division hours is required for the minor. All courses counted for the minor must be numbered 3000 or above. Courses taught by the department in English, do not, in general, apply to the minor, with the exception of FREN 3200.
- Prerequisite for admission to courses for the minor is completion of Level IV French, second-year college French (FREN 2120 at CU-Boulder) or equivalent.
- A maximum of 6 hours upper-division credit may be transferred from other universities or non-CU-Boulder study abroad programs. Courses taken on CU-Boulder study abroad programs are considered to be CU credit, and not subject to this limitation.
- All courses for minor credit must be taken for a grade. The only exception to this rule is course credit, which although taken for a grade, is recorded *pass/fail* on the student's transcript (this includes transfer credit from accredited universities and courses taken on CU study abroad programs).
- Students must earn a minimum grade of C- in all courses counted for the minor.

To declare a French minor, please go to [www.colorado.edu/advising](http://www.colorado.edu/advising).

## Bachelor of Arts in Italian

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below. Thirty-six hours beyond the first year with a 2.00 (C) grade point average or better are required, as listed below.

### **Required Courses and Semester Credit Hours**

#### **Italian Lower-division—9**

- ITAL 2110 Intermediate Italian Reading, Grammar and Composition 1
- ITAL 2120 Intermediate Italian Reading, Grammar and Composition 2
- ITAL 2130 Introduction to Literary Analysis

#### **Italian 3000-level—12**

- ITAL 3015 Advanced Composition 1
- Choose one from the following three courses:  
ITAL 3025 Advanced Composition 2  
ITAL 3030 Storia Dell'Arte  
ITAL 3040 Italian Conversation through Cinema

Choose two from the following three courses (prereq. ITAL 2130):

ITAL 3140 Readings in Italian Literature: 20th and 21st Centuries

ITAL 3150 Readings in Italian Literature: 19th Century

ITAL 3160 Readings in Italian Literature: Medieval/Renaissance

### **Italian 4000-level—9**

- Students must take at least three 4000-level courses in the Italian department, of which one will be ITAL 4990, the Senior Seminar. Before registering for ITAL 4990, students must meet with the Italian advisor

### **Upper-division Electives—6**

- Electives may be chosen from courses outside the Department of French and Italian, the content of which is consistent with the goals of the Italian major, and always in consultation with the major advisor. It is recommended that students select courses in diverse disciplines and time periods.

## **Honors Requirements**

Honors candidates must meet all of the regular requirements for the major plus the following:

- FREN 3200 Introduction to Literary Theory. (NOTE: FREN 3200 is taught in English and presupposes no knowledge of French.)—3
- One semester of independent study or research—3
- One semester following ITAL 4840 in ITAL 4940 Senior Honors Thesis—3

## **Graduating in Four Years with a BA in Italian**

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in Italian, students should meet the following requirements:

- Declare the Italian major by the beginning of the second semester of study
- Complete 12 credit hours of requirements (including ITAL 2110 and 2120) by the end of the second (sophomore) year
- Complete 12 of the remaining 24 credit hours by the end of the third (junior) year
- Complete the remainder of the major requirements in the fourth (senior) year

## **Minor Program in Italian**

A minor program is offered in Italian. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school.

- All courses must carry an ITAL prefix.
- Students may apply credits to the Italian minor which are earned through a CU-Boulder Study Abroad program in Italy. Specific course equivalencies must be determined by the Italian advisor.
- Students may apply a maximum of 9 transfer credit hours to the Italian minor, and a maximum of 6 hours at the upper-division level, from other study abroad programs of other accredited universities. Specific course equivalencies must be determined by the Italian advisor.
- Students may apply a maximum of 3 hours from Italian courses taught in English.

- Students must consult with the Italian advisor during each registration period and before a study abroad program.
- Students must maintain an overall and Italian grade point average of 2.000 (C). They must earn a grade of C- or higher in ALL courses required for the Italian minor and may not take minor requirement courses *pass/fail*.

To declare an Italian minor, go to [www.colorado.edu/advising](http://www.colorado.edu/advising) and make an appointment with the Italian advisor.

### **Required Courses and Semester Credit Hours**

A total of 18 hours beyond the first year level is to be earned for the minor, as follows:

#### **Lower-division—9**

- ITAL 2110 Intermediate Italian Reading, Grammar and Composition 1—3
  - ITAL 2120 Intermediate Italian Reading, Grammar and Composition 2—3
  - ITAL 2130 Introduction to Literary Analysis—3
- NOTE: ITAL 2120 and 2130 may be taken concurrently, see Italian advisor.*

#### **Upper-Division—9**

- ITAL 3015 Advanced Composition—3
- Choose one of the following courses (prereq. of ITAL 2130 must be met):  
ITAL 3140 Readings in Italian Literature: 20th and 21st Centuries—3  
ITAL 3150 Readings in Italian Literature: 19th Century—3  
ITAL 3160 Readings in Italian Literature: Medieval/Renaissance—3
- Italian upper-division elective—3

## Study Abroad

CU-Boulder offers French study abroad programs in Annecy, Paris, Rennes, Strasbourg and Toulouse, France. In addition, students may study in Quebec, Brussels, Geneva and in the Francophone African nations of Cameroon, Madagascar, Mali and Senegal. CU-Boulder offers Italian study abroad programs in Ferrara, Florence and Perugia, Italy. Students may obtain course-credit equivalences for work done while abroad. For further information about study abroad programs, students may visit departmental advisors or the Office of International Education. CU-Boulder also supports a summer program in Italy that focuses on Italian history and culture in Rome. Credits earned on this program may be applied to the Italian major. Students may also take a summer film class in Rome and/or Paris (in alternate years). This class is taught in English. The Ayer Romance Language Scholarship is available for majors who plan to study abroad; it is awarded by the Department of French and Italian.

### Concurrent Bachelor's/Master's Program

### Concurrent BA/MA Program in French

The department also administers a concurrent undergraduate and graduate degree program in French, offering students the opportunity to graduate with a BA and an MA in French in five years. Students interested in this program should consult a college advisor and the associate chair for graduate studies for details. Students should also read the relevant guidelines available in the main department office.

### Graduate Degree Program(s)

## Graduate Study in French

Students wishing to pursue graduate work in French leading to candidacy for an advanced degree should read carefully Requirements for Advanced Degrees in the Graduate School section. A graduate teaching exchange at the University of Tours is available to students who have earned a master's degree.

### Master's Degree in French

**Prerequisites.** The following are prerequisite to graduate study in French: the ability to read, write, speak and understand spoken standard French; general knowledge of French literature and civilization; and ability to read one language in addition to English and French. This last requirement may be fulfilled by passing a reading examination offered by the department. See department guidelines for the specific requirements for the MA in French.

### Doctoral Degree in French

**Prerequisites.** Doctoral candidates should possess excellence in reading, speaking, writing and understanding spoken standard French; general knowledge of French literature and civilization; and knowledge of one language other than English and French (see below).

**Required Courses.** See department guidelines for PhD candidates.

**Language Requirement.** A sound reading knowledge of one modern language other than English and French is required. Such reading knowledge must be certified by the student passing a reading examination in the language. The examination normally consists of a timed translation of a literary text or a text dealing with literature (e.g., literary criticism). A dictionary is permitted. This language should be relevant to the student's academic program.

University Catalog 2016-2017

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## Geography

The Geography Department offers theoretical and applied work in human geography, environment and society geography, physical geography, and geographic information science. Each subfield covers a broad range of topics. Human geography includes political, cultural, development, feminist, population, and urban geography. Environment and society geography includes political ecology, natural hazards, and conservation practice. Physical geography includes climatology, geomorphology, hydrology, and biogeography. Geographic information science includes spatial analysis using GIS, remote sensing, and cartography. The Department also offers regionally focused courses on mountain geography and geographies of China, Latin America, Africa, and South Asia. To complement its curriculum, the Department also offers internship opportunities for geography majors.

The Department of Geography offers BA, MA and PhD degree programs in geography.

The undergraduate degree in geography emphasizes knowledge and awareness of:

- the unique contributions of the discipline to understanding the spatial components of problems and the diverse factors relating to human interaction with the environment;
- the spatial distributions of physical and human characteristics on the Earth surface, the general patterns these form and the processes that have created and are changing these patterns;
- major themes of geographical analysis, including human and physical characteristics of place; human-environmental relations; movement of people, ideas and products; and regionalization; and
- the general geographical principles of human-environment interaction, global change and human spatial organization.

In addition, students completing the degree in geography are expected to acquire proficiency in:

- one or more of the specific geographic skill areas of cartography, remote sensing and geographic information systems;
- writing, quantitative methods, computer literacy, and library and field methods of data collection; and
- identifying the geographic dimensions of a problem and analyzing, synthesizing and evaluating relevant data and applying geographic principles offering a geographic perspective on that problem.

### MAPS (Minimum Academic Preparation Standards)

To fulfill a MAPS deficiency in Geography, students may take one of the following courses: GEOG 1962, GEOG 1972, GEOG 1982, GEOG 1992 or pass the Geography Exemption

#### Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

Exam. For more information on the exemption exam, contact Testing Services at 303-492-5854 or [www.colorado.edu/career/testing-services](http://www.colorado.edu/career/testing-services). Declared majors or minors with junior standing (57 credits minimum) or transfers with junior standing may take GEOG 3682, GEOG 3742, or GEOG 4712 to fulfill the MAPS deficiency.

The course code for this program is **GEOG**.

## Bachelor's Degree Program(s)

### Undergraduate Study in Geography

Students must complete the general requirements of the College of Arts and Sciences and the required courses below. In addition to a standard degree in Geography, the Department offers transcribed concentrations in Geographic Information Science, Human Geography, Environment-Society Geography, and Physical Geography. Coursework required for each concentration is listed below. Students must complete at least 37 and no more than 45 credit hours in Geography with grades of C- or better (23 hours must be upper division). No pass/fail grades are allowed in the major. Transfer students majoring in Geography must complete at least 12 hours of upper-division Geography courses at CU-Boulder. No course may be used to fulfill more than one requirement for the major. All courses marked with an \* can be used to meet College of Arts and Sciences core curriculum requirements.

#### **Required Courses and Semester Credit Hours (all concentrations):**

- GEOG 1001\* Environmental Systems I: Climate and Vegetation—4
- GEOG 1011\* Environmental Systems II: Landscapes and Water—4
- One of the following human geography courses:
  - GEOG 1962 Geographies of Global Change—3
  - GEOG 1972 Environment-Society Geography—3
  - GEOG 1982 World Regional Geography—3
  - GEOG 1992 Human Geography—3
- GEOG 3023 Statistics for Geography—4
- One of the following mapping courses:
  - GEOG 2053 Mapping a Changing World—4
  - GEOG 3053 Cartography I: Visualization and Information Design—4
- One of the following methods courses:
  - GEOG 4023 Introduction to Quantitative Methods in Geography (prereq GEOG 3023)—4
  - GEOG 4043 Cartography II: Interactive and Multi-media Mapping (prereq GEOG 3053)—4
  - GEOG 4093 Remote Sensing of the Environment—4
  - GEOG 4103 Introduction to Geographic Information Science (prereqs: GEOG 3053; GEOG 3023 or equivalent introductory statistics course)—4
  - GEOG 4173 Research Seminar—3
  - GEOG 4722 Field Methods in Human Geography—3
- General Geography Degree
  - Take one of the following:
    - GEOG 3351 Biogeography—3

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian

#### • Geography

- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

- GEOG 3402 Natural Hazards—3
- GEOG 3422 Political Ecology—3
- GEOG 3511 Introduction to Hydrology—4
- GEOG 3601 Principles of Climate—3
- GEOG 3672\* Gender and the Global Economy—3
- GEOG 3682 Geography of International Development—3
- GEOG 3692 Introduction to Global Public Health—3
- GEOG 3742 Place, Power, and Contemporary Culture—3

\* core curriculum course

- Take upper division electives within Geography to reach 23 upper division credits in the major.

## Human Geography Concentration

- Take one of the following:
  - GEOG 3742 Place, Power, Contemporary Culture (prereq 1962, 1972, 1982, or 1992)—3
  - GEOG 3682 Geography of International Development—3
- A third-year university-level proficiency in a foreign language appropriate to the geographic concentration is required. This requirement may be met by completion of one or two semester-long, third year, university-level grammar courses (depending on the language) with a grade of C- or better, while also satisfying language department requirements for advancement through the sequence.
- Take three electives from the following list (unless noted, Department enforced prereq. for all courses is 1962, 1972, 1982, or 1992) (\* core curriculum course):
  - GEOG 3422 Political Ecology (no prereq)—3
  - GEOG 3672\* Gender and the Global Economy—3
  - GEOG 3682 Geography of International Development (no prereq)—3
  - GEOG 3692 Introduction to Global Public Health—3
  - GEOG 3742 Place, Power, and Contemporary Culture—3
  - GEOG 3812 Geography of Mexico, Central America, and the Caribbean—3
  - GEOG 3822\* Geography of China—3
  - GEOG 3832\* Geography of South Asia—3
  - GEOG 3862 Geography of Africa—3
  - GEOG 4173 Research Seminar—3
  - GEOG 4292 Migration, Urbanization, and Development—3
  - GEOG 4622 City Life—3
  - GEOG 4632 Development Geography—3
  - GEOG 4712 Political Geography—3
  - GEOG 4852 Health and Medical Geography—3
  - GEOG 3930 Internship (3) and GEOG 4990 Senior Thesis (3) may be applied to the concentration on a case-by-case basis.

### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

\* core curriculum course

- Take one upper division elective in Geographic Information Science, Environment and Society, or Physical Geography.

## Environment and Society Geography Concentration

- Take one of the following:
  - GEOG 3402 Natural Hazards—3
  - GEOG 3422 Political Ecology—3
- Take ENVS 2000: Applied Ecology—4
- Take three electives from the following list (unless noted, Department enforced prereq. for all courses is 1962, 1972, 1982, or 1992):
  - GEOG 3402 Natural Hazards—3
  - GEOG 3422 Political Ecology (no prereq)—3
  - GEOG 3682 Geography of International Development (no prereq)—3
  - GEOG 3672\* Gender and the Global Economy—3
  - GEOG 3692 Introduction to Global Public Health—3
  - GEOG 3812 Geography of Mexico, Central America, and the Caribbean—3
  - GEOG 3822 Geography of China—3
  - GEOG 3862 Geography of Africa—3
  - GEOG 4173 Research Seminar—3
  - GEOG 4501 Water Resources and Water Management in the Western U.S.—3
  - GEOG 4742\* Topics in Environment and Society—3
  - GEOG 4812\* Environment and Development in South America—3
  - GEOG 4822\* Environment and Development in China—3
  - GEOG 3930 Internship (3) and GEOG 4990 Senior Thesis (3) may be applied to the concentration on a case-by-case basis.

\* core curriculum course

- Take one upper division elective from either the Geographic Information Science, Human Geography, or Physical Geography list.

## Physical Geography Concentration

- Take Calculus I & 2 (one of the following sequences)
  - MATH 1300—5 and MATH 2300—5
  - APPM 1350—4 and APPM 1360—4
- Take three semesters (total) of Physics and Chemistry, including related labs.
  - PHYS 1110—4
  - PHYS 1120 (and PHYS 1140 lab)—5
  - CHEM 1113 (and CHEM 1114 lab)—5
  - CHEM 1133 (and CHEM 1134 lab)—5

Take two of the following (GEOG 1001 and GEOG 1011, or equivalent, required for all 3000 and 4000 level courses):

- GEOG 3351 Biogeography—3
- GEOG 3511 Introduction to Hydrology—4
- GEOG 3601 Principles of Climate—3
- GEOG 4241\* Principles of Geomorphology—4
- Take two electives from the following list (GEOG 1001 and GEOG 1011, or equivalent, are prereq. for all 3000 and 4000 level courses):
  - GEOG 3251 Mountain Geography—3
  - GEOG 3301\* Analysis of Climate—3
  - GEOG 3351 Biogeography—3
  - GEOG 3511 Introduction to Hydrology—4
  - GEOG 3610 Principles of Climate—3
  - GEOG 4120 Special Topics—3
  - GEOG 4173 Research Seminar—3
  - GEOG 4201 Biometeorology—3
  - GEOG 4241\* Principles of Geomorphology—4
  - GEOG 4251 Fluvial Geomorphology—4
  - GEOG 4261 Glaciers and Permafrost—3
  - GEOG 4271 Arctic Climate—3
  - GEOG 4311 Watershed Biochemistry—3
  - GEOG 4321 Snow Hydrology—3-4
  - GEOG 4331 Mountain Climatology – 3-4
  - GEOG 4371 Forest Geography—3
  - GEOG 4401 Soil Geography—3
  - GEOG 3930 Internship (3) and GEOG 4990 Senior Thesis (3) may be applied to the concentration on a case-by-case basis.

\* core curriculum course

- Take one upper division elective from either the Geographic Information Science, Human Geography, or Environment and Society Geography list.

## Geographic Information Science Concentration

- GEOG 4103 Introduction to Geographic Information Science (prereq GEOG 3023 and GEOG 3053)—4
- Take three electives from the following list:
  - GEOG 4043 Cartography II: Interactive and Multimedia Mapping (prereq GEOG 3053)—4
  - GEOG 4093 Remote Sensing of the Environment—4
  - GEOG 4110 Special Topics—4
  - GEOG 4120 Special Topics—3

- GEOG 4173 Research Seminar—3
- GEOG 4203 Geographic Information Science Modeling Applications—4
- GEOG 4303 Geographic Information Science Programming—4
- GEOG 3930 Internship (3) and GEOG 4990 Senior Thesis (3) may be applied to the concentration on a case-by-case basis.
- Take one upper division elective from either the Human Geography, Environment and Society Geography, or Physical Geography list.

## Graduating in Four Years

This applies only to the “General Geography” degree. Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee: it is not a requirement for the major. To maintain adequate progress in geography, students should meet the following requirements:

- Complete GEOG 1001, GEOG 1011, and one of the following: GEOG 1962, GEOG 1972, GEOG 1982, or GEOG 1992, by the end of the third semester.
- Complete GEOG 1962, GEOG 1972, GEOG 1982, or GEOG 1992 or an approved upper-division human geography course (must be different than the course used to complete the previous requirement) and 9 credit hours of upper-division geography courses by the end of the sixth semester.
- Complete GEOG 2053 or GEOG 3053 and GEOG 3023 by the end of the sixth semester.
- Complete the remaining upper-division credit hours by the eighth semester.

## Geography Honors Program

Students interested in earning honors with their work in geography should contact the departmental honors advisor during their junior year.

## Geography Internship Program

To complement its curriculum, the Department offers geography majors internship opportunities that can be used to earn credit towards their degree. Students interested in pursuing an internship should contact the Department for information on eligibility and terms.

## Residential Academic Program

Geography students specializing in environmental issues may want to contact the Baker Residential Academic Program. Students may visit the Geography Department office or refer to the Residential Academic Programs section of the Catalog.

## Minor in Geography

The Department offers a minor in Geography. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school affiliation.

- Participation in the minor program is optional on the part of the student.
- A minimum of 18 credit hours must be taken in the minor area, including a minimum of 9 upper-division credit hours.
- All course work applied to the minor must be completed with a grade of C- or better. No pass/fail work may be applied. The GPA of all minor degree course work must equal 2.00 (C) or greater.

Student pursuing an individually structured major, or who are pursuing a major in distributed studies, will not be eligible to earn a minor.

- Students will be allowed to apply no more than 9 credit hours (including 6 upper-division) of transfer work toward a minor.
- Students may earn no more than two minors.
- Course work applied toward a minor may also be applied toward general education (core/college list) and major requirements.

No specific concentration is required. However, students who do wish to focus on one area of geography should see the suggested course lists below. The list of courses may change at the Department's discretion.

## Physical Geography

- The following two courses are prerequisites to all upper division courses listed further below.
  - GEOG 1001 Environmental Systems 1: Climate and Vegetation\*
  - GEOG 1011 Environmental Systems 2: Landscapes and Water\*
- Among upper division courses, the following sequences are suggested:
  - Climatology: GEOG 3301; 3601; 4331
  - Biogeography: GEOG 3351; 4351; 4371; 4401
  - Hydrology and Geomorphology: GEOG 3511; 4241; 4321; 4401
- In addition, you will find it important to complete one course in statistics at the time you commence upper division work in physical geography. Students considering graduate school in physical geography are strongly encouraged to complete a year of coursework in general chemistry, physics, calculus, and statistics.
- Upper Division Courses:
  - GEOG 3301 Analysis of Climate and Weather Observations\* (Prereq: GEOG 1001 or ATOC 1050/1060, 3600 and a statistics course)
  - GEOG 3601 Principles of Climate\* (Prereq: 1 semester calculus or instructor approval)
  - GEOG 3351 Biogeography (Prereq: GEOG 1001)
  - GEOG 3511 Introduction to Hydrology\* (Prereq: GEOG 1011)
  - GEOG 4241 Principles of Geomorphology\* (Prereq: GEOG 1011) (Restricted to Jr/Sr GEOG/GEOL/ENVS majors)
  - GEOG 4261 Glaciers and Permafrost (Recommended Prereq: GEOG 4241)
  - GEOG 4271 The Arctic Climate System (Prereq: GEOG 1001)
  - GEOG 4311 Watershed Biogeochemistry (Prereq: GEOG 1011, 3511)
  - GEOG 4321 Snow Hydrology (Prereq: GEOG 1001 and 1011; any statistics course)
  - GEOG 4331 Mountain Climatology (Prereq: GEOG 1001 or ATOC 1050/1060)
  - GEOG 4371 Forest Geography: Principles and Dynamics (Prereq: GEOG 1001)
  - GEOG 4401 Soils Geography (Prereq: 1011; Recommended Prereq inorganic chemistry)

\*core curriculum course

## Human Geography

- One of the following four courses are prerequisites to all upper division courses listed further below.
  - GEOG 1962 Geographies of Global Change
  - GEOG 1972 Environment-Society Geography
  - GEOG 1982 World Regional Geography
  - GEOG 1992 Human Geographies
- Upper Division Courses. Additional prerequisites are listed.
  - GEOG 3672 Gender and Global Economy\*
  - GEOG 3682 Geography of International Development
  - GEOG 3742 Place, Power, and Contemporary Culture\*
  - GEOG 3812 Mexico, Central America, and the Caribbean
  - GEOG 3822 Geography of China\*
  - GEOG 3832 Geographies of South Asia\*
  - GEOG 3862 Geography of Africa
  - GEOG 4023 Introduction to Quantitative Methods in Human Geography (Prereq: GEOG 3023)
  - GEOG 4292 Migration, Urbanization, and Development
  - GEOG 4622 City Life\*
  - GEOG 4712 Political Geography
  - GEOG 4732 Population Geography
  - GEOG 4742 Environment and Peoples\*
  - GEOG 4812 Environment and Development in South America\* (Recommended Prereq: GEOG 3812 or 3422)
  - GEOG 4822 Environment & Development in China\*
  - GEOG 4832 Geography of Tibet (Prereq: GEOG 3822)

\*core curriculum course

## Environment-Society Geography

- The following two courses are prerequisites to all upper division physical geography courses listed further below.
  - GEOG 1001 Environmental Systems 1: Climate & Vegetation\*
  - GEOG 1011 Environmental Systems 2: Landscapes & Water\*
- GEOG 1972 Environment-Society Geography is a prerequisite for all upper division human and environment society geography courses.
- Upper Division Courses. Additional prerequisites may be listed.
  - GEOG 3251 Mountain Geography
  - GEOG 3301 Analysis of Climate and Weather Observations\*
  - GEOG 3351 Biogeography
  - GEOG 3402 Natural Hazards
  - GEOG 3412 Conservation Practice and Resource Management

- GEOG 3422 Political Ecology
- GEOG 3511 Introduction to Hydrology\*
- GEOG 3601 Principles of Climate\*
- GEOG 3612 Geography of American Cities
- GEOG 3682 Geography of International Development
- GEOG 3692 Introduction to Global Public Health
- GEOG 3812 Mexico, Central America, and the Caribbean
- GEOG 3822 Geography of China\*
- GEOG 3862 Geography of Africa
- GEOG 4401 Soils Geography (Prereq: GEOG 1011; Recommended Prereq: inorganic chemistry)
- GEOG 4430 Seminar: Conservation Trends\*
- GEOG 4501 Water Resources and Water Management in the Western US
- GEOG 4742 Environments and Peoples\*
- GEOG 4632 Development Geography
- GEOG 4812 Environment and Development in South America\*
- GEOG 4822 Environment and Development in China\*
- GEOG 4852 Health and Medical Geography\*

\*core curriculum course

## Geographic Information Science

- The following are prereqs for all upper division courses, unless otherwise noted.
  - GEOG 3023 Statistics for Geography
  - GEOG 3053 Cartography: Visualization and Information Design (Restricted to Jr/Sr GEOG/ENVS major)
- Upper Division Courses
  - GEOG 4023 Intro to Quantitative Methods in Human Geography (Prereq: GEOG 3023 or equivalent)
  - GEOG 4043 Cartography 2: Interactive and Multimedia Mapping
  - GEOG 4093 Remote Sensing of the Environment
  - GEOG 4103 Introduction to Geographic Information Science
  - GEOG 4203 Geographic Information Science: Modeling Applications 2 (Prereq: GEOG 4103/5103)
  - GEOG 4173 Research Seminar\* (Restricted to Sr GEOG/ENVS major)
  - GEOG 4303 Geographic Information Science: Programming (Prereq: 4103 or 5103)
  - GEOG 4983 Field Problems (Restricted to Jr/Sr Geography major)

\*core curriculum course

## Graduate Degree Program(s)

## Graduate Study in Geography

Students wishing to pursue graduate work in geography leading to candidacy for advanced degrees should read carefully the requirements for advanced degrees in the Graduate School section. Graduate-level course work at the Boulder campus may be combined with graduate courses offered at the Denver and Colorado Springs campuses. Additional information should be obtained from the Department of Geography.

### Prerequisites - MA and PhD:

For admission without deficiency and to meet the department mandatory requirements for a knowledge of basic geography, all entering graduate students are required to possess the knowledge presented in freshman level introductory courses in physical and human geography.

Students may acquire this knowledge in any way they choose: by formally taking the introductory courses, by auditing the courses, by reading the textbooks themselves or by other means. This knowledge will enable the student to perform at the level expected in the GEOG 5152–5161 required core classes.

In addition to knowledge of basic geography, it is desirable that the student has course work in at least two areas outside geography in cognate fields in the social and natural sciences. Students are encouraged to have some background in college math, statistics and computer skills.

The following are departmental requirements.

## Master's Degree in Geography

**General Requirements.** The minimum requirements for an MA in geography may be fulfilled by completing 30 semester hours of graduate work, including a thesis, which carries up to 6 credit hours (i.e., 24 hours of course work at the 5000 level or above, plus a minimum of 4 but not more than 6 hours of thesis). Master students may, with the written approval of their advisor, use a maximum of 6 hours of 3000- or 4000-level course work to reach the required 30 hours.

## Doctoral Degree in Geography

**General Requirements.** The PhD degree is not conferred merely upon the satisfactory completion of a course of study. The candidate must also demonstrate proficiency in some broad subject of learning, and be able to critically evaluate work in the field, show the ability to work independently in the chosen field and make an original contribution of significance to the advancement of knowledge.

The minimum requirements are 30 credit hours of course work numbered 5000 or above and 30 credit hours of dissertation. Ordinarily the number of course work hours and dissertation hours will be greater than 30 each. At least 20 of these hours must be taken at the University of Colorado; up to 10 credit hours from another institution may be transferred upon approval.

A 3.00 (*B*) average or higher must be maintained in all course work.

Six semesters of residence are required beyond the bachelor's degree, of which four must be at the University of Colorado; this may include two semesters for the master degree. Students with a University of Colorado master degree in geography, with departmental approval, may apply all credit hours from 5000 or above courses (except thesis credits) to the PhD requirements.

## Certificate Program(s)

### Undergraduate Certificate Program in Public Health

As the world becomes more interconnected, our communities and populations face increasingly complex health challenges emerging through the interaction of individual vulnerability and

behavior, cultural and social factors, environmental and geographic influences as well as economic and political dynamics. Addressing these public health challenges requires innovative approaches arising from multiple disciplines.

The Undergraduate Certificate in Public Health encourages students to extend the breadth of their undergraduate education to include elements of public health. Students are encouraged to take courses from a variety of participating departments to develop an appreciation of the interdisciplinary nature of public health.

Requirements:

The certificate requirements include a minimum of 18 credits (not to exceed 24) of coursework including at least 9 upper division credits. There are two required core public health courses (6 credits - upper division):

- GEOG 3692 (3) Introduction to Global Public Health (First offered: Fall 2015) *and*
- IPHY 3490 (3) Introduction to Epidemiology (First offered: Spring 2015);

Students are also required to take several public health electives (6 credits - primarily upper division), at least one of which must be from outside their major. Students participating in the certificate program must also complete foundational coursework in biology and statistics. Please visit [www.colorado.edu/publichealthprogram/requirements.html](http://www.colorado.edu/publichealthprogram/requirements.html) for the detailed requirements.

## Graduate Certificate in Development Studies

The department offers a graduate certificate in development studies. Development Studies is a well-established, interdisciplinary field of research with institutional centers at a number of major universities and several scholarly journals dedicated to its study. The certificate provides training in development studies to graduate students through a structured yet flexible program built around courses taught by CU faculty in a number of social science departments. Because development issues such as agrarian change, labor migration, new social movements, industrial growth, urban planning and natural resource use cut across disciplinary divides, the study of development demands interdisciplinary approaches. For more information, visit [geography.colorado.edu/grad\\_program/certificates](http://geography.colorado.edu/grad_program/certificates).

## Graduate Certificate in Population Studies

Offered through the Population Program of the **Institute of Behavioral Science (IBS)**, the Graduate Certificate in Population Studies recognizes master's and doctoral degree students for interdisciplinary work in demography. The Population Program, which is international in scope and has an applied and policy-oriented focus, fosters research on population trends and patterns and provides training in population analysis. Students who are earning graduate degrees through the Departments of Economics, Geography or Sociology and are interested in majoring in demography are eligible to petition for admission to the program.

The Population Program emphasizes research training through direct faculty/student interaction and involvement in research projects. Students are required to take three core courses:

- ECON 8666 Economic Demography
- GEOG 6732 Formal Population Geography
- SOCY 6012 Population Issues, Problems and Policies

Students are granted a certificate on the basis of the three core courses, their independent research and their thesis or dissertation.

Questions about the certificate program in population studies should be directed to the Population Program, Institute of Behavioral Science, University of Colorado Boulder, 484 UCB, Boulder, CO 80309-0484; **303-492-7986**; [www.colorado.edu/ibs/pop](http://www.colorado.edu/ibs/pop); or [cupc@colorado.edu](mailto:cupc@colorado.edu).

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## Geological Sciences

The options available in the undergraduate program in geological sciences are geology and geophysics and lead to the BA degree. Both options provide a strong basis for understanding the functioning of the Earth system. Students who are uncertain as to which option best suits their needs should contact a departmental advisor or faculty member. In each option, the undergraduate program emphasizes course work in theoretical, laboratory and field-oriented aspects of the geological sciences. The nearby Rocky Mountains provide a natural laboratory for many of these courses.

Students interested in the geological sciences may also wish to consider the Baker Residential Academic Program. Students who do not wish to pursue a career in the geosciences, or who would like to combine a basic knowledge of geologic sciences with that of some other field, should consider using geological sciences as one subject in a distributed studies major or as a minor. Students who intend to pursue graduate study in the geological sciences are encouraged to consider developing an honors thesis as part of their undergraduate studies.

The two options available in the undergraduate major offer different focus areas of instruction. Both options offer excellent preparation for students interested in pursuing professional careers, or graduate study, in the geological sciences.

Each option emphasizes knowledge in:

- the ways in which Earth responds to internal and external forces; the physical, chemical and biological evolution of Earth; and the nature of the materials of which the Earth is made
- the role of physics, chemistry, mathematics and biology in understanding geological processes
- the history of discoveries and ideas that have contributed to our current knowledge of Earth and the planetary system

The **geology option** emphasizes processes that function both in the solid earth and at Earth's surface:

- the mineralogy and petrology of igneous, metamorphic and sedimentary rocks
- the processes of sedimentation and the applications of stratigraphy and paleobiology in the reconstruction of Earth history
- the role of geophysics and geochemistry in understanding the nature of Earth and its history
- the study of faults, folds and other rock structures and the tectonic processes that create those structures
- the methods used in the field to map and interpret the diverse variety of rock types and structures
- the function of the integrated Earth system including the atmosphere, hydrosphere,

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biosphere and geosphere

- the fundamental controls on surface Earth processes including energy balance, hydrology, geomorphology, geochemistry and biogeochemistry
- the role of humans in the Earth system

The **geophysics option** emphasizes:

- applications of fundamental mathematical formulations and physical principles to an understanding of the Earth
- methods utilized to map and characterize those portions of the planet that lie below the surface, from just beneath our feet down to the core

**Course code for this program is GEOL.**

## Bachelor's Degree Program(s)

### Bachelor's Degree in Geology

#### *Required Courses and Semester Credit Hours*

- CHEM 1113 and 1133 General Chemistry 1 and 2 and CHEM 1114 and 1134 Laboratory in General Chemistry 1 and 2—10
- GEOL 1010 Introduction to Geology 1 or GEOL 2100 Environmental Geology—3
- GEOL 1030 Introduction to Geology Lab—1
- MATH 1300 and 2300 Analytical Geometry and Calculus 1 and 2 or APPM 1350 and 1360 Calculus for Engineers 1 and 2—8-10
- PHYS 1110, 1120 and 1140 General Physics 1 and 2 and Experimental Physics 1—9

### Geology Option

Students electing the geology option are required to take the following additional courses:

- GEOL 2001 Planet Earth—4
- GEOL 2005 Earth Materials—4
- GEOL 2700 Introduction to Field Geology—2

One of the following solid earth courses:

- GEOL 3010 Introduction to Mineralogy—3
- GEOL 3020 Petrology—3
- GEOL 3120 Structural Geology—4
- GEOL 3320 Introduction to Geochemistry—3
- GEOL 3430 Sedimentology and Stratigraphy—4
- GEOL 4130 Principles of Geophysics—3

One of the following surface processes courses:

- GEOL 3030 Introduction to Hydrogeology—3
- GEOL 3320 Introduction to Geochemistry—3
- GEOL 3410 Introduction to Paleobiology—3

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography

#### • Geological Sciences

- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language

- GEOL 3430 Sedimentology and Stratigraphy—4
- GEOL 3820 Fluid Earth—3
- GEOL 4060 Oceanography—3
- GEOL 4160 Biogeochemistry—3
- GEOL 4241 Geomorphology—3

One of the following quantitative geoscience courses:

- GEOL 3010 Introduction to Mineralogy—3
- GEOL 3030 Introduction to Hydrogeology—3
- GEOL 3820 Fluid Earth—3
- GEOL 4130 Principles of Geophysics—3
- GEOL 4241 Geomorphology—3

Two of the following advanced-field modules:

- GEOL 4711 Igneous and Metamorphic Field Geology—2
- GEOL 4712 Structural Field Geology—2
- GEOL 4714 Field Geophysics—2
- GEOL 4715 Field Techniques in Hydrogeology—2
- GEOL 4716 Environmental Field Geochemistry—2
- GEOL 4717 Field Seminar in Geology and Tectonics—2
- GEOL 4721 Field Methods in Active Tectonics—2
- EVEN 4100 Environmental Sampling and Analysis—3

Upper-division electives—Sufficient additional upper-division course work from following list to total 27 upper-division credits. (Of these, a minimum of 18 UD credits must be GEOL.)

Any GEOL 3000- to 4000-level course except for:

- GEOL 3040 Global Change—3
- GEOL 3070 Introduction to Oceanography—3
- GEOL 3520 Energy & Climate Change: An Interdisciplinary Approach—3
- GEOL 3720 Evolution of Life: The Geological Record—3
- GEOL 3950 Natural Catastrophes and Geologic Hazards—3
- GEOL 4500 Critical Thinking in the Earth Sciences—3

Or approved non-GEOL courses from following list:

- APPM 3050 Scientific Computing in Matlab—3
- ASTR 3710 Formation and Dynamics of Planetary Systems—3
- ASTR 3720 Planets and Their Atmospheres—3
- ASTR 3750 Planets, Moons and Rings—3
- ASTR 4800 Space Science: Practice and Policy—3

- and Hearing Sciences
- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

- ATOC 4720 Introduction to Atmospheric Physics and Dynamics—3
- ATOC 4800 Policy Implications of Climate Controversies—3
- CHEM 4511 Physical Chemistry 1—3
- CVEN 4404 Water Chemistry—3
- CVEN 4718 Mechanics and Dynamics of Glaciers—3
- EBIO 3080 Evolutionary Biology—4
- EBIO 3270 Ecosystem Ecology—3
- EBIO 3770 Animal Diversity: Vertebrates—4
- EBIO 3850 Animal Diversity: Invertebrates—4
- EBIO 4030 Limnology—3
- EBIO 4060 Landscape Ecology—3
- EBIO 4410 Biometry—4
- EBIO 4500 Plant Biodiversity and Evolution—4
- ECON 3403 International Economics and Policy—3
- ENVD 4023 Environmental Impact Assessment—3
- ENVS 3434 Introduction to Applied Ecology—3
- ENVS 4201 Biometeorology—3 (same as GEOG 4201)
- EVEN 4100 Environmental Sampling and Analysis—3
- GEOG 4201 Biometeorology—3 (same as ENVS 4201)
- GEOG 4251 Fluvial Geomorphology—4
- GEOG 4261 Glaciers and Permafrost—3
- GEOG 4321 Snow Hydrology—3-4
- GEOG 4401 Soils Geography—3
- MCDB 4350 Microbial Diversity and the Biosphere—3
- MUSM 4914 Museum Practicum in Geology—3
- PSCI 4183 International Law—3

Note: A maximum of 3 of these credits may consist of a policy course from the following list:

- ASTR 4800 Space Science: Practice and Policy—3
- ATOC 4800 Policy Implications of Climate Controversies—3
- ECON 3403 International Economics and Policy—3
- ENVD 4023 Environmental Impact Assessment—3
- PSCI 4183 International Law—3

## Geophysics Option

Students electing the geophysics option are required to take the following additional courses:

- GEOL 2001 Planet Earth—4
- GEOL 2005 Earth Materials—4
- GEOL 2700 Introduction to Field Geology—2

Geophysics option students must also take the following solid earth, surface processes and quantitative geoscience courses:

- GEOL 3010 Introduction to Mineralogy—3
- GEOL 3020 Petrology or GEOL 3320 Introduction to Geochemistry—3
- GEOL 3120 Structural Geology—4
- GEOL 4130 Principles of Geophysics—3
- GEOL 4714 Field Geophysics—2

The following non-GEOL courses:

- APPM 2350 Calculus 3 for Engineers or MATH 2400 Calculus 3—4
- APPM 2360 Introduction to Differential Equations with Linear Algebra—4
- PHYS 2130 General Physics 3—3
- PHYS 2210 Classical Mechanics and Mathematical Models 1—3

Any two of the following non-GEOL courses:

- APPM 4350 Fourier Series and Boundary Value Problems—3
- MATH 4470 Partial Differential Equations 1—3
- PHYS 3210 Classical Mechanics and Mathematical Methods 2—3
- PHYS 3310 Principles of Electricity and Magnetism 1—3

Additional information on required courses and other departmental requirements may be obtained from the departmental office. Students should contact the department for a list of current major requirements.

Transfer students must satisfactorily complete a minimum of 12 credit hours of advanced work (3000-level or above) in the Department of Geological Sciences in Boulder if they wish to obtain a degree in geology from CU-Boulder. Before registering for the first time, or within the first week of the semester, such students must see a geological sciences department undergraduate advisor to have previous course work in geology, math and allied sciences evaluated.

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here refers only to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in geology, students should meet all college requirements plus specific departmental requirements. These departmental requirements vary slightly between the two major options. Detailed information is available from the department office, but in general these requirements include:

- Declare a geology major and begin course work in the major during the first semester freshman year.
- Meet with a departmental advisor prior to the second and fifth semesters and during the seventh semester.
- Complete at least 33 credit hours (geology option; 44 credit hours for geophysics option) required for the major by the end of the fourth semester.
- Complete at least 47 credit hours (geology option; 63 credit hours for geophysics option) required for the major by the end of the sixth semester.

- Complete the remaining requirements for the major by the end of the eighth semester.

## Geology Honors Program

Opportunity is provided for qualified geology majors to participate in the geology honors program and graduate with honors (cum laude, magna cum laude or summa cum laude) in geology. Students interested in the honors program should contact the departmental honors advisor during their junior year.

## Minor Program

The minor program in geological sciences is meant for students who would like to acquire a basic knowledge of geology in addition to their major area of study. The arts and sciences requirements for a minor include a minimum of 18 credit hours in the minor area, including a minimum of 9 upper-division hours. The departmental requirements for the minor are listed below. The department strongly urges that students interested in pursuing a minor in geology consult a departmental advisor.

1. Any 1000-level introductory sequence:

- 1010—3 Introduction to Geology 1 (physical geology) and 1020—3 Introduction to Geology 2 (earth history)
- 1010—3 Introduction to Geology 1 and 1040—3 Geology of Colorado
- 1010—3 Introduction to Geology 1 and 1060—3 Global Change: An Earth Science Perspective

Plus an introductory laboratory course: 1030—1 Introduction to Geology Laboratory

2. At least one of the following laboratory or field-oriented courses:

- GEOL 2001 Planet Earth—4
- GEOL 2700 Introduction to Field Geology—2
- GEOL 3010 Introduction to Mineralogy—3
- GEOL 3023 Statistics for Geography—3
- GEOL 3120 Structural Geology—4
- GEOL 3410 Paleobiology—3
- GEOL 3430 Sedimentology and Stratigraphy—4
- GEOL 4060 Oceanography—4
- GEOL 4093 Remote Sensing of the Environment—4
- GEOL 4130 Principles of Geophysics—3
- GEOL 4241 Principles of Geomorphology—4

3. Any additional courses at the 3000-level to bring the total hours in geology to 18.

## Graduate Degree Program(s)

### Graduate Study in Geology

Students interested in graduate work in the geological sciences should carefully read the detailed information regarding admission, registration and degree requirements that is available from the department at [www.cugeology.org](http://www.cugeology.org).

All students applying for admission must take the Graduate Record Examination. Results of this examination are used both for determining admittance and for initial academic counseling.

Entering students normally have completed at least 24 semester hours of basic courses in geological science and two semesters each of chemistry, physics and calculus. In some cases, exceptional undergraduate preparation in other fields of science, mathematics or engineering may substitute for part of the 24 hours in geological science.

Each student acquires a primary advisor and an advisory committee that provides guidance throughout the degree program.

## Master's Degree in Geological Sciences

Candidates for the master's degree in geological sciences must complete at least 30 credit hours of graduate course work either with a thesis (Plan I) or without a thesis (Plan II). At least 24 credit hours must be completed at the 5000-level or above. For those students completing a Plan I degree, these 24 credit hours must include a minimum of 4, but no more than 6, master's thesis credit hours. The Plan II option requires at least 3 hours of GEOL 6960 (Plan II Master's Research) under the supervision of the advisory committee. A maximum of 6 credit hours may be completed at the 3000- or 4000-level at the discretion of the associate chair for graduate studies and the principle advisor.

## Doctoral Degree in Geological Sciences

Candidates for the doctoral degree must complete at least 30 credit hours in course work numbered 5000 or above, of which at least 20 must be taken at CU-Boulder. In addition to course work, candidates must take a total of at least 30 credit hours of Doctoral Dissertation (GEOL 8990), with not more than 10 of these taken in any one semester and not more than 10 dissertation credit hours taken before the semester during which the comprehensive examination is passed.

The Department of Geological Sciences participates in the interdepartmental PhD program in geophysics and hydrologic sciences.

## Interdisciplinary Doctoral Degree in Geophysics

The interdisciplinary doctoral program in geophysics encourages students with a variety of undergraduate backgrounds to pursue graduate study in the physics of the Earth, with special emphasis on the interior of the planet. Students specialize in one of the subfields of geophysics while gaining a broad, general background in the discipline and in-depth education in the relevant aspects of the parent fields of geology, physics and engineering.

Students enter the program by applying for admission to one of the following departments:

- aerospace engineering sciences
- astrophysical and planetary sciences
- civil, environmental and architectural engineering
- electrical and computer engineering
- geography
- geological sciences
- mechanical engineering
- physics

Upon satisfactory performance on the doctoral preliminary examination given by the home

department, the student may formally apply for admission to the geophysics doctoral program.

The program is administered by the geophysics graduate program committee, which includes representatives from each of the participating departments. The comprehensive examination and the dissertation defense are directed by this committee, with a faculty member of the home department normally chairing these procedures.

For more information, please consult the Geophysics Studies Program website at [www.colorado.edu/geophysics](http://www.colorado.edu/geophysics).

## Hydrologic Sciences

The CU-Boulder Hydrologic Sciences Graduate Program focuses on quantitative studies of water in the environment including its role in geologic and biogeochemical processes, ecosystem functions and global elemental cycling. The program is interdisciplinary and interdepartmental. It is intended for science and engineering graduate students, both currently enrolled and prospective. It allows students to obtain recognition for their accomplishments in hydrologic sciences and demonstrates the quantitative multidisciplinary education desired by many prospective employers.

Students can choose to enroll for a full Hydrologic Sciences PhD degree or obtain a hydrologic sciences graduate certificate while concurrently obtaining a master's or doctoral degree in an associated academic department. Prerequisites and course requirements are identical for the PhD degree and graduate certificate.

Students are members of the broader CU-Boulder Geophysical Sciences Program, which has two specialization options: solid-Earth geophysics and hydrologic sciences. All hydrologic sciences students are admitted through one of the participating departments: civil, environmental and architectural engineering; ecology and evolutionary biology; environmental studies; geography; or geological sciences.

Students may apply for admission either concurrently with their application to one of the participating departments or after admission by a department. The program is designed to encourage students with a variety of undergraduate backgrounds to enter the field. Nevertheless, all students in the program must have a substantial background in math and physics, including fluid dynamics. At the time of acceptance, the student will be informed of any undergraduate deficiencies that they will need to address within the first year in the program.

Most hydrologic sciences students conduct research with participating departments, research institutes and centers (e.g., INSTAAR), or partner government agency labs in the Boulder area (e.g., USGS and NOAA). Primary supervision of the student's research may be provided by any faculty member approved by the department.

Additional information is available at [hydrosciences.colorado.edu/about/index.php](http://hydrosciences.colorado.edu/about/index.php), or by contacting the Graduate Coordinator, Hydrologic Sciences Graduate Program, University of Colorado Boulder, 450 UCB, Boulder, CO 80309-0450, [hydrgrd@colorado.edu](mailto:hydrgrd@colorado.edu).

### Certificate Program(s)

#### Graduate Certificate in Geophysics

The geophysics graduate certificate offers a coherent curriculum in geophysics that can complement and supplement a student's regular degree program and encourages multidisciplinary education in the area of geophysics. The geophysics certificate program allows students to obtain recognition for their accomplishments in geophysics without having to switch into the geophysics degree program. This program was approved by the CU-Boulder Graduate School in spring 2002.

## Curriculum

All students must take at least three geophysics core courses, and the Seminar in Geophysics, listed below. At least one of the three geophysics core courses must be from the earth and planetary physics (EPP) series, and at least one of the remaining core classes taken must be from outside the student's home department. Most geophysics core courses are offered once every two years.

A Certificate in Geophysics will be awarded upon the student's completion of degree requirements in their home department. Upon request from a student, the program director and the student's advisor will determine whether a student has met the requirements for the certificate and will generate a letter to the appropriate department head and dean. The certificate is not intended as a substitute for a degree and will be awarded only upon completion of a graduate degree.

## Core Courses

- ASTR/GEOL/PHYS 6610 Earth and Planetary Physics 1 (Seismology)
- ASTR/GEOL/PHYS 6620 Earth and Planetary Physics 2 (Geodesy)
- ASTR/GEOL/PHYS 6630 Earth and Planetary Physics 3 (Geodynamics)
- APPM 7300 Nonlinear Waves and Integrable Equations
- ASEN 5090 Introduction to Global Navigation Satellite Systems
- ASTR 5040/PHYS 5141 Astrophysical and Space Plasmas
- ASTR/PHYS 5150 Introductory Plasma Physics
- ASTR 5300 Introduction to Magnetospheres
- ASTR 5760 Astrophysical Instrumentation
- ASTR/GEOL 5800 Planetary Surfaces and Interiors
- ASTR/ATOC/GEOL 5820 Origin and Evolution of Planetary Systems
- ASTR/GEOL/PHYS 6650 Seminar in Geophysics
- CVEN 5718 Mechanics and Dynamics of Glaciers
- CVEN 5768 Introduction to Rock Mechanics
- CVEN 6595 Earthquake Engineering
- GEOL 5714 Field Geophysics
- GEOL/PHYS 6670 Geophysical Inverse Theory

## Requirements for Certificate

- Completion with a grade of *B* or better of a total of three geophysics core courses (at least one from the EPP sequence) and one semester credit for the Seminar in Geophysics.
- Completion of degree requirements for graduate degree within the student's home department, with a thesis on a topic that uses geophysics in some way, including the successful defense of this thesis before a committee that includes at least one of the geophysics certificate faculty members.

## Admission Requirements

A student wishing to be considered for a Certificate in Geophysics must first be admitted as a graduate student into one of the participating graduate departments (ASEN, APS, CEAE, ECEN, GEOG, GEOL, MCEN, PHYS). Students from outside the participating departments can

apply for entry to the geophysics certificate program by submitting a letter addressed to the Geophysics Graduate Program Committee. A student must have a course background that includes mathematics through three semesters of calculus and four undergraduate science or engineering courses.

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# Germanic and Slavic Languages and Literatures

Undergraduate students may choose to major in either **German studies** or **Russian studies**; minors are offered in both. The department also offers a minor in **Nordic studies**.

The major in **German studies** is an interdisciplinary program focusing on study of the German language, its manifestations in history and its usage in the current cultural and social context; the literary, artistic and philosophical aspects of German culture in the past and the present; the major historical events and developments in Germany and its neighboring countries, and the current political institutions and dynamics in Germany within the broader European framework.

The undergraduate degree in German studies emphasizes knowledge and awareness of:

- the fundamental outlines of German history and culture;
- the history of modern German literature, 1750 to the present;
- cultural developments in modern German-speaking Central Europe, such as the arts, cinema and architecture; and
- central issues such as the Nazi era and the Holocaust; the roles of women; German attitudes toward non-Germans; German culture after reunification and their reflection in German literature, arts and media.

In addition, students completing the degree in German studies are expected to acquire the ability and skills to:

- read German at a level at which critical literary and cultural analyses can be performed;
- write and speak German sufficiently to participate in critical discussions and write critical essays; and
- speak and comprehend German sufficiently for all situations in daily life, especially the business and professional sectors of German life.

The major in **Russian studies** is an interdisciplinary program focusing on study of the current cultural and social context, and the literary, artistic, and historical aspects of Russian culture in the past and present. The aim of the language curriculum is to equip students to read, write, speak and understand Russian on a level allowing communication with natives and other users of the language. Before registering for a course, students should consult with a departmental advisor concerning appropriate placement.

Students interested in Russian studies should consider a double major in order to increase their career opportunities. Prospective teachers might combine Russian studies with a major in another foreign language, while those preparing for a career in government, business or social services should benefit from a combination of Russian studies and a social science or business

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  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

major. Students structure their curriculum according to the departmental checklist for majors, in close consultation with a departmental advisor.

The undergraduate degree in Russian studies emphasizes knowledge and awareness of:

- the fundamental outlines of the history of Russian literature and culture from the Middle Ages to the present day;
- the major Russian creative writers of the 19th and 20th centuries;
- the historical context of Russian literature and culture; and
- basic critical methodologies as they relate to the study of Russian literature.

In addition, students with a degree in Russian studies are expected to acquire the ability and skills to:

- comprehend contemporary Russian, written or spoken, to a degree permitting sophisticated analysis of cultural texts;
- analyze Russian literary texts and give a reasoned response to them in literate English; and
- write and converse in Russian at their own intellectual level.

**Course codes for these programs are FINN, GRMN, GSLL, NORW, RUSS, SCAN and SWED.**

## Bachelor's Degree Program(s)

### Undergraduate Study in Germanic and Slavic Languages and Literatures

#### Bachelor of Arts in German Studies

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below.

The major requirement in German studies is 34 hours beyond GRMN 2010 (with grades of C- or above). Students design their own major in consultation with the undergraduate advisor and a faculty mentor. Completion of the following courses is required; at least 18 hours from the department must be upper division. Students who test out of GRMN 2020 are required to complete 33 hours.

#### *Required Courses and Semester Credit Hours*

#### German Language Courses (13 semester hours minimum above the GRMN 2010 level)

Completion of the following German language courses or demonstration of third year proficiency:

- GRMN 2020 Intermediate German 2—4 or GRMN 2030 Intensive Intermediate German—5
- GRMN 3010 Advanced German 1—3
- GRMN 3020 Advanced German 2—3
- GRMN 4010 Advanced Grammar and Stylistics—3  
GRMN 4010 is required of all majors. With the exception of GRMN 4010, German languages courses may be taken either at CU-Boulder or on the CU study abroad programs in

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences

#### • **Germanic and Slavic Languages and Literatures**

- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

Regensburg or Berlin, Germany.

## German Culture, Literature and Other Electives (21 semester hours)

GRMN 4550 Senior Seminar (required and must be taken at CU Boulder) and any six German literature/culture courses from I or II. At least two of the six courses must be upper-division, and at least two must be in German. With the approval of the German program faculty advisor, one course from another department may be taken in lieu of one of the six courses, provided that the course has a direct link to German studies.

### Courses Taught in German

- GRMN 3030 Business German—3
- GRMN 3110 German Literature from the Avant-garde to the Postmodern—3
- GRMN 3120 German Literature from the Enlightenment to Expressionism—3
- GRMN 3130 Issues in German Philosophy and Literature—3
- GRMN 3140 Current Issues in German Literature—3
- GRMN 3150 Issues in German Politics and Literature—3
- GRMN 3520 Open Topics in the Cultural Context—3
- GRMN 3900 Independent Study—1-6
- GRMN 3930 Internship—1-6
- GRMN 4330 The Age of Goethe—3
- GRMN 4340 Seminar in German Literature—3
- GRMN 4450 Methods of Teaching German—3

Students have the option of taking the exam *Zertifikat Deutsch als Fremdsprache* in GRMN 3020 and the Goethe-Zertifikat C1 in GRMN 4010.

### Courses Taught in English

- GRMN 1601 Germany Today (core: contemporary societies)—3
- GRMN 1602 Metropolis and Modernity (core: literature and the arts)—3
- GRMN 1701 Nature and Environment in German Literature and Thought (core: ideals and values)—3
- GRMN 2301 Inside Nazi Germany (core: historical context)—3
- GRMN 2501 20th Century German Short Story (core: literature and the arts)—3
- GRMN 2502 Representing the Holocaust (core: ideals and values)—3
- GRMN 2503 Fairy Tales of Germany (core: literature and the arts)—3
- GRMN 2601 Kafka and the Kafkaesque (core: literature and the arts)—3
- GRMN 2603 Moral Dilemmas in Philosophy and Literature (core: ideals and values)—3
- GRMN 3501 German-Jewish Writers: From the Enlightenment to the Present (core: human diversity)—3
- GRMN 3502 Literature in the Age of Goethe (core: literature and the arts)—3
- GRMN 3503 German Film Through WWII—3
- GRMN 3504 Topics in German Film—3
- GRMN 3505 The Enlightenment (core: ideals and values) —3

#### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

- GRMN 3513 German Film and Society 1945-1989—3
- GRMN 3514 German Film and Society After 1989—3
- GRMN 3601 German Women Writers (core: human diversity)—3
- GRMN 3702 Dada and Surrealist Literature (core: literature and the arts)—3
- GRMN 4251 Marxism—3
- GRMN 4253 Philosophy of Language—3
- GRMN 4301 Gender, Race and Immigration in Germany and Europe (core: human diversity)—3
- GRMN 4501 Seminar: Literature in Cultural Context—3
- GRMN 4502 Nietzsche: Literature and Values (core: ideals and values)—3
- GRMN 4503 Issues in German Thought—3
- GRMN 4504 Goethe's *Faust* (core: literature and the arts)—3
- GSLL 1108 Introduction to Jewish History (core: historical context)—3
- GSLL 3401 The Heart of Europe: Filmmakers and Writers in 21st Century Central Europe—3
- JWST 4544 History of Yiddish Culture—3

### Required for Students in the Secondary Teacher Certification Program

- GRMN 4450 Methods of Teaching German
- GRMN 4460 High School German Teaching
- Plus other requirements as stated by the School of Education.

*NOTE: GRMN 4450 and 4460 can be taken only after full admission to the teacher education program in the School of Education.*

### Study Abroad

The department strongly recommends that all majors take part in study abroad. The university offers study abroad programs in Regensburg (academic year or spring semester) and Berlin (academic year or summer semester). Please consult with the major advisor. For more information on study abroad programs, see [studyabroad.colorado.edu](http://studyabroad.colorado.edu).

## Minor Program in German Studies

A minor is offered in German Studies. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school. The requirements for a minor in German Studies are 19 hours (with grades of C- or above).

### German Language (10 hours minimum above the 2010 level)\*

- GRMN 2020 Intermediate German 2—4 or GRMN 2030 Intensive Intermediate German—5
- GRMN 3010 Advanced German 1—3
- GRMN 3020 Advanced German 2\*\*—3

#### Notes:

\* With the exception of GRMN 4010, German language courses may be taken either at CU-Boulder or on the CU study abroad programs in Regensburg or Berlin, Germany. Students who are exempt from taking any of the above courses (and are not receiving transfer credit for them) can make up the credits by taking GRMN 4010, or any

GRMN courses taught in German or English. Substitutions need to be approved by the faculty advisor. (Students are strongly encouraged to take GRMN 4010 as a substitution.)

\*\* Students have the option of taking the exam *Zertifikat Deutsch als Fremdsprache* in GRMN 3020 and the Goethe-Zertifikat C1 in GRMN 4010.

## German Culture and Literature (9 hours)

Three courses taught in German at the 3000- or 4000-level. One upper-division German course taught in English may replace one of these courses.

- GRMN 3030 Business German—3
- GRMN 3110 German Literature from the Avant-garde to the Postmodern—3
- GRMN 3120 German Literature from the Enlightenment to Expressionism—3
- GRMN 3130 Issues in German Philosophy and Literature—3
- GRMN 3140 Current Issues in German Literature—3
- GRMN 3150 Issues in German Politics and Literature—3
- GRMN 3520 Open Topics in the Cultural Context—3
- GRMN 4330 The Age of Goethe—3
- GRMN 4340 Seminar in German Literature—3
- GRMN 4550 Senior Seminar—3

## Nordic Studies (Scandinavian)

Courses are offered in English on Nordic culture and civilization. Courses are also offered in Finnish, Swedish and Danish (proposed fall 2016) language. The language courses satisfy arts and sciences language requirements for the BA and BFA degrees. In addition, there is an exchange program with Uppsala University in Sweden and with the University of Copenhagen in Denmark (DIS).

## Minor Program in Nordic Studies

A minor is offered in Nordic Studies. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school. A minor in Nordic Studies requires the completion of 18 credit hours. A minimum of 9 credit hours must be taken in upper-division courses. All courses used to fulfill requirements for the minor must receive a grade of C- or better; none may be taken *pass/fail*. A minimum of 9 hours must be taken on the Boulder campus, but students may earn credit for approved study abroad in the Nordic countries.

### *Required Courses and Semester Credit Hours*

## Language, Culture and Society (9 hours)

- SWED 2020 Intermediate Swedish 2-DILS—4
- FINN 2020 Intermediate Finnish 2-DILS—4
- NORW 2120 Second-year Norwegian Reading and Conversation 2\*—4
- NORW/SWED/SCAN 2900 Independent Study—3
- NORW/SWED/SCAN 3900 Independent Study—3
- SCAN 2201 Introduction to Modern Nordic Culture and Society (core: contemporary societies)—3
- SCAN 2202 The Vikings (core: historical context)—3

- SCAN 3201 Contemporary Nordic Society and Culture (core: contemporary societies)—3
- SCAN 3206 Nordic Colonialisms (core: human diversity)\*\*—3
- SCAN 3208 Women in Nordic Society (core: human diversity)\*\*—3
- SCAN 3209 Contemporary Nordic Literature and Film—3
- SCAN 3301 Radical Nationalism in Northern Europe (core: ideals and values)—3

## Literature (9 hours)

- SCAN 1202 Tolkien's Nordic Sources (core: literature and the arts)—3
- SCAN 3202 Old Norse Mythology (core: literature and the arts)—3
- SCAN 3203 19th and 20th Century Nordic Literature (core: literature and the arts)—3
- SCAN 3204 Medieval Icelandic Sagas (core: literature and the arts)—3
- SCAN 3205 Scandinavian Folk Narrative (core: literature and the arts)—3
- SCAN 3206 Nordic Colonialisms (core: human diversity)\*\*—3
- SCAN 3208 Women in Nordic Society (core: human diversity)\*\*—3
- SCAN 3209 Contemporary Nordic Literature and Film\*\*—3
- SCAN 3506 Scandinavian Drama (core: literature and the arts)—3
- SCAN 2900 Independent Study—3
- SCAN 3900 Independent Study—3

### Notes:

\* SWED/NORW 2120 and SWED/NORW 2900/3900 are not currently being offered by GSLL. SWED 1110, 1120, 2010 and 2020 are currently being offered by GSLL.

\*\* SCAN 3206 Nordic Colonialisms, SCAN 3208 Women in Nordic Society and SCAN 3209 Contemporary Nordic Literature and Film, may be counted either toward Language, Culture and Society or toward Literature, but not both.

## Bachelor of Arts in Russian Studies

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below.

- Completion of 38 hours from tracks A or B or 36 hours from Track C with grades of C- or better. (None may be taken as *pass/fail*.) At least 18 RUSS hours must be completed at the 3000- or 4000-level. NOTE: RUSS 1010 and 1020 do not count toward the 38/36 hours required for the bachelor's degree in Russian. RUSS 1010 and 1020 will not count toward the maximum of 45 hours in the major department. Students are required to structure their curriculum in close consultation with a departmental advisor. Transfer credit must be approved by the department.
- Students with advanced Russian language skills are strongly encouraged to meet with a departmental faculty advisor to discuss language placement. Students who have Russian language transfer credit and/or students who are Russian language native or heritage speakers may enter the program at the upper-division level, up to RUSS 4010, with faculty permission. Students with previous knowledge of Russian must take the placement exam no later than the end of the first week of classes. Students who place out of Russian language courses required for the major must replace the credits with additional course work in Russian studies. Any substitutions to major course work must be pre-approved by the Russian faculty advisor.
- Study abroad is recommended after the second year of language study.

*NOTE: Beginning or middle-level language course requirements may be met by transfer credit or by testing out of the course. Students who enter the program at the third-year level must complete at least 18 credit hours in residence in courses numbered 3000 or above with grades of C- or better. (None may be taken pass/fail.) Students who enter at and enroll in Russian language courses at the 3000- or 4000-level may not receive credit for lower-division Russian language courses, unless lower-division language course work was completed prior to registration for 3000- and 4000-level Russian language courses. Students may not receive credit for both 3060 and 4010 or 4020 and 4060.*

**Required Courses and Semester Credit Hours**

**Track A: Russian Language and Culture (total 38 credit hours)**

- RUSS 2010 Second-Year Russian 1 (core: foreign language)—4
- RUSS 2020 Second-Year Russian 2—4
- RUSS 3010 Third-Year Russian 1—3
- RUSS 3020 Third-Year Russian 2—3
- RUSS 4811 19th Century Russian Literature (core: literature and the arts)—3
- RUSS 4821 20th Century Russian Literature and Art (core: literature and the arts)—3

Two of the following (6 credit hours):

- RUSS 3060 Advanced Russian for Heritage Speakers 1\*\*—3
- RUSS 4010 Advanced Conversation and Composition 1\*\*—3
- RUSS 4020 Advanced Conversation and Composition 2\*\*—3
- RUSS 4060 Advanced Russian for Heritage Speakers 2\*\*—3
- RUSS 4210 Open Topics: Russian Language and Culture—3
- RUSS 4230 Russian Cultural Idioms—3
- RUSS 4851 Critical Thinking: Russian Film & Society—3  
OR any other upper-division Russian language class or 6 credits of upper-division study abroad Russian language class.

Two of the following (6 credit hours):

- RUSS 2211 Introduction to Russian Culture (core: historical context)—3
- RUSS 2221 Introduction to Modern Russian Culture (core: historical context)—3
- RUSS 3601 Russian Culture Past and Present (core: historical context)—3

Two 2000-4000 level Russian or GSSL courses or courses in other departments pertaining to Russia, upon consent of advisor (6 total credit hours).

**Notes:**

\* core course

\*\* Students may not receive credit for both 3060 and 4010 or 4020 and 4060.

**Track B: Russian Culture and Literature (total 38 credit hours)**

- RUSS 2010 Second-Year Russian 1 (core: foreign language)—4
- RUSS 2020 Second-Year Russian 2—4
- RUSS 4811 19th Century Russian Literature (core: literature and the arts)—3

- RUSS 4821 20th Century Russian Literature and Art (core: literature and the arts)—3

Two of the following (6 credit hours):

- RUSS 2211 Introduction to Russian Culture (core: historical context)—3
- RUSS 2221 Introduction to Modern Russian Culture (core: historical context)—3
- RUSS 3601 Russian Culture Past and Present (core: historical context)—3

One of the following (3 credit hours):

- RUSS 2222 Sports and the Cold War (core: historical context)—3
- RUSS 2231 Fairy Tales of Russia (core: literature and the arts)—3
- RUSS 2241 The Vampire in Literature and the Visual Arts—3
- RUSS 2471 Women in Russian Culture from Folklore to the 19th Century (core: historical context)—3
- RUSS 2501 Russia Today (core: contemporary societies)—3

Three of the following (9 credit hours):

- RUSS 3211 History of Russian Cinema (core: literature and the arts)—3
- RUSS 3241 Red Star Trek: Russian Science Fiction Between Utopia and Dystopia (core: literature and the arts)—3
- RUSS 3301 Contemporary Issues in Russian Film—3
- RUSS 3701 Slavic Folk Culture: Ideals and Values in the Contemporary World (core: ideals and values)—3
- RUSS 4221 Stalinism: Society and Culture (core: ideals and values)—3
- RUSS 4301 American-Russian Cultural Relations (core: historical context or U.S. context)—3
- RUSS 4401 The Russian Jewish Experience (core: literature and the arts)—3
- RUSS 4431 Dostoevsky—3
- RUSS 4441 Tolstoy—3
- RUSS 4451 Chekhov—3
- RUSS 4471 Women in 20th-21st Century Russian Culture (core: human diversity)—3
- RUSS 4831 Contemporary Russian Literature (core: literature and the arts or contemporary societies)—3
- RUSS 4841 The History of Modern Russian Drama—3
- RUSS 4861 Absurd and Supernatural in Russian Literature—3

Two other 3000-4000 level Russian or GSSL culture/literature or language courses or courses in other departments pertaining to Russia, upon consent of advisor (6 credit hours).

### Track C: Russian Major for Heritage Speakers (total 36 credit hours)

Students who are native speakers of Russian (speak or spoke Russian at home while growing up) and/or who attended school in Russia for one or more years when their family lived there, may be eligible for special major track for heritage speakers. Heritage speakers of Russian who wish to major in Russian should speak with the advisor for the Russian major to map out a specific plan for their major.

- RUSS 3060 Advanced Russian for Heritage Speakers 1—3
- RUSS 4060 Advanced Russian for Heritage Speakers 2—3
- Or any other upper-division Russian language course (recommended: RUSS 4010, 4020, 4210, 4230 or 4851)  
*Note: students may not receive credit for both 3060 and 4010 or 4020 and 4060.*
- RUSS 4811 19th Century Russian Literature (core: literature and the arts)—3
- RUSS 4821 20th Century Russian Literature and Art (core: literature and the arts)—3

Two of the following (6 credit hours):

- RUSS 2211 Introduction to Russian Culture (core: historical context)—3
- RUSS 2221 Introduction to Modern Russian Culture (core: historical context)—3
- RUSS 3601 Russian Culture Past and Present (core: historical context)—3

One of the following (3 credit hours):

- RUSS 2222 Sports and the Cold War (core: historical context)—3
- RUSS 2231 Fairy Tales of Russia (core: literature and the arts)—3
- RUSS 2241 The Vampire in Literature and the Visual Arts—3
- RUSS 2471 Women in Russian Culture from Folklore to the 19th Century (core: historical context)—3
- RUSS 2501 Russia Today (core: contemporary societies)—3

Three of the following (9 credit hours):

- RUSS 3211 History of Russian Cinema (core: literature and the arts)—3
- RUSS 3241 Red Star Trek: Russian Science Fiction Between Utopia and Dystopia (core: literature and the arts)—3
- RUSS 3301 Contemporary Issues in Russian Film—3
- RUSS 3701 Slavic Folk Culture: Ideals and Values in the Contemporary World (core: ideals and values)—3
- RUSS 4221 Stalinism: Society and Culture (core: ideals and values)—3
- RUSS 4301 American-Russian Cultural Relations (core: historical context or U.S. context)—3
- RUSS 4401 The Russian Jewish Experience (core: literature and the arts)—3
- RUSS 4471 Women in 20th-21st Century Russian Culture (core: human diversity)—3
- RUSS 4831 Contemporary Russian Literature (core: literature and the arts or contemporary societies)—3

One of the following (3 credit hours):

- RUSS 4431 Dostoevsky—3
- RUSS 4441 Tolstoy—3
- RUSS 4451 Chekhov—3
- RUSS 4841 The History of Modern Russian Drama—3
- RUSS 4861 Absurd and Supernatural in Russian Literature—3

One other 3000-4000 level Russian or GSSL culture/literature or language course, or course in another department pertaining to Russia, upon consent of advisor—3

## Study Abroad

The department strongly recommends that all Russian majors take part in the university summer language program in St. Petersburg. For more information on CU Study Abroad programs, see [studyabroad.colorado.edu](http://studyabroad.colorado.edu).

## Minor Program in Russian Studies

Declaration of a minor in Russian studies is open to any student enrolled at CU-Boulder, regardless of college or school. A minor in Russian requires the completion of 20 credit hours. All courses used to fulfill requirements for the minor must receive a grade of C- or better. (None may be taken *pass/fail*.) Students may not apply more than 9 hours of transfer credit (including 6 upper-division credits) toward the minor. Transfer courses must be approved by the department.

- RUSS 2010 Second-Year Russian 1 (core: foreign language)—4
- RUSS 2020 Second-Year Russian 21—4
- RUSS 3010 Third-Year Russian 1 or any 3000-4000 level Russian literature, film or culture course—3

One additional 2000-4000 level RUSS course—3

One of the following (3 credit hours):

- RUSS 2211 Introduction to Russian Culture (core: historical context)—3
- RUSS 2221 Introduction to Modern Russian Culture (core: historical context)— 3
- RUSS 3601 Russian Culture Past and Present (core: historical context)—3

One of the following (3 credit hours):

- RUSS 4811 19th Century Russian Literature (core: literature and the arts)—3
- RUSS 4821 20th Century Russian Literature (core: literature and the arts)—3

### Note:

1. Heritage speakers should take RUSS 3060 Advanced Russian for Heritage Speakers (3 credit hours) and RUSS 4060 Advanced Russian for Heritage Speakers II (3 credit hours) as well as any other 4000-level Russian language course in lieu of RUSS 2010 and RUSS 2020. In this case, 18 credit hours will be sufficient for the minor if other requirements are fulfilled.

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in Germanic or Russian studies, students should meet the following requirements:

- Begin to study the language in the freshman year, or have received AP credit.
- In consultation with the major program advisor before the end of the drop/add period in the first semester, plan a tentative schedule of courses to be taken over eight semesters.
- Discuss progress toward the degree each semester with the major advisor.

*Note:* Although these requirements apply only in cases in which students are seeking to graduate under the terms of the four-year guarantee, they are good advice for all majors. Consult the program advisor about the major at any time.

## Courses Taught in English

A number of courses are offered in translation. These courses generally require no previous study in the language, history or culture of the area involved, and are open to all interested students, regardless of major.

## Concurrent Bachelor's/Master's Program

### MA Program in Russian Studies

The department offers an interdisciplinary professional MA in Russian Studies, focusing on Russian language proficiency, Russian culture, and interrelations between Russian history, politics and culture in the 19th-21st centuries. The faculty's interdisciplinary strengths include literature, cinema, folklore, literary/ cultural theory, cultural studies, gender studies, sociolinguistics, pedagogy, Jewish Studies, minority studies, and nationalism. The faculty works closely with students to design their own course of study. Some Russian MA students receive a teaching assistantship and tuition waiver. For contact information and more general information on the MA in Russian Studies, please visit the program's website, [gsll.colorado.edu](http://gsll.colorado.edu), or email [gsll@colorado.edu](mailto:gsll@colorado.edu).

### Concurrent BA/MA Program in Russian Studies

Highly motivated undergraduates majoring in Russian studies at CU-Boulder have the opportunity to enter a BA/MA program, thereby earning both the BA and the MA in five years. The concurrent degree program offers a unique academic credential designed to produce skilled graduates for a variety of occupations. In most cases, students must make written application no later than April 1 of the sophomore year. A minimum GPA of 3.00 for all Russian Studies courses is required, as well as two letters of recommendation indicating strong potential for advanced, intensive work in Russian. BA/MA students are expected to take graduate courses in the fourth and fifth years only. Students should have completed most of their MAPS/Core requirements by the end of the sophomore year. Only CU-Boulder students may apply. For specific requirements please contact the department or see [gsll.colorado.edu](http://gsll.colorado.edu). For contact information and more general information on the BA/MA in Russian Studies, please visit the program's website, [gsll.colorado.edu](http://gsll.colorado.edu), or email [gsll@colorado.edu](mailto:gsll@colorado.edu).

## Graduate Degree Program(s)

### Graduate Study in Germanic and Slavic Languages and Literatures

#### Master's Degree in German

Students wishing to pursue the interdisciplinary master's in German should read carefully Requirements for Advanced Degrees in the Graduate School section. The following prerequisites and requirements apply: BA or equivalent in German or BA-level proficiency in German with a BA in a related field; general knowledge of the German-speaking countries' literature, history and culture; 24 hours of approved course work and a master's thesis (6 hours), or 30 hours of course work without thesis; and reading knowledge of one modern foreign language in addition to German and English. For specific requirements please contact the department or see [gsll.colorado.edu](http://gsll.colorado.edu).

#### Master's Degree in German/Master's of Business

## Administration

To support the university's mission of advancing knowledge across disciplines, the Leeds School of Business and the Department of Germanic and Slavic Languages and Literatures offer a dual degree, Master of Business Administration and Master of Arts in German Studies. In most cases, students should be able to complete the dual degree in three years with a total of 70 credit hours. Prospective students must apply to and meet the application and admission requirements for each program separately. See the Department of Germanic and Slavic Languages and Literatures for application to the German MA program, and the Leeds School of Business to apply to the MBA program.

## PhD in German Studies

The interdisciplinary PhD in German studies is designed so that students can complete their course work and their dissertation in four years. The program welcomes applicants who wish to pursue careers in government, business and the non-profit sector, in addition to applicants interested in an academic career. In Germany, Austria, Switzerland and many other European countries, it is a strongly held conviction that a doctorate demonstrates to potential employers intellectual independence, superior research and writing skills, the perseverance and ingenuity to complete an original piece of scholarship and deep familiarity with a different culture. These qualities are equally valuable in the 21st-century American economy, and indeed in the global marketplace.

The German Studies PhD program provides intensive and personalized mentoring, directed reading advice and clinics devoted to dissertation- and conference-paper writing, digital and archival research, oral presentation and interview preparation. Our PhD strongly emphasizes interdisciplinary work within a secondary concentration area of the student's choice, and includes one year spent abroad at CU-Boulder's partner universities of Göttingen and Regensburg or at other leading institutions in the German-speaking world. A wide range of graduate-level course offerings is designed to ensure content coverage and to move research projects into publishable scholarship. The expanded graduate faculty includes scholars in disciplines such as political science, comparative literature, Jewish studies, business and library science.

For more information, contact the department for information at [gsl@colorado.edu](mailto:gsl@colorado.edu) or see their website at [gsl.colorado.edu](http://gsl.colorado.edu).

## Certificate Program(s)

### Certificate in International Engineering in German

The purpose of this certificate is to provide engineering students training in language and culture, giving them skills necessary to work effectively with engineers in multinational teams and to succeed during overseas assignments in today's global marketplace. It is an indication to prospective employers that the students have a certain degree of proficiency in German language and an understanding of the culture. Visit [www.colorado.edu/engineering/international/certificates/german](http://www.colorado.edu/engineering/international/certificates/german) for more information.

### Graduate Certificate in Critical Theory

This certificate offers students a background in philosophical foundations of critical theory. Drawing on disciplines such as philosophy, psychoanalysis, Marxism, literary criticism and sociology, critical theory develops analytical tools for describing and evaluating modern society and cultural production. Students who are currently enrolled in a graduate disciplinary degree or a professional degree program are encouraged to apply for the Graduate Certificate in Critical Theory early in their graduate career. For further information, please visit our website at [gsl.colorado.edu](http://gsl.colorado.edu).

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# History

**Course code for this program is HIST.**

## Bachelor's Degree Program(s)

### Bachelor's Degree in History

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below.

*(Note: These requirements took effect beginning with the 2011 summer term. Students who became history majors prior to that term may fall under previous major requirements and should consult one of the department's undergraduate advisors to determine which requirements to follow.)*

**Total Hours.** Students must complete 42 hours in history courses with grades of C- or better. Of those 42 hours, 24 must be at the upper division. Students should complete the required 1000-level survey courses, HIST 1800 and HIST 3020 before the end of their sophomore year and before they enroll in any 4000-level history classes.

#### **Required Courses and Semester Credit Hours**

#### **Lower-division Requirements**

- One 1000-level United States history course—3
- One 1000-level Europe history course—3
- One 1000-level world areas history course—3
- HIST 1800 Introduction to Global History—3

#### **Upper-division Requirements**

- HIST 3020 Historical Thinking and Writing—3
- One 4000-level United States history course—3
- One 4000-level Europe history course—3
- One 4000-level world areas history course—3
- One 4000-level comparative or global history class—3
- Two 4000-level HIST electives—6
- One 3000-level Senior Seminar—3

Any additional 3000-level seminars can fulfill requirements that normally are fulfilled by 4000-

#### □ Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

level courses.

### Lower- or Upper-division Elective Requirement

- 6 credits in any other HIST courses—6

### Historical Period Requirement

Included in the 42 hours earned to complete the major requirements must be 6 hours in courses whose focus falls primarily before 1800 and 6 hours in courses whose focus falls primarily after 1800. 2000-level non-major HIST courses cannot be used to fulfill this requirement. (The department maintains a list of courses broken down by geographic areas and historical periods.)

### Ancillary Written Communication Requirement

In addition to the history requirements listed above and a minimum of 42 credits in history, students must complete one of the following lower-division written communication courses with a grade of C- or better:

- **Lower-division Written Communication:** ARSC 1080 College Writing and Research, ARSC 1150 Writing in Arts and Sciences, CLAS 1020 Argument from Evidence: Critical Writing about the Ancient World, ENGL 1001 Freshman Writing Seminar, PHIL 1500 Reading, Writing and Reasoning, WRTG 1100 Extended First-Year Writing and Rhetoric, WRTG 1150 First-Year Writing and Rhetoric, WRTG 1250 Advanced First-Year Writing and Rhetoric—3

NOTE: Under normal circumstances, no more than 45 credit hours in history may be used toward a student's total University of Colorado graduation requirements. Students must have a grade point average of at least 2.00 in the major in order to graduate. Students may receive credit for HIST 1020 and/or HIST 1025 and/or 3 lower-division elective HIST credits by obtaining a score of four or better on the high school Advanced Placement history test(s). Some types of International Baccalaureate credit are acceptable; consult one of the major advisors to determine individual applicability. The CLEP test is not accepted for credit.

All students majoring in history must complete at least 12 credit hours of upper-division history in courses taught by the CU-Boulder faculty. In addition, HIST 1800, HIST 3020 and the 3000-level Senior Seminar must be successfully completed on the CU-Boulder campus with a C- or better.

## Graduating in Four Years

Students should consult the Four-Year Guarantee Requirements for further information on eligibility for the four-year guarantee. The concept of "adequate progress" as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in history, students must consult a history advisor each semester, but the following plan provides a rough outline of acceptable progress:

- Declare the major no later than the second semester of the freshman year.

Recommended Sequence of Courses

#### *Required Courses and Semester Credit Hours*

#### **Freshman Year: total 9**

- Any two of the required 1000-level HIST survey courses—6

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures

#### • History

- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

- The ancillary lower-division written communication course—3

### Sophomore Year: total 12

- The two remaining required 1000-level HIST survey courses—6
- HIST 1800 Introduction to Global History—3
- HIST 3020 Historical Thinking and Writing—3

### Junior Year: total 12

- Four 4000-level HIST lecture courses—12

### Senior Year: total 12

- Three 4000-level HIST lecture courses—9
- One 3000-level Senior Seminar—3

### Grand total all terms: 45

## Minor Program

The current requirements are as follows:

- A total of 21 credit hours in history, of which at least 12 hours must be upper-division. Courses intended to count for the minor **may not** be taken on a *pass/fail* basis, and students must earn a C- or better in any course to be counted toward the 21-hour minor requirement.
- At least 3 credit hours (one course each) must be taken in **each** of the four following geographical areas: the United States, Europe, World Areas (specific areas outside of Europe and North America) and Global or Comparative.

### Additional Information about the Minor Program

2000-level HIST courses and courses taken for core curriculum credit **are** applicable to the minor. 4000-level courses may be used to fulfill both upper-division hours and geographic area hours.

HIST 3020 and all 3000-level Senior Seminars are restricted to history majors. 3000-level courses may occasionally be taken by minors if the course is not full as of the second week of drop-add and/or you have written permission from the instructor.

## Graduate Degree Program(s)

### Graduate Study in History

Students wishing to pursue graduate work in history leading to candidacy for an advanced degree should read carefully requirements for advanced degrees in the Graduate School section. The following are special departmental requirements. Additional information should be obtained from the Department of History or by visiting the departmental website at [colorado.edu/history/graduate-students](http://colorado.edu/history/graduate-students).

**Admission Requirements.** For purposes of admission to the graduate program, the general Graduate Record Examination is required and a score in the 85th percentile or above on the verbal component is generally expected.

## Master's Degree

### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

**Prerequisites.** As general preparation for graduate work in history, a broad liberal arts education, as well as a major in history, are desirable, though not specifically required. Candidates for graduate degrees may be required to pursue such fundamental courses in history as the department deems necessary to provide a suitable historical background.

**Residence.** While it is possible to obtain the MA degree in two full semesters of residence, more time is generally necessary.

**Degree Requirements.** A total of 24 credit hours of course work plus 6 hours of MA thesis, or 30 credit hours of course work without a thesis, is required for the degree. A comprehensive examination must be passed in the field of study before the degree is granted.

## Doctoral Degree

**Prerequisites.** Students who wish to work toward the PhD degree in history must indicate knowledge of certain fields of history, acquaintance with the fundamental tools of historical scholarship and the ability to do original work. The PhD program does not require the completion of a master's degree, but directly admits those qualified applicants who hold an undergraduate history degree or who have completed appropriate undergraduate history preparation and who have been recommended by the graduate admissions committee.

**Residence.** At least three years of graduate study, two of which must be spent in residence, are required for the PhD degree.

**Degree Requirements.** A total of 45 postbaccalaureate credit hours, at least 30 of which must be taken at this university, and a dissertation are required for the degree. A minimum of one foreign language is required; however, students must be able to use those languages essential to research and advanced study in their respective fields. In addition, as required by the Graduate School, those students pursuing a PhD should complete a minimum of 30 credit hours of dissertation work beyond the minimum course work requirement.

A comprehensive written and oral examination, a dissertation which is an original contribution to knowledge and an oral -examination on the dissertation must be successfully completed.

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## Humanities

Humanities is an interdisciplinary program that allows students to combine different fields of study from all the disciplines of the humanities as well as from the social sciences (in particular, Anthropology, Ethnic Studies, Political Science, Psychology, Sociology, Women and Gender Studies). This major especially encourages students to develop their interdisciplinary interests in fields of cultural and humanistic expression such as literature, art, music, film, philosophy, history, modern media, religion and contemporary critical practice and theory.

The undergraduate degree in humanities emphasizes knowledge and awareness of:

- the ways cultures and traditions define both themselves and each other;
- the formal, rhetorical and ideological properties of cultural texts in a variety of forms and media (literature, history, philosophy, film, music, visual arts, architecture, dance, theatre, performance);
- the dynamic relationships between texts and their social and historical contexts;
- the genres and modes of texts and their production, transformation and reception; and
- the theoretical and ideological underpinnings and implications of one's own and others' interpretive approaches and assumptions.

In addition, students completing the degree in humanities are expected to acquire the ability and skills to:

- analyze and interpret texts in a variety of forms and media;
- articulate such analyses and interpretations at a sophisticated level in both written and oral forms;
- discern similarities and differences among individual works, artistic media, historical periods and cultural traditions;
- reason critically; and
- explore the connections between contemporary issues and academic work.

**Course code for this program is HUMN.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Humanities

#### *Required Courses and Semester Credit Hours*

- HUMN 1110 and 1210 Introduction to Humanities 1 and 2—12
- HUMN 2000 Methods and Approaches to the Humanities—3

#### Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

- Upper-division HUMN courses—15
- Area of concentration: either a single language/literature (English or a foreign language, ancient or modern; first-year language courses may not be counted) or a field related to the humanities, such as history, art history, anthropology, etc.—18  
(*At least 12 of these 18 hours must be taken at the upper-division level.*)
- Secondary field: courses chosen from one other humanities-related discipline such as fine arts, music, dance, theatre, film, philosophy, foreign language literature (first-year language courses may not be counted), or other discipline—12

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. Because the humanities major is unique in requiring courses from a number of different departments in addition to its own courses, it is imperative that students wishing to graduate in four years declare the major early and meet regularly with a major advisor. The concept of “adequate progress” as it is used here refers only to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in humanities, students should meet the following requirements:

- Complete the lower-division sequence HUMN 1110–1210 by the end of the fourth semester.
- Complete at least two lower-division courses in the secondary field and/or area of concentration by the end of the fourth semester.
- Complete 15 of the remaining 42 credit hours at the upper-division level by the end of the sixth semester—at least two of these must be upper-division humanities courses.
- Complete all remaining required courses (no more than 27 credits) by the end of the eighth semester.

## Minor in Humanities

The Minor in Humanities offers students the opportunity to take a range of interdisciplinary courses offered by the Humanities Program faculty. Total: 18 hours (9 upper division)

Requirements:

A: any two of the following courses: HUMN 1110, 1210, 1120, 1220 (6 hours)

B: HUMN 2000 (3 hours)

C: 9 hours of upper division HUMN courses

The depth of critical analysis as well as the breadth of knowledge covered by the Humanities Program’s courses can be a great benefit to students pursuing a variety of other majors in the College of Arts and Sciences, in the Professional Schools and particularly students pursuing a pre-medical or pre-law school program of study. This minor provides students with the kinds of skills and interests that enhance employment opportunities as well as applications to graduate school.

Humanities Program courses are designed to train students to understand and analyze critical, historical, social, political and critical issues from different perspectives and to teach students to draw independent conclusions. Our courses also help develop excellent written and verbal communication skills—recognized by the business and scientific worlds as indicators of future innovators as well as indicators of high quality practitioners and researchers across many different fields (media, communications, arts, creative design, marketing, etc.).

### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History

### • Humanities

- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

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Other Academic Programs

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## Integrative Physiology

Physiology is the field of biology that deals with function in living organisms. The academic foundation of the department is the knowledge of how humans and animals function at the level of genes, cells, organs and systems. Our multidisciplinary curriculum requires students to take foundational courses in anatomy, biochemistry, mathematics, physics, physiology and statistics. With this basic knowledge, students can undertake a flexible curriculum that includes the study of biomechanics, cell physiology, endocrinology, immunology, exercise physiology and neurophysiology. The department also encourages student participation in research.

Students completing a degree in integrative physiology are expected to acquire the ability and skills to:

- Read, evaluate and synthesize information from the research literature on integrative physiology;
- Observe living organisms and be able to understand the physiological principles underlying function;
- Be able to interpret movement and performance data from laboratory measurements; and
- Communicate the outcome of an investigation and its contribution to the body of knowledge on integrative physiology.

These goals are achieved by providing a curriculum that comprises required courses and elective experiences. The required courses establish the foundation of knowledge for the discipline, whereas the elective courses provide opportunities to extend this knowledge on selected topics. The elective courses include seminars, independent study and research projects on such topics as aging, applied biomechanics, applied exercise science, behavioral neuroendocrinology, epidemiology, genetics of substance abuse, integrative physiology of aging, integrative vascular biology, locomotion, molecular biology of neurodegeneration, molecular neurogenetics, molecular signaling of neurological disorders, motor behavior, neuromechanics, neurophysiology of movement, reproductive endocrinology, sleep and chronobiology, sleep and development and stress physiology. More detailed information is available at [www.colorado.edu/intphys](http://www.colorado.edu/intphys).

**Course code for this program is IPHY.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Integrative Physiology

Students must complete the general requirements of the College of Arts and Sciences and the required courses below.

A grade must be earned of C- or better.

### □ Arts & Sciences

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- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

**Required Courses and Semester Credit Hours**

- IPHY 2800 Introduction to Statistics—4
- IPHY 3410 Introduction to Human Anatomy with IPHY 3415 Introduction to Human Anatomy Lab and IPHY 3470 Human Physiology 1 and IPHY 3480 Human Physiology 2 and IPHY 3435 Physiology Lab. —13
- EBIO 1210-1240 General Biology 1 and 2 with labs or MCDB 1150 and 1151 Introduction to Molecular Biology with lab and MCDB 2150 and 2151 Principles of Genetics with lab—8
- CHEM 1113/1114 and 1133/1134 General Chemistry 1 and 2 with labs—10
- PHYS 2010 and 2020 General Physics 1 and 2—10
- One of the following courses: MATH 1300 Analytic Geometry and Calculus 1, MATH 1310 Calculus 1 with Computer Applications or APPM 1350 Calculus 1 for Engineers—4-5
- Three of the following six courses: IPHY 3060 Cell Physiology, IPHY 4600 Immunology, IPHY 4440 Endocrinology, IPHY 4540 Biomechanics IPHY 4650 Exercise Physiology and IPHY 4720 Neurophysiology—11-14

The number of major elective hours needed to reach the 30 hour major requirement will vary based on what major courses are taken. Students cannot apply more than 45 major hours toward the degree. Contact department for current elective choices.

**Graduating in Four Years**

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in integrative physiology, students should meet the following requirements:

- Declare the major by the first semester.
- Complete the biology and chemistry requirements before the beginning of the fifth semester.
- Complete the anatomy and physiology requirements by the end of the sixth semester.
- Students must consult with a major advisor to determine adequate progress toward completion of major requirements.

**Concurrent Bachelor's/Master's Program****Concurrent BA/MS in Integrative Physiology**

The Department of Integrative Physiology has developed a curriculum that results in simultaneously conferring BA and MS degrees following a five-year course of study. The program has been designed to provide qualified undergraduate students with an opportunity to enhance their knowledge base in the discipline, engage in research, increase their opportunities for employment and make their applications to medical/allied health professional schools more competitive. Candidates for the program are recruited from the undergraduate population of declared integrative physiology majors during the beginning of their junior year. All interested candidates must apply by the second semester of their junior year. To apply, students must have a minimum GPA of 3.30, one letter of recommendation and a faculty mentor. Approximately 3–5 of the applicants will be selected on a competitive basis to begin the program.

Once accepted into the program, a student must maintain a GPA of 3.00 in all course work undertaken. By the completion of their senior year, students must have completed the 116 undergraduate credits as outlined in the concurrent degree plan options. Continuing students must register for at least 5 graduate course credits per semester, beginning with the fall

**Program**

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities

**• Integrative Physiology**

- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

semester of their senior year. Students deciding to discontinue the program may do so at any time during their course of study. All credits completed toward the concurrent degree program will be counted toward the completion of the requirements for a BA degree in integrative physiology.

The curriculum for all students in the first year of the program is the same and is designed for students to complete their undergraduate requirements (116 credit hours) and 8 of their graduate credits. To complete the program in five years, students will be allowed to count 6 credits of their graduate work as electives for the undergraduate degree and 6 prespecified credits of undergraduate work toward the master's degree. See the section on Master of Science Degree for more information.

## Graduate Degree Program(s)

### Graduate Study in Integrative Physiology

To obtain materials for application and for any additional information, visit the departmental website at [www.colorado.edu/intphys/grad](http://www.colorado.edu/intphys/grad).

Entering graduate students must have an undergraduate preparation equivalent to the basic core curriculum requirements in integrative physiology at the University of Colorado or departmental approval of their academic preparation for graduate study.

All graduate applicants must have an introductory course in statistics or research design. In addition, students should have the knowledge base that would be obtained by completing human anatomy lecture and lab, as well as human physiology lecture and lab courses.

Satisfactory scores on the Graduate Record Examination (general) tests are also required for admission to the department. These scores should be submitted at the time of application.

**Deficiencies.** If the undergraduate preparation of a prospective graduate student is not adequate, the student may be allowed to pursue graduate study with the understanding that identified deficiencies will be completed. The graduate admissions committee will determine the nature and extent of these deficiencies.

Deficiencies in any area of the undergraduate major may be met by completing approved course work in the subject at CU-Boulder or at other institutions. All entering graduate students with deficiencies must satisfy at least one deficiency per semester until all deficiencies are satisfied. Graduate courses taken before removing deficiencies may be accepted for graduate degree credit only if prior approval of the graduate coordinator has been granted.

### Master of Science Degree

Master's candidates entering the graduate program may select Plan I (thesis: 30 credit hours, including 4-6 thesis hours), Plan II (nonthesis: 30 credit hours including a 3-credit hour research project), or Plan III (course work only) for the degree program. Prior to or during their first academic year in the program, students should identify a graduate faculty member who will serve as their faculty mentor for the development of a thesis or research project (Plan I or II). The scholarly mentor assists the student in deciding upon the thesis and nonthesis options based upon a careful examination of the candidate's academic record, the goals of the candidate and the availability of departmental resources.

**Basic Requirements.** The following are required of all students for the master's of science degree: IPHY 5100 Colloquium in Integrative Physiology and IPHY 5800 Advanced Statistics and Research in Integrative Physiology, a minimum cumulative GPA of 3.00 in all graduate work undertaken, satisfactory performance on the comprehensive exam and completion of the requirements for advanced degrees as stipulated by the Graduate School. For students enrolled

#### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

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in Plan I, IPHY 6950 Master's Thesis is required; for students enrolled in Plan II, IPHY 6840 Research Project is required.

**Comprehensive Examination.** Candidates are required to complete an oral examination covering the thesis (Plan I) or a written summary of the research project (Plan II).

## Doctoral Degree

**Basic Requirements.** Doctoral students must complete 30 credit hours of course work at or above the 5000 level and 30 semester hours of dissertation research (IPHY 8990). The following are required of all doctoral degree students: IPHY 5100 Colloquium in Integrative Physiology (2 academic year semesters); IPHY 5800 Advanced Statistics and Research in Integrative Physiology; IPHY 6830 Professional Skills for the Research Scientist; satisfactory completion of the department preliminary review; and satisfactory completion of both the comprehensive and final examinations.

**Advisory Committee.** The advisory committee consists of the student's mentor, a faculty member in the student's interest area and either the department graduate coordinator or the department chair. The committee assists the student in planning a program of study.

**Preliminary Review.** After the first academic year, usually consisting of 18–20 hours of course work, the student completes a preliminary review by the student's advisory committee. The committee will evaluate the student's academic status (GPA of at least 3.00 required), a detailed proposal of the student's curriculum, written input from the student's mentor and other pertinent materials deemed necessary by the committee.

The outcome of the preliminary review process can be one of three judgments: pass, fail or probation. A student who passes may continue to pursue the doctoral degree. A student who fails may not continue in the doctoral program. A student on probation must complete any deficiencies determined by his or her committee before continuing to pursue the doctoral degree.

**Comprehensive Examination.** The comprehensive exam will be administered to the student within four semesters of entry into the doctoral program. The format of the exam, and the composition of the comprehensive exam committee, will be determined by the mentor in consultation with the student. The examination will be based on a document that is about 20 pages in length and designed to demonstrate the student's comprehensive knowledge on a topic. The membership of the committee (a minimum of five members) is submitted to the dean of the Graduate School for approval. Students are given two opportunities to pass the comprehensive exam. The written portion of the exam is based upon the student's course work and requires demonstration of broad-based knowledge in integrative physiology. Specific areas to be evaluated are determined by the mentor and the student.

**Dissertation.** Successful completion of the comprehensive exam advances the student to doctoral candidate status, and the student may then begin a dissertation. All students must complete a formal written dissertation that conforms to the requirements established by the Graduate School at the University of Colorado Boulder.

**Final Examination.** After completion of the dissertation, a final examination is scheduled. The exam consists of a written submission of the dissertation work and an oral defense. The final examination committee consists of at least five members, one of whom must be from outside the department. Three of the members must be Boulder campus resident faculty.

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## International Affairs

With the increasing importance of world issues to the United States, employment opportunities in government, international organizations and business continue to expand. Today there is an urgent need for college graduates with a strong background in international affairs. To meet this need, the University of Colorado offers a comprehensive and flexible interdisciplinary program in international affairs leading to the BA degree.

The undergraduate degree in international affairs emphasizes knowledge and awareness of:

- major political, economic, social and cultural problems facing the international community, including international economic relations, world population and resource utilization
- the international political system in the broadest global context, international organizations and alliances and foreign political systems and processes
- ethical issues involved in international relations
- patterns of conflict and cooperation among nations and peoples
- chief historical factors that give rise to existing international institutions and processes
- problems and issues in United States foreign policy

In addition, students completing the degree in international affairs are expected to acquire the ability and skills to:

- analyze an international problem from a political, economic, historical and cultural perspective
- read, critically evaluate and synthesize information obtained from international affairs literature
- analyze international phenomena critically
- communicate, orally and in writing, findings to other students of international affairs and to a broader audience
- communicate in other cultural contexts through advanced foreign language study

**Course code for this program is IAFS.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in International Affairs

Students must complete the general requirements of the College of Arts and Sciences and a minimum of 51 hours of specified courses with a grade of C- or better (none may be taken *pass/fail*), distributed as follows

### Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

**Required Courses and Semester Credit Hours****Lower-division (18 hours)**

- ECON 2010 Principles of Microeconomics—4
- ECON 2020 Principles of Macroeconomics—4
- IAFS 1000 Global Issues and International Affairs—4
- PSCI 2012 Introduction to Comparative Politics—3
- PSCI 2223 Introduction to International Relations—3

**Upper-division**

Complete the requirements listed below for **functional area, geographic concentration, off-campus experience, foreign language** and **senior seminar**. IAFS 3000 can be repeated up to 9 credits for different topics.

**Functional Area (18 hours)**

Students must complete one class in each of the four functional areas and complete two additional classes in any functional area. Students cannot apply more than four functional area classes from any one department.

**Development and Culture (Functional Area I)**

ANTH 4020 Explorations in Anthropology (approved topics only)  
 ANTH 4500 Cross-cultural Aspects of Socioeconomic Development  
 COMM 3410 Intercultural Communication  
 ECON 3784 Economic Development  
 ECON/GEOG 4292 Migration, Urbanization and Development  
 ECON 4774 Economic Reform in Developing Countries  
 ECON 4784 Economic Development  
 ECON 4794 Economic Growth  
 GEOG 3682 Geography of International Development  
 GEOG 4632 Development Geography  
 GEOG 4852 Medical Geography  
 IAFS/JWST 3600 Global Secular Jewish Societies  
 LING 3545 World Language Policies  
 MOST 3201 Media, Culture and Globalization (International Media Certificate students only)  
 PSCI 4012 Global Development  
 PSCI 4732 Critical Thinking in Development  
 SOCY 3002 Population and Society  
 SOCY/WMST 3012 Women and Development  
 SOCY 4007 Global Human Ecology  
 SOCY 4052 Social Inequalities of Health  
 WMST 3500 Global Gender Issues  
 WMST 4300 Sex, Power and Politics: International Perspectives

**International Economics, Business, Political Economy (Functional Area II)**

ECON 3403 International Economics and Policy  
 ECON 3545 Environmental Economics  
 ECON 4413 International Trade  
 ECON 4423 International Finance  
 ECON 4504 New Institutional Economics  
 ECON 4545 Environmental Economics

## Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- **International Affairs**
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese

Speech, Language

FNCE 4060 London Summer in International Finance  
 INBU 3300 International Business and Management  
 INBU 3450 International Business and Marketing  
 INBU 4200 International Financial Management  
 PSCI 4193 International Political Economy

### Political Geography, International Security, Foreign Policy (Functional Area III)

ANTH/JWST 4580 The Holocaust  
 GEOG 3742 Place, Power and Contemporary Culture  
 GEOG 4712 Political Geography  
 GEOG 4742 Peoples and Environments (approved topics only)  
 HIST 4050 A Global History of World War II  
 HIST 4126 History of U.S. Foreign Relations since 1941  
 HIST 4146 Military History  
 HIST 4166 The Vietnam War in Politics and Culture  
 IAFS 3500/HIST 4190 French Connections (Global Seminar)  
 IAFS/JWST 3650 History of Arab-Israeli Conflict  
 PHIL 3190 War and Morality  
 PSCI 3123 War, Peace and Strategic Defense  
 PSCI 3143 Problems in International Relations  
 PSCI 3163 American Foreign Policy  
 PSCI 3193 International Behavior

### International Institutions, Rights and Norms (Functional Area IV)

HIST 4820 Human Rights: Historical Perspectives  
 JOUR 4341 International Media and Global Crises (International Media Certificate students only)  
 PHIL 3260 Philosophy and International Order  
 PRLC 3810 Global Issues in Leadership  
 PSCI 3062 Revolution and Political Violence  
 PSCI 4173 International Organization  
 PSCI 4183 International Law  
 PSCI 4252 Politics of Ethnicity and Nationalism  
 PSCI 4783 Global Issues  
 SOCY/ENVS 4027 Inequality, Democracy, Environment  
 SOCY 4111/INVS 4402 Nonviolent Social Movements  
 SOCY 4121 Sociology of Religion  
 WMST 3220 Women in Islam  
 WMST 3710 Topics in Global Gender and Sexuality (approved topics only)  
 WMST 4010/SOCY 4000 Gender, Genocide and Mass Trauma  
 WMST 4500/PSCI 4391 Gender Politics and Global Activism

### Geographic Concentration (9 hours)

Students are required to complete three classes concentrating on one of the four following global regions: Africa/Middle East, Asia, Europe/Eurasia or Latin America. Students should choose a geographic concentration and a language appropriate to that geographic concentration no later than the beginning of their junior year.

Geographic concentration coursework should be mainly in the social sciences, must include one course in contemporary history and can include a maximum of three credits of regional literature and arts (taught in the foreign language whenever possible). See [iafs.colorado.edu](https://iafs.colorado.edu) for geographic concentration courses.

- and Hearing Sciences
- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

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### Off-Campus Experience (3 hours)

Complete 3 upper division credit hours to fulfill the Off-Campus Experience from one of: IAFS 4930, Internship in International Affairs; a study abroad course; a CU in DC course; or other credit-bearing off-campus experience approved by the program.

### Language Requirement

A third-year university-level proficiency in a foreign language appropriate to the geographic concentration is required. This requirement may be met by completion of one or two semester-long, third year, university-level grammar courses (depending on the language) with a grade C- or better, while also satisfying language department requirements for advancement through the sequence. See [iafs.colorado.edu](http://iafs.colorado.edu) for more information.

### Senior Seminar (3 hours)

IAFS 4500 Post-Cold War World or IAFS 4800 Honors Seminar in International Affairs is required.

### Recommendation

- All international affairs majors should have a good command of the English language.
- Students should choose electives with a view to their relevance to this program or usefulness as prerequisites for upper-division work.
- During the semester prior to graduation, students must complete a statement of major status obtained from their advisor.
- Students in the international affairs program are encouraged to consider the possibility of participating in one of the Study Abroad programs affiliated with the University of Colorado. Students wishing to participate in such a program should contact their advisor to work out an appropriate program.
- Internships are a useful experience for students seeking a career in international affairs. The Internship in International Affairs (IAFS 4930) provides the opportunity to earn academic credit for appropriate internships in the field. This course is generally offered during the spring and fall semesters and during summer sessions; enrollments are limited. Interested sophomores, juniors or seniors should consult with the director of the Internship Program. An application is required for admission to the Internship Program; see [iafs.colorado.edu](http://iafs.colorado.edu) for more details. IAFS 4930 could count for major elective and/or geographic concentration credit with approval from the internship director.
- The IAFS Honors Program offers the opportunity to learn and apply research skills for a select number of IAFS majors. Entry into the IAFS Honors Program is limited to seniors with a 3.40 major GPA and a 3.30 overall GPA. The Honors Seminar in International Affairs (IAFS 4800—offered each fall semester) provides instruction in research methods and facilitates the development of a sound research project. Research continues into the spring semester under the guidance of individual faculty members and through the continuation course, Honors in International Affairs (IAFS 4810). Interested and eligible students should consult with their academic advisor and the director of the Honors Program before spring break of their junior year. An application is required for admission to the Honors Program; see [iafs.colorado.edu](http://iafs.colorado.edu) for more details. IAFS 4810 could count for either an upper-division functional area and/or a geographic concentration class with approval from the honors director.
- Students interested in international affairs may want to consider the Global Studies Residential Academic Program offered through the residence halls. See Residential Academic Programs for information.

The specific courses that may be counted to meet the requirements in this program are determined by the committee on international affairs and the dean of the College of Arts and Sciences.

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in international affairs, students should meet the following requirements:

- Declare the major by the beginning of the second semester
- Begin language study by the third semester
- Complete the lower-division requirements by the end of the sophomore year
- Begin area of geographic concentration courses in first semester of the junior year
- Begin upper-division general international affairs requirements in the first semester of the junior year
- Successfully complete any remaining major requirements by the end of the eighth semester

## Certificate Program(s)

### Certificate in International Media

An International Media Certificate is available to students of international affairs or journalism. This certificate allows students majoring in international affairs to explore careers in international reporting, advertising and entertainment, while journalism majors will acquire the context and perspective necessary to work in global and international jobs.

The certificate requires 24–25 credit hours (depending on the lower-division courses chosen). Fifteen of the credit hours must be upper-division courses. Students majoring in international affairs are eligible to apply for admission to the certificate program if they have completed 30 credit hours and 6 credits of courses in their major with a GPA of 2.75 or better. For more information consult [iafs.colorado.edu](http://iafs.colorado.edu).

### Certificate in Global Environmental Affairs (GEA)

The Certificate in Global Environmental Affairs is offered jointly by the Program in International Affairs (IAFS) and the Program in Environmental Studies (ENVS). This certificate is open to all majors at CU-Boulder, and it draws upon courses and interdisciplinary expertise in both IAFS and ENVS. This certificate links and develops knowledge of global environmental policies and practices. For IAFS and ENVS students, it will provide additional value for the two interdisciplinary majors.

The certificate requires 19-20 credits (depending on the courses chosen). For more details and application information see [colorado.edu/iafs](http://colorado.edu/iafs).



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## Jewish Studies

The Program in Jewish Studies explores Jewish culture, history, society and thought from a broad, interdisciplinary perspective. The program reflects the core goals of Colorado's flagship university: to provide an outstanding liberal arts education, to foster critical thought and to instill a keen appreciation of humanity's interrelatedness and diversity. At its core, the major trains students to be global citizens by studying the world's oldest global people.

With a major in Jewish Studies, students will develop fundamental skills in critical thinking, comparative analysis, oral and written expression and a well-rounded perspective of the diversity of the Jewish experience. CU-Boulder's major in Jewish Studies is designed to encourage students to explore all facets of Jewish life in the context of the larger global society. With internationally acclaimed faculty engaged in cutting-edge research and opportunities to study with leading artists, scholars and professionals working in the field of Jewish Studies, the program offers an innovative and contemporary curriculum designed to provide a strong foundation in cultural education and to connect Jewish thought and text to action and people's lives.

As a major, students will have the opportunity to take courses that explore Jewish history, modern Jewish experience in a variety of countries and cultures, Jewish literature and secular Jewish societies. Courses are offered on a wide array of topics and issues including Jewish culture, the history of the Arab/Israeli conflict, the Holocaust, gender and sexuality in Judaism, Israeli literature, the history of Yiddish culture and cultures of Israel and Palestine. The study of Jewish culture, society, history and religion is, by its nature, comparative. This program offers many cross-listed classes with other departments on campus to facilitate a well-rounded learning experience. **The program is open to students of all backgrounds.**

**Course code for this program is JWST.**

### Bachelor's Degree Program(s)

## Bachelor of Arts in Jewish Studies

In addition to the general requirements of the College of Arts and Sciences, students must complete 36 credit hours of Jewish Studies requirements, of which 18 credit hours must be upper division (3000/4000 level) courses. A grade of C- or better must be received in all Jewish studies courses used to satisfy the major requirements, with an overall average of 2.00 in the major. No more than 6 credit hours may be taken in independent study. No *pass/fail* graded courses may satisfy the 36-semester-hour minimum requirement. Many courses also satisfy university core curriculum requirements. For more information on the core curriculum, visit [colorado.edu/artsscience/students/undergraduates/core\\_curriculum.html](http://colorado.edu/artsscience/students/undergraduates/core_curriculum.html).

### Required Courses (6 credit hours)

- JWST/HEBR 2350 Introduction to Jewish Culture—3

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  - Comparative Literature
  - Computer Science
  - Distributed Studies

- JWST 4000 Methods in Jewish Studies (Senior Capstone)—3

### Language Requirement

Three years of university level language training or demonstrated equivalent proficiency in Hebrew (modern or Biblical) or another language that is to be used in the Jewish Studies capstone project (JWST4000). Examples include Russian, French, German Arabic or Spanish.

**Language must be approved by major advisor.**

**Completion of at least two (6 credit hours) of the following courses, all courses are highly recommended:**

- JWST/HIST 1818 Introduction to Jewish History, Bible to 1492—3
- JWST/HIST 1828 Introduction to Jewish History since 1492—3
- JWST/HEBR 2551 World Jewish Literature—3
- JWST/RLST 3100 Judaism—3
- JWST/IAFS 3600 Global Secular Jewish Societies—3

**Optional but highly recommended:**

- JWST 3930 Internship in Jewish Studies—3

12–24 remaining credit hours, of which at least eight must be upper division (3000-4000 level), taken from among the following list or additional course by approval of major advisor:

### Lower Division

- JWST/RLST 2600 Judaism, Christianity, Islam—3
- JWST/GRMN 2502 Representing the Holocaust—3
- HEBR 1030 Biblical Hebrew—3
- HEBR 1040 Biblical Hebrew—3
- HEBR 2121 Intermediate Hebrew—4
- HUMN/GRMN 2601 Kafkaesque—3

NOTE : The first three semesters of modern Hebrew (or any equivalent language being used in the required capstone course JWST4000) do not count as credits toward the major.

### Upper Division

- JWST/HEBR 3202 Women, Gender and Sexuality in Jewish Texts and Traditions—3
- JWST/ENGL 3312 The Bible as Literature—3
- JWST/GRMN 3501 German Jewish Writers—3
- JWST/IAFS 3610 Topics in International Affairs and Jewish Studies—3
- JWST/IAFS 3650 Arab–Israeli Conflict—3
- JWST/ENGL 3677 American Jewish Writers—3
- JWST/ANTH 4050 Topics in Jewish Anthropology—3
- JWST/HEBR 4101 Topics in Hebrew Literature—3
- JWST/RLST 4260 Topics in Judaism—3

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- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

- JWST/HEBR 4301 Venice: The Cradle of European Jewish Culture—3
- JWST 4302 Justice, Human Rights and Democracy in Israel—3
- JWST/HIST 4338 History of Modern Israel—3
- JWST/HIST 4348 Topics: World Areas in Jewish History—3
- JWST/HIST 4349 History of Jews under Islam—3
- JWST/HIST 4454 Jewish Intellectual History—3
- JWST/HIST 4544 History of Yiddish Culture—3
- JWST/ANTH 4580 The Holocaust—3
- JWST/HIST 4803 Topics: European Jewish History—3
- JWST/HIST 4804 Modern European Jewish History—3
- JWST/HIST 4827 Modern American Jewish History—3
- HEBR 3010 Third-Year Hebrew, First Semester—3
- HEBR 3020 Third-Year Hebrew, Second Semester—3
- HIST 4433 Nazi Germany—3
- WRTG 3020 After the Holocaust—3

## Minor Programs

Minors are offered in Jewish Studies and Hebrew and Israel Studies. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school. A grade of C- or better must be received in all courses used to satisfy the minor requirements. For more information visit [www.colorado.edu/jewishstudies/academics/major-minors-jewish-studies](http://www.colorado.edu/jewishstudies/academics/major-minors-jewish-studies).

### Minor in Jewish Studies (18 credit hours)

- Complete JWST/HIST 1818 Introduction to Jewish History, Bible to 1492 or JWST/HIST 1828 Introduction to Jewish History since 1492—3
- JWST/HEBR 2350 Introduction to Jewish Culture—3
- Four upper-division (12 credit hours at 3000-4000 level) Jewish Studies courses from the following list or by approval of advisor:
  - JWST/HEBR 3202 Women, Gender and Sexuality in Jewish Texts and Traditions
  - JWST/ENGL 3312 The Bible as Literature
  - JWST/GRMN 3501 German Jewish Writers
  - JWST/IAFS 3600 Global Secular Jewish Societies
  - JWST/IAFS 3610 Topics in International Affairs and Jewish Studies
  - JWST/IAFS 3650 Arab-Israeli Conflict
  - JWST/ENGL 3677 American Jewish Writers
  - JWST 3930 Internship in Jewish Studies (not repeatable for minor)
  - JWST/ANTH 4050 Topics in Jewish Anthropology: Cultures of Israel and Palestine
  - JWST/ANTH 4050 Topics in Jewish Anthropology: World of Hidden Jews
  - JWST/HEBR 4101 Topics in Hebrew Literature
  - JWST/RLST 4260 Topics in Judaism
  - JWST/HIST 4338 History of Modern Israel
  - JWST/HIST 4348 Topics: World Areas in Jewish History
  - JWST/HIST 4349 History of Jews Under Islam
  - JWST/HIST 4454 Jewish Intellectual History
  - JWST/HIST 4544 History of Yiddish Culture
  - JWST/ANTH 4580 The Holocaust
  - JWST/HIST 4803 Topics: European Jewish History

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JWST/HIST 4804 Modern European Jewish History  
JWST/HIST 4827 Modern American Jewish History  
HIST 4433 Nazi Germany  
WRTG 3020 After the Holocaust

## Minor in Hebrew and Israel Studies (19 credit hours)

- Modern Hebrew Language (10 credit hours minimum above the 2010 Intermediate Hebrew level)  
HEBR 2120 Intermediate Hebrew, second semester—4  
HEBR 3010 Advanced Hebrew, first semester—3  
HEBR 3020 Advance Hebrew, second semester—3
- JWST/HEBR 2350 Introduction to Jewish Culture—3
- Two of the following (or course approved by advisor) Hebrew/Israel Studies courses (6 credit hours):  
JWST/ANTH 4050 Topics in Jewish Anthropology: Cultures of Israel and Palestine  
JWST/IAFS 3650 Arab-Israeli Conflict  
JWST/HEBR 4101 Topics in Hebrew Studies: Israeli Literature  
JWST/HIST 4338 History of Modern Israel

The Program in Jewish Studies is growing rapidly and new courses are continually being added. Visit [www.colorado.edu/jewishstudies](http://www.colorado.edu/jewishstudies) for the most current course information.

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# Lesbian, Gay, Bisexual, Transgender and Queer Studies

The Lesbian, Gay, Bisexual, Transgender and Queer Studies certificate program is designed to help students develop a social, historical and cross-cultural understanding of gender and sexuality. By exploring the historical and contemporary experiences of lesbians, gay men, bisexuals and transgender people, the courses in the program encourage students to think critically about the function of sexuality and gender in the world around them. In doing so, students will be able to analyze the relationships between queer and normative sexualities and gender identities.

By developing an understanding of diverse sexual and gender identities, certificate program students apply the meaning and function of sexuality to a broad range of historical and contemporary institutions and societies.

Open to any student in the university, this interdisciplinary program consists of two required courses and a number of relevant courses offered by different departments.

For more information about the LGBTQ Studies certificate program, visit the program's website [lgbt.colorado.edu](http://lgbt.colorado.edu) or call **303-492-8923**.

**Course code for this program is LGBT.**

## Certificate Program(s)

### Certificate in Lesbian, Gay, Bisexual, Transgender and Queer Studies

Completion of the Certificate in LGBTQ Studies requires 18 credit hours (9 upper division) of study including:

- LGBT 2000 Introduction to LGBT Studies
- LGBT 3796 Queer Theory
- 12 additional hours of approved elective courses, with at least 6 hours of upper-division electives

Approved elective courses are listed on the program website each semester. Students are encouraged to meet with the program directors early in their course of study and again in the semester prior to the semester of graduation, to ensure that program requirements are met.

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## Linguistics

Linguistics is the study of all aspects of human language: how languages make it possible to transmit ideas and feelings; how and why languages are similar and different; how we develop different styles and dialects; what will be required for computers to understand and produce spoken language; and how languages are used in everyday communication as well as in formal settings. Linguists try to figure out what it is that speakers know and do by observing the structure of languages, the way children learn language, slips of the tongue, conversations, storytelling, the acoustics of sound waves and the way people's brains react when they hear speech or read. Linguists also reconstruct prehistoric languages, and try to deduce the principles behind their evolution into the thousands of languages of the world today.

The major in linguistics is useful for careers involving cognitive science, computer science, psychology, international business, language teaching, advertising, publishing, law and documentation. Double majors and minors are encouraged with language, computer science, psychology, communication, sociology, anthropology, international affairs, philosophy and education.

The core of the major is a set of courses, taught in the Department of Linguistics, on the nature of language. In addition, the major requires language courses offered by other departments (except for fluent speakers of languages other than English).

The undergraduate degree in linguistics emphasizes knowledge and awareness of:

- the fundamental architecture of language in the domains of phonetics and phonology, morphology and syntax and semantics and pragmatics;
- the diversity of languages structures;
- the main interactions between language, culture and society, including the role of language as a cultural institution and the social functions of language diversity; and
- the approaches to the study of language that are used by a discipline other than linguistics.

In addition, students completing the degree in linguistics are expected to acquire the ability and skills to:

- demonstrate proficiency in a second language equivalent to the third-year university level;
- infer language structures from the analysis of data from unfamiliar languages; and
- give coherent general interpretations of common language phenomena in terms of language structure and language use.

**Course codes for this program are LING and ESLG.**

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# Bachelor's Degree in Linguistics

Majors in linguistics must complete a total of 32 hours of study in general linguistics, including 5 in a natural language (for exceptions, see below). Language study is taken in other departments.

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below.

## *Required Courses and Semester Credit Hours*

Complete the following courses in general linguistics with grades of C- or better:

- LING 2000 Introduction to Linguistics—3
- LING 3100 Language Sound Structures—3
- LING 3430 Semantics—3
- LING 4420 Morphology and Syntax—3

**Natural Language.** Students must complete with a grade of C- (2.00) or better a minimum of 5 credit hours of study of a natural language other than English (including signed languages used by deaf communities). The 5 credit hours offered in satisfaction of this requirement must be at the 3000 level or above for widely-taught languages (French, German, Latin, Spanish), or at the 2000 level or above for less-widely-taught languages (Arabic, American Sign Language, Chinese, Farsi, Greek, Hebrew, Hindi, Indonesian, Italian, Japanese, Korean, Norwegian, Portuguese, Russian, Swedish). Only courses taught in the language in question, and focused specifically on language learning, may be used for this requirement. A list of all the approved courses is available from the Department of Linguistics or the departmental undergraduate advisor. The natural language requirement may be satisfied by examination or waived for foreign students whose native language is not English; in these cases, students must still meet the college minimum major requirement of 18 credit hours of upper-division course work and 30 credit hours overall in the major. Students who wish to have their language requirement waived must obtain the consent of an undergraduate advisor before registering for the fall term of the junior year.

**Electives.** A minimum of 15 elective hours must be completed with a grade of C- (2.00) or better. Courses may be chosen from the following:

- FREN 3020 French Phonetics through Musical Performance—3
- FREN 3010 French Phonetics and Pronunciation—3
- JPNS 4030 Japanese Syntax—3
- JPNS 4080 Kanji in Japanese Orthography—3
- JPNS 4070 Second Language Acquisition of Japanese—3
- LING 1000 Language in U.S. Society—3
- LING 1010 Study of Words—3
- LING 1020 Languages of the World—3
- LING 2400 Language and Gender—3
- LING 3005 Cognitive Science—3
- LING 3220 American Indian Languages—3
- LING 3500 Language/Public Interest—3

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- Peace and Conflict Studies
- Philosophy
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- Political Science
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- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

## LING 3545 World Language Policies—3

- LING 3800 Special Topics in Linguistics—3
- LING 4100 Perspectives on Language—3
- LING 4220 Language and Mind—3
- LING 4225 Learning Languages in the World—3
- LING 4450 Introduction to Formal Syntax—3
- LING 4560 Language Development—3
- LING 4610 English Structure for TESOL—3
- LING 4800 Language and Culture—3

Other upper-division linguistics courses may also be chosen if available; graduate courses may be taken with permission of the department.

The department recommends that prospective majors complete LING 2000 and at least two 1000-level foreign language courses (in the same language) by the end of the sophomore year, unless the student's foreign language proficiency is already advanced.

The fall semester of the junior year should include LING 3430, a 2000-level foreign language course, and a linguistics elective or LING 4420. It must also include LING 2000 if that was not taken earlier. The spring semester of the junior year should include LING 3100, a linguistics elective and a further 2000-level foreign language course (if needed to prepare the student for the required upper-division foreign language hours).

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of "adequate progress" as it is used here refers only to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in linguistics, students should meet the following requirements:

- Declare linguistics as a major by the beginning of the second semester.
- Complete two semesters of study of a natural (spoken or signed) language other than English by the end of the sophomore year (fourth semester) at the latest, continue study at the 2000 level during the junior year at the latest, and take 5 credit hours at the 3000 level during the senior year (seventh and eighth semesters) at the latest. The language requirement is waived for native speakers of a language other than English, but if it is waived, 6 additional upper-division credit hours in linguistics must be taken.
- Take LING 2000 (required) and LING 1000 or LING 2400 (electives) during the freshman or sophomore years and one or both of LING 3430 or 4420 during the fall of the junior year.
- Take LING 3100 and an upper-division linguistics elective in the spring of the junior year. Take the remaining courses as needed during the junior or senior year.

*Note: A linguistics major who has been excluded from any upper-division linguistics course due to enrollment limitations will be given first preference for a seat in that course the following year if the exclusion is made known to the department staff within two weeks after it occurs. No declared linguistics major who still needs LING 2000 for fall of the junior year and attempts to register for it during the regular registration period for continuing students (spring of the sophomore year) will be excluded from the course.*

## Study Abroad

Language study and some courses in the major may be completed in university or university-

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affiliated study abroad programs, and such study is recommended. Students interested in doing part of their major work in a study abroad program should discuss the matter with their advisor before going abroad. For information on study abroad programs, consult the Office of International Education.

## Graduation with Honors

The honors program in linguistics offers the opportunity for highly motivated undergraduates to undertake a deeper and more individualized study of linguistics than is provided by the regular BA curriculum. Linguistics majors with an overall grade point average of 3.30 or higher are eligible to participate in the program. Honors that may be earned are cum laude (with honors), magna cum laude (with high honors), and summa cum laude (with highest honors).

Students interested in pursuing departmental honors are encouraged to consult with the departmental honors advisor by the beginning of their junior year to ensure that they will be able to meet the requirements for departmental honors before graduation.

## Minor Program

A minor is offered in linguistics. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school.

Students minoring in linguistics must complete a total of 18 credit hours in linguistics, 9 of which must be at the upper-division level. They must maintain an overall and a linguistics GPA of at least 2.00 (C), and complete all LING courses with a C- or better.

### *Required Course and Semester Credit Hours*

- LING 2000 Introduction to Linguistics—3

Complete 2 of the following:

- LING 3100 Sound Structure—3
- LING 3430 Semantics—3
- LING 4420 Morphology and Syntax—3

Take the remaining one of the three courses listed above and/or choose from the following electives to bring the total credit hours to 18:

- LING 1000 Language in U.S. Society—3
- LING 1010 The Study of Words—3
- LING 1020 Languages of the World—3
- LING 2400 Language and Gender—3
- LING 3005 Cognitive Science—3
- LING 3220 American Indian Languages—3
- LING 3500 Language and the Public Interest—3
- LING 3545 World Language Rights and Policies—3
- LING 3800 Special Topics in Linguistics—3
- LING 4100 Perspectives on Language—3
- LING 4220 Language and Mind—3
- LING 4225 Learning Languages in the World—3

- LING 4450 Introduction to Formal Syntax—3
- LING 4560 Language Development—3
- LING 4610 English Structure for TESOL—3
- LING 4800 Language and Culture—3

*NOTE: At least 3 credit hours of the electives must be an upper-division course.*

## Concurrent Bachelor's/Master's Program

### Concurrent BA/MA in Linguistics

The department has a five-year concurrent bachelor's and master's degree program, which is recommended only for the most serious and able graduate students. For further information, see the graduate advisor in the spring of the sophomore year or during the first week of the fall semester of the junior year.

## Graduate Degree Program(s)

### Graduate Study in Linguistics

Students wishing to pursue graduate work in linguistics should carefully read Requirements for Advanced Degrees in the Graduate School section of this catalog and the detailed degree requirements available from the department office. A brief summary of MA and PhD requirements follow.

**Prerequisites.** Applicants should hold a recognized baccalaureate degree. They should have considerable knowledge of a language other than their native language. This knowledge may have been gained by formal study or by use of the language in a country, community or institution where it is the usual means of communication. The department may require formal study of a foreign language by graduate students whose proficiency in this area is less than the equivalent of the college junior level. GRE scores are required from United States residents; scores are also required from native speakers of English who wish to be considered for fellowship aid. TOEFL scores are normally required from foreign applicants.

See copy below for graduate Certificate in Culture, Language and Social Practice (CLASP)

## Master's Degree

The master's degree calls for a minimum of three semesters of study, though four semesters is usual. Students must complete LING 5030 Linguistic Phonetics, LING 5410 Phonology, LING 5420 Morphology and Syntax, LING 5430 Semantics and Pragmatics and LING 5570 Introduction to Diachronic Linguistics.

The remaining courses are normally taken at the 5000-level or above. Students in Plan I (thesis) must complete a total of 30 semester hours, including 4–6 thesis hours. Students in Plan II (nonthesis) must complete a total of 30 semester hours of course work. All students must pass a comprehensive written examination covering general topics in linguistics plus the thesis topic if any.

The MA in linguistics for TESOL professionals is a graduate program in linguistics. The MA will provide a cohesive, professionally oriented program addressing the increased demand for professionalization in the field of teaching English as a second language. The program requires completion of 30 credit hours: 12 in graduate linguistics course, 12 in required TESOL courses, a 3-credit practicum, and a 3-credit elective course. A comprehensive examination and teaching portfolio are required.

## Doctoral Degree

To be admitted to the PhD program, students must have completed course work equivalent to LING 5030 Linguistic Phonetics, LING 5410 Phonology, LING 5420 Morphology and Syntax, LING 5430 Semantics and Pragmatics, LING 5570 Introduction to Diachronic Linguistics and LING 6450 Syntactic Analysis. Students who do not have this preparation may be admitted to the MA program. They may apply for admission to the PhD program when these requirements are close to completion. Students may be admitted to the PhD program before finishing the MA.

In addition to phonology, syntax, semantics and pragmatics, the department offers specializations in sociolinguistics, conversation analysis, historical linguistics, typological comparison, Amerindian linguistics, African linguistics, linguistic anthropology, psycholinguistics, neurolinguistics, language development, cognitive linguistics and computational modeling of language knowledge. Students should select a specialization and begin their own research as early as possible.

- Thirty hours of course work are normally required for the PhD.
- Four linguistics courses are required at the 6000 level or above: LING 6450 Syntactic Analysis, LING 7100 Field Methods 1 and any two of LING 7030 Phonetic Theory, LING 7410 Phonological Theory, LING 7420 Syntactic Theory, LING 7430 Semantic Theory or LING 7570 Diachronic Theory.
- The remaining six courses may include up to four courses in other departments appropriate to the specialization.
- All PhD students must demonstrate the ability to read linguistic literature in a language other than English.

As a PhD preliminary examination, students submit a data-based research paper at the beginning of the second year in the PhD program. The university comprehensive examination requirement is completed in two steps: the completion of a synthesis paper followed by the defense of a dissertation prospectus.

## Certificate Program(s)

### Graduate Certificate in Culture, Language and Social Practice (CLASP)

The University of Colorado Boulder is home to the Program in Culture, Language and Social Practice (CLASP). This program provides an interdisciplinary forum on language and society for CU students and faculty. This is facilitated through regular colloquia on the subject of language and society, as well as a diverse curriculum of courses offered toward the CLASP Graduate Certificate.

The CLASP program brings cohesion to empirical and theoretical research currently conducted on campus in varied analytic traditions that focus on the study of culture, language and social practice. These traditions include sociolinguistics, linguistic anthropology, literacy, bilingualism, second language acquisition, language endangerment and revitalization, narrative studies, symbolic interactionism, language variation and change, ethnography of speaking and diverse forms of discourse analysis, such as conversation analysis, critical discourse analysis, interactional sociolinguistics and multimodal discourse analysis.

The program currently has over twenty affiliated faculty members from a variety of schools and departments, among them anthropology, communication, education, French and Italian, German and Slavic, linguistics, political science, Spanish and Portuguese, sociology and speech, language and hearing science.

More information on the application process and program requirements can be found on the CLASP program website at [www.colorado.edu/clasp](http://www.colorado.edu/clasp).

## Graduate Certificate in Human Language Technology (HLT)

For information on this interdisciplinary certificate, see [Cognitive Science Studies](#).

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# Mathematics

The undergraduate degree in mathematics emphasizes knowledge and awareness of:

- basic real analysis of one variable;
- calculus of several variables and vector analysis;
- basic linear algebra and the theory of vector spaces;
- the structure of mathematical proofs and definitions; and
- at least one additional specialized area of mathematics.

In addition, students completing a degree in mathematics are expected to acquire the ability and skills to:

- move from concrete to abstract thinking and back with facility;
- recognize patterns and connections between areas of mathematics and between mathematics and other subjects;
- organize and construct a logical argument, provide evidence to support arguments and articulate arguments clearly and succinctly, both verbally and in writing.

**Course code for this program is MATH.**

## Bachelor's Degree Program(s)

### Bachelor's Degree in Mathematics

The Department of Mathematics offers four tracks leading to a BA in mathematics. To earn a BA in mathematics, a student must complete the general requirements of the College of Arts and Sciences as well as the six mathematics core courses and the five additional courses for one of the four tracks (described below). Students must earn a grade of C- or better in each of the mathematics core courses and the five additional courses, and have at least a C average for all attempted work in mathematics.

### Mathematics Core (required of all mathematics majors)

#### *Required Courses and Semester Credit Hours*

- Calculus 1 (e.g., MATH 1300, MATH 1310 or APPM 1350)—4-5
- Calculus 2 (e.g., MATH 2300 or APPM 1360)—4-5
- Calculus 3 (e.g., MATH 2400 or APPM 2350)—4
- MATH 2001 Introduction to Discrete Mathematics—3
- MATH 3001 Analysis 1—3

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  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

- MATH 3130 Introduction to Linear Algebra—3

## Comprehensive Track

Aimed at students seeking a general background in mathematics or intending to pursue graduate work in mathematics.

### Additional Courses Required

- MATH 3140 Abstract Algebra 1—3
- One of MATH 4140 Abstract Algebra 2 or MATH 4001 Analysis 2—3
- Plus 3 upper-division MATH or approved APPM courses (at least one at the 4000-level)—9

## Applicable Track

Aimed at students seeking a background in applied and/or applicable mathematics.

### Additional Courses Required

- MATH 4510 Introduction to Probability Theory—3
- MATH 3430 Introduction to Ordinary Differential Equations—3
- One of MATH 4520 Mathematical Statistics or MATH 4470 Partial Differential Equations 1—3
- Plus two upper-division MATH or approved APPM courses—6

## Secondary Education Track

Aimed at students intending to teach mathematics at the secondary level.

### Additional Courses Required

- MATH 3110 Introduction to the Theory of Numbers or MATH 3140 Abstract Algebra 1—3
- MATH 3120 Functions and Modeling—3
- MATH 3210 Euclidean and Non-Euclidean Geometry 1—3
- MATH 3510 Introduction to Probability and Statistics—3
- MATH 4820 History of Mathematical Ideas—3

*NOTE: Completion of the Secondary Education Track does not provide the student a teaching license. For information about the secondary education teaching licensure program, see the School of Education section.*

## Computational Track

Aimed at students interested in both mathematics and computation.

### Additional Courses Required

- CSCI 1300 Computer Science 1: Programming—3
- CSCI 2270 Computer Science 2: Programming—3
- CSCI 3104 Algorithms—3
- MATH/APPM 4650 Intermediate Numerical Analysis 1—3
- Plus three MATH or approved APPM or approved CSCI courses, at least one of which must

### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics

### • Mathematics

- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

be at the 4000-level. At most one of these courses may be a computer science course—9

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress,” as it is used here, refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in mathematics, students in each of the four tracks should meet the following requirements.

### Comprehensive Track

- Declare major by the beginning of the second semester.
- Complete Calculus 1, Calculus 2, Calculus 3, MATH 2001, 3001 and 3130 by the end of the fourth semester.
- Complete MATH 3140, 4140, or 4001 and one additional approved MATH or APPM course by the end of the sixth semester.
- Complete the major by the end of the eighth semester.

### Applicable Track

- Declare major by the beginning of the second semester.
- Complete Calculus 1, Calculus 2, Calculus 3, MATH 2001, 3001 and 3130 by the end of the fourth semester.
- Complete MATH 4510 and 3430 and either MATH 4520 or 4470 by the end of the sixth semester.
- Complete the major by the end of the eighth semester.

### Secondary Education Track

- Declare major by the beginning of the second semester.
- Complete Calculus 1, Calculus 2, Calculus 3, MATH 2001, 3001, 3120 and 3130 by the end of the fourth semester.
- Complete MATH 3510 and 3210 and either MATH 3110 or 3140 by the end of the sixth semester.
- Complete the major by taking MATH 4820 by the end of the eighth semester.

### Computational Track

- Declare major by beginning of the second semester.
- Complete Computer Science 1, Computer Science 2, Calculus 1, Calculus 2, Calculus 3, MATH 2001, 3001 and 3130 by the end of the fourth semester.
- Complete CSCI 3104 Algorithms, MATH/APPM 4650 and one of the additionally required upper-division MATH classes by the end of the sixth semester.
- Complete the major by the end of the eighth semester.

## Minor Program

A minor is offered in mathematics. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school. To earn a minor in mathematics, students must complete the following courses with a grade of C- or better in each course, and they must have at least a C (2.00) average for all attempted work in mathematics.

- Calculus 1 (e.g., MATH 1300 or APPM 1350)—4-5

#### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

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- Calculus 2 (e.g., MATH 2300 or APPM 1360)—4-5
- Calculus 3 (e.g., MATH 2400 or APPM 2350)—4
- MATH 2001 Introduction to Discrete Mathematics—3
- MATH 3130 Introduction to Linear Algebra—3
- Plus two upper-division MATH courses (at least one at the 4000-level)—6

## Graduate Degree Program(s)

### Graduate Study in Mathematics

The Department of Mathematics offers programs leading to the degrees MA or PhD in mathematics and MS in applied mathematics. Students interested in any of these programs should read carefully the materials describing the university requirements in the Graduate School section. The student is responsible for satisfying these requirements at the proper time.

Applicants must have demonstrated mathematical maturity and accomplishment roughly at the level of a successful mathematics major at CU-Boulder. Applicants must also demonstrate mathematical potential: success in courses in advanced calculus and abstract algebra help demonstrate this potential. General and Mathematics GRE subject scores are required for PhD students.

The basic requirements for the various degrees are summarized here, and full details are available in the department office or online at [www.colorado.edu/math/graduate/graduate-info.html](http://www.colorado.edu/math/graduate/graduate-info.html). For fulfillment of all course requirements, mathematics courses must be numbered 5000 or higher excluding MATH 5820.

### Master's Degree in Mathematics

- All master's degree students must complete 30 hours of approved credit. At least 24 hours must be completed at the 5000 level or above. A maximum of six credit hours may be completed at the 3000 or 4000 level if approved by the department.
- All master's degree students must take two two-semester sequences.
- To earn an MA or MS degree, a student must pass a master's examination based on the particular program of the student.
- For the MA or MS degree in mathematics, students can pursue a "thesis option," which requires 4–6 credit hours of thesis work, and a thesis defense.
- For the MS degree in applied mathematics, 6–12 credit hours must be in an approved minor program outside the mathematics department, and at least 18 credit hours must be approved inside the mathematics department.

### Doctoral Degree in Mathematics

Before being admitted to candidacy for the PhD degree in mathematics, a student must take two graduate courses each in algebra, real analysis and geometry/topology en route to passing two out of three preliminary exams in these fields. In addition, the student must take a course in complex analysis. The student must then pass a comprehensive exam. The basic requirements for a PhD degree in mathematics are as follows:

- Complete at least 30 credit hours of approved graduate coursework and 30 credit hours of thesis work
- Prepare a written thesis that contains substantial original contributions to mathematics
- Successfully complete a final examination.

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## Medieval and Early Modern Studies

To the Middle Ages, the modern world owes the preservation and transmission of Latin and Greek; the development of a host of vernaculars; the evolution of Judaism and Christianity, and the rise of Islam; the renewed study of Roman law; the growth of a mercantile class; the creation of musical notation; the erection of ecclesiastical monuments; the foundations of constitutional government; and the institution of universities. The early modern period inherited and elaborated all these institutions and inventions, adapting them to fit new conceptions of man (and woman), church, and state.

The Center for Medieval and Early Modern Studies is founded on the convictions that the period from c. 400 to c. 1800, conceived in a global context, is a dynamic cultural continuum and ever-evolving system; that study of both periods in tandem sheds new light on each; and that the unity and diversity of the premodern world can be understood and appreciated only from an interdisciplinary perspective. Medieval and Early Modern Studies therefore crosses boundaries of period, nation, language and discipline, and the center's prime function is to facilitate and encourage interdepartmental study and teaching.

Courses throughout the curriculum are available to students whose area of specialization within a given department is the medieval and/or early modern period(s) and who wish to broaden their knowledge of the cultures of the period. With the approval of the major department, a coherent group of these courses may be accepted as a related program of study and as part of the requirements for an undergraduate degree. For additional details concerning these courses, see departmental listings.

For more information, and to inquire about the undergraduate certificate program (*see below*), consult Professor Scott G. Bruce, director, Center for Medieval and Early Modern Studies, Department of History, University of Colorado Boulder, 234 UCB, Boulder, CO 80309-0234, or [cmems@colorado.edu](mailto:cmems@colorado.edu).

**Course code for this program is MEMS.**

### Certificate Program(s)

## Certificate in Medieval and Early Modern Studies

### Requirements (24 hours):

- Lower-division introductory survey (EALL 1011, ARTH 1300/1409, HIST 1010, HUMN 1010/1020)
- Senior-level seminar (MEMS 4030 or equivalent)
- Capstone seminar (MEMS 4020 or equivalent) with a minimum grade of *B*
- Five electives, at least four of which must be upper division
- Two of the above electives must be in disciplines other than the major

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  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
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  - Comparative Literature
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- Substitutions for MEMS 4020 and 4030 may be made the discretion of the MEMS advisor or faculty chair

For more information, and to inquire about the undergraduate certificate program, consult Professor Scott G. Bruce, director, Center for Medieval and Early Modern Studies, Department of History, University of Colorado Boulder, 234 UCB, Boulder, CO 80309-0234, or [cmems@colorado.edu](mailto:cmems@colorado.edu).

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics

#### • **Medieval and Early Modern Studies**

- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
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- Political Science
- Psychology and Neuroscience
- Religious Studies
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- Spanish and Portuguese
- Speech, Language and Hearing

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# Molecular, Cellular and Developmental Biology

The undergraduate degree in molecular, cellular and developmental biology emphasizes knowledge and awareness of:

- the biological sciences in general and detailed understanding of currently important aspects of cellular biology, molecular biology, biochemistry, genetics and developmental biology; and
- the relationship of the specialty area to broader areas of science and to society in general, including ethical issues raised by current biological research and by the rapid growth of biotechnology as an important shaping force for the future.

In addition, students completing the degree in molecular, cellular and developmental biology are expected to acquire the ability and skills to:

- learn detailed laboratory procedures rapidly when the need arises;
- demonstrate a scientific vocabulary and an understanding of research methods that permits the comprehension of articles from current journals, extraction of pertinent information and judgment of the quality of the work described;
- evaluate a biological problem, determine which aspects are understood and apply basic research methods and techniques to the unknown aspects; and
- communicate scientific concepts and analytical arguments clearly and concisely, both orally and in writing.

**Course code for this program is MCDB.**

## Bachelor's Degree Program(s)

### Bachelor's Degree in MCDB

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below.

#### *Required Courses and Semester Credit Hours*

- All required courses must be completed with a C- or better.
- MCDB 1150 Introduction to Molecular Biology and 1151 Introduction to Molecular Biology Laboratory (4 credit hours) (MCDB 1152 is a recommended coseminar for MCDB 1150) See Notes 1 and 2
- MCDB 2150 Principles of Genetics and MCDB 2151 Principles of Genetics Laboratory (4 credit hours) (MCDB 2152 is a recommended coseminar for MCDB 2150) See Notes 3 and

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  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
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  - Computer Science
  - Distributed Studies

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- MCDB 3135 Molecular Cell Biology I—3
- MCDB 3140 Cell Biology Laboratory—2
- MCDB 3145 Molecular Cell Biology II—3
- MCDB Capstone course, Choose 1 of the following: MCDB 4650 Developmental Biology or MCDB 4300 Immunology or MCDB 4777 Molecular Neurobiology (spring 2010)—3
- MCDB Scientific Reasoning Course (See department for approved courses)—3
- An additional 8 hours of MCDB upper division electives (See department for approved courses)—8
- CHEM 1113/1114 or CHEM 1251/1271 General Chemistry 1 lecture and lab—5
- CHEM 1133/1134 or CHEM 1351/1371 General Chemistry 2 lecture and lab—5
- CHEM 3311/3321 or CHEM 3351/3361 Organic Chemistry 1 lecture and lab—5-6
- CHEM 4611 Survey of Biochemistry or CHEM 4711 General Biochemistry I—3-4
- PHYS 1110 or PHYS 2010: Physics 1—4-5 See Note 5
- PHYS 1120 and 1140 or PHYS 2020: Physics 2—5 See Note 5
- Calculus (MATH 1300, 1310 or APPM 1350) or statistics (MATH 2510, EBIO 1010, PSYC 3101 or IPHY 2800)—3-5
- It is strongly recommended that MCDB majors consult with a departmental advisor before applying AP, IB or CLEP credit. Students majoring in MCDB who transfer biology credit from other institutions also must consult a departmental advisor.

**Notes:**

1. EBIO 1210 and 1230, or MCDB 1111 are acceptable alternatives.
2. MCDB 1161 or MCDB 1171 is an acceptable alternative for MCDB 1151
3. MCDB 2161 or MCDB 2171 is an acceptable alternative for MCDB 2151
4. EBIO 2070 is accepted in place of MCDB 2150, but students would still need to take MCDB 2151.
5. PHYS 2010 and 2020 are algebra based. PHYS 1110, 1120 and 1140 are calculus-based and require calculus 1 and 2.

**MCDB Prerequisites Statement**

It is MCDB policy to enforce the course prerequisites listed in the course catalog. If you have not either taken *and passed* (C- or better) the prerequisites for a course, or obtained permission from the instructor or a departmental advisor to take the course based on equivalent preparatory course work or experience here or elsewhere, *you may be administratively dropped from the course.*

**Graduating in Four Years**

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in molecular, cellular and developmental biology, students should meet the following requirements:

- The MCDB major must be started in the first semester for a student to be eligible for guaranteed four-year graduation. Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below. Adequate progress is defined as cumulative completion of at least one-fourth of the required course work for the major during each academic year, including the following specific requirements:

**Program**

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
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- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- **Molecular, Cellular and Developmental Biology**
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language

- Either general chemistry or the introductory MCDB sequence must be completed during the first year.
- General chemistry and the introductory MCDB sequence must both be completed by the end of the second year with a C- or better.
- If the major is not started in the first year, the student must meet with an MCDB academic advisor to ensure that it is still possible to complete the major in 4 years.

## Animal Use Policy

Biology is the science of life, and a major in it must include some hands-on experience with living organisms to be complete. Exercises involving the use of living animals or animal tissues are included, therefore, in MCDB laboratory courses. Majors with objections on moral grounds may arrange to limit their participation in these exercises, although their educational experience is compromised by doing so.

Nonmajors may take MCD biology lecture courses without the accompanying laboratories. Laboratory courses in which living vertebrate animals or tissues are used are identified in the course description section of this catalog. For additional information, please contact the department.

## Graduate Degree Program(s)

### Graduate Study in MCDB

Opportunities for graduate study and original research, leading to the PhD degree, are available in a variety of areas.

**Molecular Biology.** Includes gene regulation, virology, nucleic acid-protein interactions, chromosome structure and function, chromosome replication, microbial diversity, human genome structure, RNA structure and catalysis.

**Cell Biology.** Includes cytoskeleton, biophysical cytology, vacuole assembly, analysis of yeast spindle pole bodies and vertebrate centrosomes, synthesis and secretion of glycoproteins and polysaccharides, defense responses in plants and 3-D high resolution reconstruction, biogenesis of mitochondria and chloroplasts, energy metabolism, assembly of membrane protein complexes, cell cycle regulation and checkpoints and signal transduction.

**Developmental Biology.** Covers mechanisms and regulation of morphogenesis and cell growth, genetic control of development, molecular genetics of embryogenesis, sex determination, ras proteins and vulval development and programmed cell death in nematodes, molecular genetics of *Drosophila* neurobiology, developmental genetics of *Drosophila* and *Caenorhabditis*, neural development in mice, transgenic mice and muscle development and function.

**Genetics.** Includes genetics of human disease, complex traits, mouse development and invertebrate development.

**Entrance Requirements and Prerequisites.** The graduate program of the Department of Molecular, Cellular and Developmental Biology is sufficiently flexible to accommodate students with a wide range of training. Students with bachelor's degrees in any of the biological, biochemical or physical sciences are encouraged to apply. Background necessary for the program includes the equivalent of undergraduate courses in cell biology, developmental biology, genetics, organic chemistry, biochemistry, chemical thermodynamics, differential and integral calculus and general physics. Students accepted with deficiencies may demonstrate mastery of the required areas by taking appropriate undergraduate courses, by passing

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- Western American Studies
- Western Civilization Studies
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advanced-standing examinations or by successfully completing graduate-level courses that require the undergraduate courses as prerequisites. Students admitted generally have independent research experience.

**Areas of Study.** All students are expected to develop competence in five areas: biochemistry, genetics, cell structure and function, developmental systems and mechanisms and current research techniques of experimental biology. Students also are expected to develop their abilities as independent investigators who identify important questions in biology and design experiments to address those questions.

## Master's Program

In view of the strong research orientation of the fields involved, the department does not accept applications from students seeking the MA as a terminal degree. The master's of arts degree, either with a thesis (Plan I) or without (Plan II), is awarded under special circumstances.

Candidates must pass the preliminary examination and a comprehensive final examination. For Plan I a thesis based on original research must be submitted. Final determination of whether a student follows Plan I or Plan II is made by the department.

## Doctoral Degree

**Course of Study.** The faculty of the department offers a variety of courses to help graduate students acquire knowledge in the various areas of study. Further, students are required to work in at least three different laboratories to broaden their education and to help them identify the field of greatest interest for their thesis work.

**Examination Sequence.** An advisory committee, appointed upon entrance, develops an appropriate curriculum based in part on the student's background. A written preliminary exam consists of a series of courses and exams administered during the first year. A comprehensive qualifying exam administered at the beginning of the spring semester of the second year includes a written research proposal and an oral defense of the proposal that emphasizes breadth and depth of knowledge as well as an ability to communicate and synthesize facts into a coherent scientific argument.

**Language.** The department does not have a language requirement.

**Thesis.** The principal elements in graduate training are defining a thesis problem, investigating this problem with a coherent piece of research that constitutes a substantial contribution to knowledge, and writing a report on this work in the form of peer-reviewed journal articles and a thesis submitted to a departmental committee for approval. After completion of the thesis, each candidate for the PhD degree is required to take a final oral examination on the thesis and related topics, and to present a public seminar.

**Teaching.** Generally, each candidate for the PhD degree does two semesters of apprentice teaching. This obligation is usually met during the student's first year of graduate study.

**Course Requirements.** A minimum of 30 credit hours of courses numbered 5000 and above, plus 30 hours of doctoral thesis, are required. Specific courses depend on the student background and field of specialization.





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## Museum and Field Studies

Museum courses listed in this catalog may be taken with the approval of the student's major department and the course instructor, although no undergraduate major is offered in museum studies.

The interdisciplinary Museum and Field Studies Program leading to a master of science degree is administered by the **University of Colorado Museum of Natural History**, in conjunction with the departments of anthropology; history; art history; ecology and evolutionary biology; and geological sciences; as well as other departments. The program provides a strong background in a chosen field as well as theoretical and practical grounding in museology.

Internships are offered at a variety of museums in the region, including natural history, history and art museums. Students completing the MS are trained as collection managers, curatorial assistants, registrars, museum educators, exhibit technicians and administrators.

**Program Tracks.** Two tracks are available: a collection/field track and an administrative/public track.

- The **collection/field track** offers training for students interested in the curatorial and research aspects of museum work, such as floristic or faunistic studies of the past and present, material culture of the past and present and biological inventory. The curriculum gives students academic training as well as experience in all areas of museum work. Field experience is offered through the curatorial and field practica.
- The **administrative/public track** offers education for students interested in the public aspects of the museum such as program development and evaluation, exhibition planning and design, education and the organization and management of museums. The curriculum offers both academic training in a discipline and hands-on experience with all aspects of the public museum.

**Course code for this program is MUSM.**

### [Graduate Degree Program\(s\)](#)

## Graduate Study in Museum and Field Studies

Graduate training in anthropology, art history, history, botany, entomology, paleontology and zoology is provided under the direction of museum faculty in cooperation with cognate departments and the Museum and Field Studies Program. Areas of study include, but are not limited to:

- anthropological interpretation
- diatom taxonomy, systematics and ecology
- southwestern archaeology and ethnology

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  - Behavioral Genetics
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  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

- plant taxonomy, evolution and phylogeography
- vertebrate paleontology and Cenozoic mammals
- biology of aquatic invertebrates
- systematics and population biology of insects of the Rocky Mountain Region
- plant–insect interactions
- mammalogy

Museum assistantships include support from the Walker Van Riper fund and research support from the Collie and William Henry Burt museum funds. Other financial assistance is available to selected students. Students interested in working toward advanced degrees under the direction of museum faculty should write the University of Colorado Museum of Natural History, Museum and Field Studies, University of Colorado Boulder, 218 UCB, Boulder, CO 80309-0218, e-mail [mfsinfo@colorado.edu](mailto:mfsinfo@colorado.edu), or visit [cumuseum.colorado.edu/graduate-program](http://cumuseum.colorado.edu/graduate-program).

## Master of Science Degree in Museum and Field Studies

**Admission.** Students must meet all university requirements for admission to graduate school and have a baccalaureate degree and at least a *B* (3.00) grade-point average in previous academic work. The baccalaureate degree should be in anthropology, biology, geology, geography, history (including archival studies), classics, fine arts or education, although other majors will be considered. Acceptance to the program is decided by the admissions committee of the University Museum in consultation with the student's department. The student must be accepted by an advisor in his or her discipline. Applicants accepted for graduate work by museum faculty must be admitted to the Graduate School

**Requirements.** The degree in museum and field studies is a two-year program requiring a total of 32 credit hours. Students may choose either the thesis or nonthesis plan. Depending on the track and plan, students complete from 9 to 15 credit hours in a department and from 13 to 22 credit hours in museology courses. A museum internship of 150 hours is required. The thesis plan requires the completion and successful defense of a thesis; the project plan requires the completion of a project and paper.

For current course information, consult the Museum and Field Studies section under the College of Arts and Sciences. For new course or admissions information, write the Museum and Field Studies Program, University of Colorado Museum of Natural History, University of Colorado Boulder, 218 UCB, Boulder, CO 80309-0218; call **303-492-5437**; email [mfsinfo@colorado.edu](mailto:mfsinfo@colorado.edu); or visit [cumuseum.colorado.edu/graduate-program](http://cumuseum.colorado.edu/graduate-program).

### Certificate Program(s)

## Professional Certificate in Museology

Providing professional museum training for CU-Boulder graduate students and for museum professionals who seek to upgrade their skills and credentials, the Professional Certificate in Museology serves a range of disciplines in the arts and sciences, education and engineering, as well as the Colorado museum community.

The curriculum for the professional certificate consists of the core museology sequence for the Museum and Field Studies degree program:

- MUSM 5011 Introduction to Museum Studies
- Three of the following five courses:  
MUSM 5030 Museum Education

### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- **Museum and Field Studies**
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

MUSM 5031 Exhibit Development  
MUSM 5041 Museum Administration  
MUSM 5051 Collections Management  
MUSM 6110 Seminar in Museum Issues

The Professional Certificate in Museology requires a minimum of 12 credit hours. It is supplemented by a 75-hour internship, which may be waived if comparable professional experience is demonstrated.

Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

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Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

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## Psychology and Neuroscience

At the undergraduate level, this department offers a major in psychology and a major and a certificate in neurosciences. Psychology is a broad discipline that seeks to understand human cognition, emotion and behavior. It is also an applied field that is concerned with testing perception, psychopathology, inheritance of complex behavioral traits, mental health, memory and social factors that influence behavior.

Neuroscience is the study of the mechanisms of nervous system—the brain, the spinal cord and networks of sensory nerve cells, or neurons. Neuroscientists work to describe how neural circuits transmit signals and process different types of information. The principles of neuroscience are derived from the application of methods from many scientific disciplines, including molecular and cellular biology, biochemistry, physiology, structure and computational modeling.

Note that no terminal master's degree is offered except for the concurrent BA/MA program in cognitive psychology.

Students contemplating postgraduate education, either in professional or in graduate school, are encouraged to participate in the departmental honors program, which provides special opportunities for individualized attention.

CU-Boulder's Department of Psychology and Neuroscience has been ranked by the National Academy of Sciences as one of the best in the country with respect to the quality of the faculty and their scholarly productivity. Moreover, the department offers undergraduates a wide range of opportunities for involvement in research.

**Course codes for this program are PSYC and NRSC.**

### Bachelor's Degree Program(s)

## Bachelor's Degrees in Psychology and Neuroscience

Students must complete the general requirements of the College of Arts and Sciences and one of the two programs listed below. Additional explanatory notes are available in the department advising office in Muenzinger D243.

### Neuroscience Major

In order to graduate with a degree in neuroscience, the department requires that students fulfill the following course requirements with a grade of C- or better. Additional explanatory notes are available in the department advising office, Muenzinger D243.

The department recommends taking NRSC 2100 and NRSC 2200, the genetics and statistics requirements and the ancillary biology, chemistry and calculus sequences during the first two years of study.

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  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

**Required Courses and Semester Credit Hours**

- NRSC 2100 Introduction to Neuroscience—4
- NRSC 2200 Laboratory Techniques in Neuroscience—2
- Complete one of the following genetics courses: EBIO 2070 Genetics: Molecules to Populations or MCDB 2150 with 2151 or 2161 or 2171 Principles of Genetics with Lab. (Please check all prerequisites and corequisites before enrolling in courses.)—4
- Statistics/computation requirement (complete one of the following):—3-4  
BCOR 1020 Business Statistics  
ECON 3818 Introduction to Statistics with Computer Applications  
IPHY 2800 Introduction to Statistics  
MATH 2510 Introduction to Statistics  
MATH 2520 Introduction to Biometry  
PSYC 3101 Statistics and Research Methods in Psychology (Final semester offered SU 2015)  
PSYC 2111 Psychological Sciences/Statistics (replaces PSYC 3101 starting FA 2015)

**Upper-division Neuroscience Requirements**

- Complete MCDB 3135 Molecular Cell Biology 1—3
- Complete at least three of the following:—9-10  
NRSC 4032 Neurobiology of Learning and Memory  
NRSC 4052 Behavioral Neuroscience  
NRSC 4132 Neuropharmacology  
NRSC 4092 Behavioral Neuroendocrinology  
NRSC 4072 Clinical Neuroscience  
NRSC 4082 Neural Circuits of Learning
- Complete 9 hours of upper-division elective course work by taking additional courses from upper-division requirements above or from the following neuroscience and general science electives with a maximum of 6 hours allowed from courses outside of psychology and neuroscience. (Please check all prerequisites and corequisites before enrolling courses.)  
CHEM 4611 Survey of Biochemistry  
CHEM 4711 General Biochemistry 1  
ECEN 3030 Electrical/Electronic Circuits Non-Major  
ECEN 4120 Neural Network Design  
ECEN 4811 Neural Signals and Functional Brain Imaging  
ECEN 4821 Neural Systems and Physiological Control  
ECEN 4831 Brains, Minds and Computers  
EBIO 3240 Animal Behavior  
IPHY 3410 Human Anatomy  
IPHY 3430 Introduction to Human Physiology  
IPHY 3470 Human Physiology 1  
IPHY 4200 Physiological Genetics and Genomics  
IPHY 4580 Sleep Physiology  
IPHY 4720 Neurophysiology  
MCDB 3140 Cell Biology Lab  
MCDB 3280 Molecular Cell Physiology  
MCDB 4201 From Bench to Bedside: The Role of Science in Medicine  
MCDB 4426 Cell Signaling and Developmental Regulation  
MCDB 4444 Cellular Basis of Disease  
MCDB 4680 Mechanisms of Aging  
NRSC 4011 Senior Thesis

**Program**

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
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- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- **Psychology and Neuroscience**
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

NRSC 4015 Affective Neuroscience  
 NRSC 4062 Neurobiology of Stress  
 PSYC/NRSC 4155 Cognitive Neuroscience/Neuropsychology  
 NRSC 4542 Neurobiology of Mental Illness  
 NRSC 4545 Neurobiology of Addiction  
 PSYC 4021 Psychology and Neuroscience of Exercise  
 PSYC 4142 Brain Injury, Plasticity and Recovery: From Neuron to Behavior  
 NRSC 4561 Special Topics in Neuroscience  
 MCDB 3651 The Brain: Dysfunction to Disease  
 PSYC 4165 Psychology of Perception  
 PSYC 4175 Computational Cognitive Neuroscience

### Ancillary Foundation Courses

- Ancillary molecular biology requirement: EBIO 1210 with 1230 General Biology 1 with Lab or MCDB 1150 with 1151 or 1161 or 1171 Introduction to Cellular and Molecular Biology with Lab—4
- Ancillary calculus requirement: MATH 1300 Analytical Geometry and Calculus 1 or MATH 1310 Calculus, Systems and Modeling—5
- Ancillary general chemistry sequence requirement: CHEM 1113 with 1114 and CHEM 1133 with 1134, General Chemistry 1 and 2 with Labs or CHEM 1251 and 1271 General Chemistry 1 and 2 for Chemistry and Biochemistry Majors or CHEM 1351 and 1371 Honors General Chemistry 1 and 2—10
- Ancillary organic chemistry requirement: CHEM 3311 Organic Chemistry 1 or CHEM 3351 Organic Chemistry 1-4 for BCHM/CHEM majors. Students planning graduate/medical school or work in the biotechnology industry should plan to take CHEM 3331 and CHEM 3341, Organic Chemistry II with Lab-4. Students should verify program requirements for any additional chemistry prerequisites.

### Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of "adequate progress" as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in neuroscience, students should meet the following requirements:

- The neuroscience major must be started in the first semester. Adequate progress is defined as cumulative completion of at least one fourth of the required course work for the major during each academic year, including the following specific requirements: a) The ancillary molecular biology requirement and the genetics requirement must be completed during the first year; b) All ancillary requirements (molecular biology, calculus and general chemistry) and Introduction to Neuroscience and Laboratory Techniques in Neuroscience must be completed by the end of the second year.
- The neuroscience major requires at least 55 hours of required course work. Thus, at least 14 hours must be completed yearly, including timely completion of advanced course prerequisites.
- The four-year guarantee also requires completion of 30 hours of core curriculum courses by the end of the sophomore year. Calculus counts as three hours of QRMS; chemistry and molecular biology count as 13 hours of natural science.

### Psychology Major

In order to graduate with a degree in psychology, the department requires that students fulfill the following course requirements with a grade of C- or better. Additional explanatory notes are

#### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

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available in the department advising office, Muenzinger D243.

The department recommends taking PSYC 1001, 2012, 2145, 2606 and 2111 (formerly 3101) by the end of the sophomore year, and 3111 by the end of the junior year.

**Required Courses and Semester Credit Hours**

- PSYC 1001 General Psychology—3
- PSYC 2012 Biological Psychology—3
- PSYC 2145 Introductory Cognitive Psychology—3
- PSYC 2606 Social Psychology—3
- PSYC 2111 Statistics and Research Methods in Psychology—4 (formerly 3101)
- PSYC 3111 Psychological Sciences II: Research Methods—4
- One of the following:
  - PSYC 3102 Behavioral Genetics—3
  - PSYC 3303 Abnormal Psychology—3
- At least one course from the following upper-division laboratory and methods courses:
  - PSYC 3001 Honors Research Methods Seminar—4
  - PSYC/NRSC 4052 Behavioral Neuroscience—4
  - PSYC 4136 Human Judgment and Decision-Making Lab—4
  - PSYC4744 Methods in Developmental Psychology—4
  - PSYC 4145 Advanced Cognitive Psychology—4
  - PSYC/NRSC 4155 Cognitive Neuroscience/Neuropsychology—4
  - PSYC 4165 Psychology of Perception—4
  - PSYC 4175 Computational Cognitive Neuroscience—4
  - PSYC 4376 Research Methods in Social Psychology—4
  - PSYC 4443 Research Methods in Clinical Psychology—4
  - PSYC 4733 Psychological Testing and Assessment—4
- Additional electives to bring total hours in psychology and neuroscience to at least 34, but not more than 45, of which at least 18 must be upper division. (Students are encouraged to use independent study to gain field or laboratory experience. However, independent study hours are *pass/fail* credit only and cannot be used toward the 34 hours required for graduation.)
- In addition to the course requirements listed above, and the minimum of 34 hours in psychology, the student is required to pass one of the following natural science sequences with a grade of C- or better:
  - CHEM 1011 and 1031 Environmental Chemistry 1 and 2
  - CHEM 1113 and 1133 General Chemistry 1 and 2
  - CHEM 1251 and 1271 General Chemistry 1 and 2 for Chemistry/Biochemistry majors
  - EBIO 1210 and 1220 General Biology 1 and 2 (formerly EPOB 1210 and 1220)
  - MATH 1300 and 2300 Analytical Geometry and Calculus 1 and 2
  - MCDB 1150 and 2150 Introduction to MCD Biology 1 and Principles of Genetics
  - MCDB 1150 and EBIO 1220 Introduction to MCD Biology 1 and General Biology 2
  - PHYS 1110 and 1120 General Physics 1 and 2 (science and engineering majors only)
  - PHYS 2010 and 2020 General Physics 1 and 2
- One of the following MATH courses with a grade of C- or better:
  - MATH 1011 College Algebra
  - MATH 1071 Finite Math
  - MATH 1150 Pre-Calculus
  - MATH 1300 Calculus

NOTE: Transfer students must complete a minimum of 12 upper-division hours of psychology

course work on the Boulder campus with a C- or better. Of those 12 hours, one laboratory and methods course must be included.

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in psychology, students should meet the following requirements:

- Declare the major by the beginning of the second semester
- Complete PSYC 1001, 2012, 2145 and 2606 and natural science sequence during the first two years of study
- Complete the 2-semester sequence of PSYC 2111 (formerly 3101) and PSYC 3111 by the end of the fifth semester
- Complete 3102 or 3303, a 4000-level laboratory and methods course and at least two upper-division PSYC electives during the junior (third) year (if students are unable to enroll in these courses due to oversubscription during the junior year, they will have top enrollment priority the senior year.)
- Complete remaining elective requirements during the senior year.

## Department of Psychology and Neuroscience Prerequisites Statement

It is policy to enforce the course prerequisites listed in the course descriptions. If you have not either taken and passed (C- or better) the prerequisites for a course, or obtained permission from the instructor or a departmental advisor to take the course based on equivalent preparatory course work or experience here or elsewhere, you may be administratively dropped from the course.

## Concurrent Bachelor's/Master's Program

### Concurrent BA/MA Program with Specialization in Cognitive Psychology

A concurrent BA/MA in psychology, with specialization in cognitive psychology, is offered. Both the BA and MA degree must be completed within a five-year period. In recent years, both basic and applied research in cognitive psychology have come to rely increasingly on related findings, theories and methods in other cognitive science disciplines, including philosophy, computer science and linguistics.

The purpose of this degree program is to provide training that prepares students either for continuing doctoral study in cognitive psychology or for technical careers involving cognitive psychology in government and industry. Students complete the requirements for an undergraduate major in psychology, an interdisciplinary undergraduate certificate in cognitive science and a master's degree in the cognitive psychology graduate training program. Because of the demanding nature of this program, only highly qualified students are admitted.

## Graduate Degree Program(s)

### PhD Programs in Psychology and Neuroscience

Students are admitted for graduate studies leading to the PhD in one of five fields: **behavioral genetics, behavioral neuroscience** (including learning and motivation), **clinical, cognitive** and **social psychology**. *Note that no terminal master's degree program is offered.*

The behavioral genetics program focuses on the study of genetic contributions to individual differences in behavior. The fundamental tenet of the behavioral neuroscience program is that a

complete understanding of behavior entails unraveling mechanisms and principles at any and all levels of organization (i.e., behavior, neuroanatomy, neurophysiology, neurochemistry, gene expression and epigenetics). The major training goals of the clinical psychology program follow the Boulder model in that the preparation of scientist-practitioner is stressed. The clinical psychology program is accredited by the American Psychological Association. The Cognitive Psychology and Cognitive Neuroscience PhD Program investigates how humans process information and includes laboratories focusing on perception, attention, learning and memory, reading and language processing, skill acquisition, expertise, categorization, executive control and child development. Researchers use a variety of methods, including behavioral measures, neuroimaging techniques (e.g., fMRI, EEG), computational and mathematical modeling, patient studies and genetic analysis. The program in social psychology trains students to conduct research, either applied or basic, in the fields of social cognition, self-concept development, close relationships and health.

## Requirements for the PhD Degree

All students are admitted with the expectation that they will work toward the PhD degree. Many students receive a master of arts degree in the course of working toward the PhD. Students who receive the PhD degree must demonstrate that they are proficient in some broad subject of learning and that they can critically evaluate work in this field; furthermore, they must show the ability to work independently in their chosen field and must make an original contribution of significance to the advancement of knowledge.

In the first year of graduate study, all psychology graduate students enroll in a two-semester graduate statistical sequence. There is a first-year research requirement that starts the student on an active program of research. The student also must enroll in a sequence of courses designed to give exposure to various research topics and methods.

Before admission to candidacy for the PhD degree, the student must pass a comprehensive examination in the field of concentration and related fields. This examination tests the student mastery of a broad field of knowledge, not merely the formal course work completed.

A variety of advanced research seminars are taught on a regular basis. Students are required to be enrolled in at least one substantive course in the department each semester until the comprehensive examinations have been successfully completed. Upon completing the comprehensives, students engage in the dissertation research, culminating in a public oral defense.

## PhD in Neuroscience

The neuroscience community at the University of Colorado Boulder is made up of over 80 faculty and research associates rostered in 13 departments and institutes. Neuroscience activities on the campus are coordinated by the **Center for Neuroscience**. The University of Colorado at Boulder offers a PhD in Neuroscience, as well as graduate and undergraduate certificates in Neuroscience that can be combined with a variety of majors.

The graduate PhD program in neuroscience is an interdepartmental program currently consisting of eight tracks to a PhD:

- behavioral genetics (psychology);
- behavioral neuroscience (psychology);
- clinical neuroscience (psychology);
- cognitive neuroscience (psychology);
- social neuroscience (psychology);
- integrative physiological neuroscience (integrative physiology);

- molecular, cellular and developmental neuroscience (MCD-biology); or
- speech, language and hearing neurosciences (SLHS).

Students apply for admission to one of the participating departments and their admission to CU-Boulder and financial support are determined by that department. Once in residence, students enter the neuroscience PhD program while still maintaining their “home” in the department to which they were admitted. They receive a PhD that lists both their home department and neuroscience.

The neuroscience curriculum includes a year-long intensive core course, graduate seminar courses linked to an invited speaker series and wide-ranging neurosciences courses offered by many departments and institutes across campus.

Potential applicants are encouraged to visit the neuroscience website, which provides detailed information on the program, application process, courses, faculty and current trainees: [www.colorado.edu/neuroscienceprogram](http://www.colorado.edu/neuroscienceprogram).

## Certificate Program(s)

### Certificate in Neurosciences

The neurosciences certificate program encourages undergraduate students interested in how the brain controls behavior to take courses in the basic sciences while providing the means to specialize in neuroscience. Since this subdiscipline of the biological sciences spans a number of departments at the university (e.g., integrative physiology, psychology and MCD biology), students are encouraged to obtain greater academic breadth through interdepartmental course selection.

To obtain the certificate, a student must satisfy the requirements of a major and the certificate program, and maintain a grade point average of 3.20 or better.

For more information, see [www.colorado.edu/neuroscienceprogram](http://www.colorado.edu/neuroscienceprogram).

### Graduate Certificate in Neuroscience and Behavior

The Graduate Certificate in Neuroscience and Behavior focuses on understanding the nervous system and its relationship to disease and behavior. This understanding encompasses the molecular, cellular and behavioral aspects of neuroscience.

Students come from such graduate programs as ecology and evolutionary biology; behavioral genetics; molecular, cellular and developmental biology; psychology; and integrative physiology. They receive a PhD in their department and a certificate in neuroscience.

The neuroscience core curriculum includes courses in the following areas: neuroscience methods laboratory, neuroanatomy (PSYC 5263), neurochemistry or neuropharmacology (e.g., PSYC 5062, PSYC 5132), neurophysiology or systems neuroscience (e.g., PSYC 5042, EPOB 5190), behavioral neuroscience or animal behavior (e.g., EPOB 5240, KINE 5610, PSYC—to be developed), molecular neuroscience or molecular genetics or developmental neuroscience (e.g., PSYC 5232, EPOB 5200, MCDB—to be developed).

Students are required to attend a weekly journal club or discussion group and neuroscience colloquia.

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## Peace and Conflict Studies

The Certificate Program in Peace and Conflict Studies (PACS) is designed to help students explore why conflict and violence occur and learn how conflict can be managed and transformed to accomplish constructive ends. The certificate is granted by the dean of the College of Arts and Sciences, but students in any school or major at the University of Colorado may earn it.

The program takes an interdisciplinary perspective to the study of conflict, cooperation, war and peace. Course work from various departments focuses on personal and social change, intra- and international conflicts, processes of conflict resolution, creative nonviolent activism and the analysis of violence of various forms. The program encourages hands-on, “in the field” learning of peace and conflict issues through volunteer and internship placements with a wide variety of peace, justice and development agencies.

For information or application go to the program’s website: [www.peacestudies.colorado.edu](http://www.peacestudies.colorado.edu).

**Course code for this program is PACS.**

### Certificate Program(s)

## Certificate in Peace and Conflict Studies

Completion of the certification requires 24 credit hours (15 upper division) of study including:

- PACS 2500 Introduction to Peace and Conflict Studies
- PACS 4500 Senior Seminar in Peace and Conflict Studies
- 9 credit hours of relevant course work in the student’s major
- 9 credit hours of relevant course work outside the major

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Program

- Ecology and Evolutionary Biology
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- English
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- Film Studies
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## Philosophy

The undergraduate degree in philosophy emphasizes knowledge and awareness of:

- some of the principal philosophical texts in the history of western philosophy, from its beginnings in Greece to the late 19th century;
- some of the main currents in 20th century philosophy, including some acquaintance with contemporary philosophical issues and modes of inquiry;
- a single major author or a single philosophical movement; and
- elementary formal logic.

In addition, students completing the major will develop the knowledge and skills to:

- form reasoned opinions about the issues—moral, religious, political, etc.—that educated people debate;
- understand, analyze and evaluate complex arguments and theories;
- distinguish between the main thrust of an argument or position and what is ancillary to it;
- discover and critically examine the underlying presuppositions of major systems of ideas or programs for action;
- see important connections between different systems of ideas or programs for action;
- explain difficult ideas and concepts in an informed, effective and coherent manner;
- develop a thesis and present a coherent argument for it;
- write a clear and coherent essay; and
- engage in rational and productive discussion of issues and arguments.

**Course code for this program is PHIL.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Philosophy

For the undergraduate degree in philosophy, students must take 33 to 45 credit hours in philosophy, no fewer than 18 of which must be upper division, earning 33 hours with a grade of C- or better in each course in philosophy and a C (2.00) average for all work attempted in philosophy. No fewer than 12 of those credit hours must be completed on the Boulder campus. No more than 8 hours of independent study may count toward the minimum requirement.

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below.

### □ Arts & Sciences

- Policies & Requirements
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  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

The Department of Philosophy offers three distinct ways of completing the philosophy major.

## General Track

### *Required Courses and Semester Credit Hours*

#### **History (three courses)—9**

- PHIL 3000 History of Ancient Philosophy
- PHIL 3010 History of Modern Philosophy
- One course of the following:
  - PHIL 4010 Single Philosopher
  - PHIL 4020 Topics in the History of Philosophy
  - PHIL 4030 Medieval Philosophy
  - PHIL 4040 Studies in 20th Century Philosophy
  - PHIL 4070 Existentialist Philosophy
  - PHIL 4250 Marxism

#### **Logic (one of the following courses)—3**

- PHIL 2440 Symbolic Logic
- PHIL 4440 Topics in Logic (Mathematical Logic)
- PHIL 4460 Modal Logic

#### **Philosophical Writing (one course)—3**

- PHIL 3480 Critical Thinking and Writing in Philosophy (prereq. or coreq., PHIL 2440 Symbolic Logic)

#### **Values (two courses)—6**

- The following required course: PHIL 3100 Ethical Theory—3
- One of the following additional courses—3
  - PHIL 2140 Environmental Justice
  - PHIL 2200 Major Social Theories
  - PHIL 2220 Philosophy and Law
  - PHIL 2270 Philosophy and Race
  - PHIL 2290 Philosophy and Women
  - PHIL 3110 Feminist Practical Ethics
  - PHIL 3140 Environmental Ethics
  - PHIL 3160 Bioethics
  - PHIL 3190 War and Morality
  - PHIL 3200 Social and Political Philosophy
  - PHIL 3260 Philosophy and the International Order
  - PHIL 4110 Contemporary Moral Theory
  - PHIL 4120 Philosophy and Animals
  - PHIL 4200 Contemporary Political Philosophy
  - PHIL 4250 Marxism

#### **Metaphysics and Epistemology (two courses)—6**

- The following required course: PHIL 4340 Epistemology (prereqs. PHIL 2440 Symbolic Logic and PHIL 3010 History of Modern Philosophy; prereq. or coreq. PHIL 3480 Critical Thinking and Writing in Philosophy)—3

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- **Philosophy**
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

One of the following additional courses—3

PHIL 3600 Philosophy of Religion

PHIL 4300 Philosophy of Mind

PHIL 4360 Metaphysics

PHIL 4400 Philosophy of Science

PHIL 4490 Philosophy of Language

**Electives** (two courses) (includes all courses that are at the 2000 level or above, and are not taken to satisfy any of the above requirements)—6

*NOTE: The department offers topically oriented majors that are interdisciplinary in nature, including law and society and values and social policy. These majors require two semesters in the history of philosophy, as well as a series of core courses that vary according to the topic. A student intending to complete a topical major in philosophy should see the departmental undergraduate advisor as soon as possible.*

## Values and Social Policy Track

### Group I: Required courses

- PHIL 1440 Introductory Logic or PHIL 2440 Symbolic Logic
- PHIL 2200 Major Social Theories
- PHIL 3000 History of Ancient Philosophy
- PHIL 3010 History of Modern Philosophy
- PHIL 3100 Ethical Theory
- PHIL 3200 Social and Political Philosophy

### Group II: Choose any four courses

- PHIL 2140 Environmental Justice
- PHIL 2220 Philosophy and the Law
- PHIL 2270 Philosophy and Race
- PHIL 2290 Philosophy and Women
- PHIL 3110 Feminist Practical Ethics
- PHIL 3140 Environmental Ethics
- PHIL 3160 Bioethics
- PHIL 3190 War and Morality
- PHIL 3260 Philosophy and the International Order
- PHIL 3930 Internship in Social Philosophy
- PHIL 4110 Contemporary Moral Theory
- PHIL 4120 Philosophy and Animals
- PHIL 4200 Contemporary Political Philosophy
- PHIL 4250 Marxism
- PHIL 4260 Philosophy of Law
- Other courses with advisor's approval

### Group III: 15 of approved courses in allied fields

Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

For further information, see the Department of Philosophy advisor.

## Law and Society Track

### Group I: Required courses (27 hours)

- PHIL 1440 Introductory Logic or PHIL 2440 Symbolic Logic
- PHIL 2200 Major Social Theories
- PHIL 2220 Philosophy and the Law
- PHIL 3000 History of Ancient Philosophy
- PHIL 3010 History of Modern Philosophy
- PHIL 3100 Ethical Theory
- PHIL 3180 Critical Thinking: Contemporary Topics or PHIL 3480 Critical Thinking and Writing
- PHIL 3200 Social and Political Philosophy
- PHIL 4260 Philosophy of Law

### Group II: Recommended courses

- PHIL 2140 Environmental Justice
- PHIL 2290 Philosophy and Women
- PHIL 3110 Feminist Practical Ethics
- PHIL 3140 Environmental Ethics
- PHIL 3160 Bioethics
- PHIL 3260 Philosophy and the International Order
- PHIL 4110 Contemporary Moral Theory
- PHIL 4200 Contemporary Political Philosophy
- PHIL 4250 Marxism

### Group III: Required Courses

12 hours of approved courses from other departments. For further information, see the Department of Philosophy advisor.

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in philosophy, students should meet the following requirements:

- Declare major by the beginning of the second semester.
- Complete an average of 6.7 credit hours of required philosophy courses in each of the next five semesters.
- Meet with an undergraduate advisor at the time the major is declared.
- Complete PHIL 2440, PHIL 3480, PHIL 3000 and PHIL 3010 by the end of the fifth semester of study.

## Minor Program

A minor is offered in philosophy. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school.

For the minor in philosophy, students must take 18 credit hours in philosophy, earning 18 hours with a grade of C- or better and a 2.00 (C) average for all work attempted in philosophy. Also, students must take 9 hours of upper-division work in philosophy with grades of C- or better. Minor students may apply no more than 9 credit hours, including 6 upper-division credit hours of transfer work, toward a minor.

### *Required Courses and Semester Credit Hours*

#### **Logic (one of the following courses)—3**

- PHIL 1440 Introduction to Logic
- PHIL 2440 Symbolic Logic
- PHIL 4440 Topics in Logic (prereq., 12 hours PHIL course work, including PHIL 2440 or equivalent)
- PHIL 4460 Modal Logic

#### **History of Philosophy (one of the following courses)—3**

One course from the following:

- PHIL 1010 Introduction to Western Philosophy: Ancient
- PHIL 1020 Introduction to Western Philosophy: Modern
- PHIL 3000 History of Ancient Philosophy (prereq., 6 hours PHIL course work)
- PHIL 3010 History of Modern Philosophy (prereq., 6 hours PHIL course work)

#### **Values (one of the following courses)—3**

- PHIL 1100 Ethics
- PHIL 1200 Philosophy and Society
- PHIL 3100 Ethical Theory (prereq., 6 hours PHIL course work)
- PHIL 3200 Social and Political Philosophy (prereq. 6 hours PHIL course work)

## Graduate Degree Program(s)

### Graduate Study in Philosophy

Applicants for admission to the Graduate School for work toward a master's or doctoral degree with a major in philosophy are expected to have had 18 or more credit hours in undergraduate courses in the subject.

Students in the master's and doctoral programs must satisfy a variety of requirements, including the completion of course work. The department has a diversified faculty that can supervise the writing of a master's theses and doctoral dissertations on a wide range of topics.

The department makes available a limited number of teaching assistantships and assists with job placement. Descriptions of all degree programs are available from the Department of Philosophy.

Students wishing to pursue graduate work in philosophy should note requirements for advanced degrees in the [Graduate School](#) section and should obtain a copy of the *Graduate Program Rules* from the department.

Descriptions of all degree programs are available from the Department of Philosophy.

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# Physics

The undergraduate degree in physics emphasizes knowledge and awareness of:

- the basic subfields of physics (classical mechanics, electricity and magnetism, quantum mechanics, statistical mechanics and thermodynamics), as well as at least one specialty area of application (e.g., solid state physics or optics);
- the major principles of physics, their historical development and the roles they play in the various subfields of physics;
- the interrelations between theory and observation, the role of systematic and random experimental errors and methods used to analyze experimental uncertainty and compare experiment with theory;
- physical phenomena and experience in the use of basic experimental apparatus and measuring instruments;
- mathematics sufficient to facilitate the acquisition and application of physical principles; and
- the importance of physics in other fields such as chemistry, biology, engineering, medicine and in society at large.

In addition, students completing the degree in physics are expected to acquire the ability and skills to:

- apply physical principles to new situations;
- construct and assemble experimental apparatus, conduct and analyze measurements of physical phenomena, analyze properly experimental uncertainty and make meaningful comparisons between experiment and theory; and
- communicate results of scientific inquiries verbally and in writing.

**Course code for this program is PHYS.**

## Bachelor's Degree Program(s)

### Bachelor of Arts in Physics

Three different plans are available to students in physics. Because there is some flexibility within each plan, the department encourages students to pursue their own interests in setting up their curriculum. The final responsibility for fulfilling the requirements for the degree rests with the student.

Students who have declared physics as a major are required to consult with the departmental advisor at least once per semester. Even if first-year students are only considering physics as a major, they are strongly encouraged to visit the departmental advisor and discuss the situation. Because most of the advanced physics courses have various prerequisites, failure to settle on

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  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

an appropriate plan of study early in the college career can result in delay and complications later.

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below.

## Plan I

Primarily for those planning graduate work in physics, this plan includes 45 credit hours of physics courses.

### *Required Courses and Semester Credit Hours*

- PHYS 1110 and 1120 General Physics 1 and 2—8
- PHYS 1140 Experimental Physics 1—1
- PHYS 2150 Experimental Physics—1
- PHYS 2170 Foundations of Modern Physics—3
- PHYS 2210 Classical Mechanics and Math Methods 1—3
- PHYS 3210 Classical Mechanics and Math Methods 2—3
- PHYS 3220 Quantum Mechanics and Atomic Physics I—3
- PHYS 3310 Principles of Electricity and Magnetism 1—3
- PHYS 3320 Principles of Electricity and Magnetism 2—3
- PHYS 3330 Junior Laboratory—2
- PHYS 4230 Thermodynamics and Statistical Mechanics—3
- PHYS 4410 Quantum Mechanics and Atomic Physics 2—3
- Electives in physics (chosen from the departmental list) minimum—9
- Three of the 9 hours must be one of the courses PHYS 4430, or PHYS 5430 or a research activity of 3 credit hours. The research activity may be completed in one of the following ways: (1) under either PHYS 4610/4620/4630 Honors or PHYS 4840/4850 Independent Study; or (2) by documentation of your accomplishments as an intern with a research activity within the physics department or a suitable cognate department, institute or external entity such as NCAR, NIST, NOAA, etc. Approval by a physics department advisor is required for option (2) and should be obtained in advance. Up to 6 credit hours earned under choice (1) may be counted toward the electives requirement. No academic credit is earned under the internship option (2), so if an internship is taken, students must still earn credit through one of the required courses.
- In addition, the following nonphysics courses are required:  
MATH 1300 Analytic Geometry and Calculus 1 or APPM 1350 Calculus 1 for Engineers—4-5  
MATH 2300 Analytic Geometry and Calculus 2 or APPM 1360 Calculus 2 for Engineers—4-5  
MATH 2400 Analytic Geometry and Calculus 3 or APPM 2350 Calculus 3 for Engineers—4  
APPM 2360 Introduction to Differential Equations with Linear Algebra, or both MATH 3130 Introduction to Linear Algebra and MATH 3430 Ordinary Differential Equations—4-6  
CHEM 1113/1114 and 1133/1134 General Chemistry 1 and 2

## Plan II

For students desiring either an interdisciplinary or an applied physics program. The interdisciplinary program includes astrophysics, atmospheric physics, geophysics or a

### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- **Physics**
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

combination of a physics major with work in another area such as applied mathematics, biophysics, chemical physics, environmental sciences, philosophy and history of science or pre-medicine. The applied physics program includes biotechnology, optics, fluid dynamics or electronic devices. For the interdisciplinary program, 33 hours of physics courses, plus 3 hours of physics electives, plus 12 hours of interdisciplinary courses are required. For the applied physics program, 33 hours of physics courses plus 15 hours of applied physics courses are required.

#### **Required Courses and Semester Credit Hours**

- PHYS 1110 and 1120 General Physics 1 and 2—8
- PHYS 1140 Experimental Physics 1—1
- PHYS 2150 Experimental Physics—1
- PHYS 2170 Foundations of Modern Physics—3
- PHYS 2210 Classical Mechanics and Math Methods 1—3
- PHYS 3210 Classical Mechanics and Math Methods 2—3
- PHYS 3220 Quantum Mechanics and Atomic Physics 1—3
- PHYS 3310 Principles of Electricity and Magnetism 1—3
- PHYS 3320 Principles of Electricity and Magnetism 2—3
- PHYS 3330 Junior Laboratory—2
- PHYS 4230 Thermodynamics and Statistical Mechanics—3
- Electives in physics (chosen from the departmental list) minimum—3
- In addition, the following nonphysics courses are required:  
MATH 1300 Analytic Geometry and Calculus 1 or APPM 1350 Calculus 1 for Engineers—4-5  
MATH 2300 Analytic Geometry and Calculus 2 or APPM 1360 Calculus 2 for Engineers—4-5  
MATH 2400 Analytic Geometry and Calculus 3 or APPM 2350 Calculus 3 for Engineers—4  
APPM 2360 Introduction to Differential Equations with Linear Algebra, or both MATH 3130 Introduction to Linear Algebra and MATH 3430 Ordinary Differential Equations—4-6  
CHEM 1113/1114 and 1133/1134 General Chemistry 1 and 2

Courses in the interdisciplinary or applied physics subjects may not be double counted with the required 33 hours of physics courses. Interdisciplinary or applied physics courses must be approved by the physics department, either by the preapproved existing list of courses in each discipline or by a physics department mentor on a course-by-course basis. It is therefore imperative that students in Plan II be in close contact with the physics department advisor.

## Plan III

For students intending to become elementary/secondary school teachers, this plan involves a minimum of 31-34 credit hours of physics and a minimum of 35 hours in education courses. An education student advisor, who should be consulted for updated requirements, is available by appointment at **303-492-2559**.

#### **Required Courses and Semester Credit Hours**

- PHYS 1110 and 1120 General Physics 1 and 2—8
- PHYS 1140 Experimental Physics 1—1
- PHYS 2130 General Physics 3—3

Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

- PHYS 2150 Experimental Physics—1
- PHYS 2210 Classical Mechanics and Math Methods 1—3
- PHYS 3210 Classical Mechanics and Math Methods 2—3
- PHYS 3310 Principles of Electricity and Magnetism 1—3
- PHYS 3330 Junior Laboratory—2
- PHYS 4450 History and Philosophy of Physics—3
- ASTR 1030 Accelerated Introduction to Astronomy 1—4
- An additional required course for teaching in secondary schools: PHYS 3220 Quantum Mechanics and Atomic Physics 1—3
- In addition, the following nonphysics courses are required:  
CHEM 1011, 1031 Environmental Chemistry 1 and 2 or CHEM 1113/1114 and 1133/1134 General Chemistry 1 and 2  
MATH 1300 Analytic Geometry and Calculus 1 or APPM 1350 Calculus 1 for Engineers—4-5  
MATH 2300 Analytic Geometry and Calculus 2 or APPM 1360 Calculus 2 for Engineers—4-5  
MATH 2400 Analytic Geometry and Calculus 3 or APPM 2350 Calculus 3 for Engineers—4  
APPM 2360 Introduction to Differential Equations with Linear Algebra or both MATH 3130 Introduction to Linear Algebra and MATH 3430 Ordinary Differential Equations—4-6

*Special Requirements:* Students must review the Undergraduate Program of Studies Checklist for Elementary or Secondary Science for Arts & Sciences majors on the School of Education website for current teacher licensure requirements.

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in physics plans I and II, students should meet the following requirements:

- Declare a major in physics in the first semester of the freshman year.
- Complete PHYS 1110, 1120, 1140, MATH 1300 or APPM 1350 and MATH 2300 or APPM 1360 during the freshman year.
- Complete PHYS 2150, 2170 and 2210, CHEM 1113, CHEM 1133, MATH 2400 or APPM 2350 and APPM 2360 during the sophomore year. Either MATH 3130 or 3430 can substitute for APPM 2360.
- Complete PHYS 3210, 3220, 3310, 3320 and 3330 during the junior year.
- Students must meet with the physics advisor before the beginning of the junior year and get the fifth-semester approval for completion plan (FSACP). In addition to completing PHYS 4230 and 4410, plan I students must get approval to complete 9 credit hours in physics electives, with a research participation component. In addition to completing PHYS 4230, interdisciplinary Plan II students must complete 3 credit hours of physics electives and 12 credit hours of interdisciplinary courses. Applied physics students must complete 15 credit hours of applied physics courses.

*Note: Early in the first semester of the senior year, the student must meet with the physics advisor to have the statement of major status (a part of the graduation package provided by the College of Arts and Sciences) filled in. This includes a plan for completing the requirements of the major during the senior year and must be signed by the student and the advisor. Further details concerning the execution of the guarantee can be obtained from the*

*department.*

## Bachelor of Science in Engineering Physics

The bachelor of science majoring in engineering physics is granted by the College of Engineering and Applied Sciences through the Department of Physics in the College of Arts and Sciences. See [Engineering Physics](#).

## Minor Program

A minor is offered in physics. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school. For more information see [artsandsciences.colorado.edu/artsscience/current-students/](https://artsandsciences.colorado.edu/artsscience/current-students/).

## Graduate Degree Program(s)

### Graduate Study in Physics

Graduate study and opportunities for basic research are offered in the areas of nuclear physics, theoretical physics, condensed matter physics, elementary particle physics, plasma physics, atomic and molecular physics, optical science and engineering, laser physics, fundamental measurements, liquid crystal science and technology, biophysics and physics education research.

Doctoral programs in chemical physics and geophysics are offered jointly with the Department of Chemistry and with the other departments that participate in the interdepartmental geophysics program. For information on these programs, see Interdepartmental Programs in the Graduate School section.

### Departmental Requirements

Students wishing to pursue graduate work in physics leading to candidacy for an advanced degree should carefully read the requirements for advanced degrees in the Graduate School section. Following are special departmental requirements.

## Master's Degree

**Prerequisites.** Students may obtain a Master's degree as either an undergraduate student through the concurrent bachelor's/master's degree program or as a graduate student. Undergraduate students can apply to the concurrent bachelor's/master's degree program any time after completion of the typical first-semester junior physics classes and before graduation.

Graduate students are generally only admitted to the PhD program in physics. Therefore, for graduate students, a master's degree can be earned by students who are unable to complete the PhD program or after they have completed their PhD comprehensive exam, en route to a PhD degree. In certain circumstances, students can be admitted to the graduate program for a terminal master's degree, in which case the prerequisites are the same as for the doctoral program, below.

**Language.** The department has no foreign language requirement.

**Course Requirements.** There are two separate plans for obtaining the master's degree, both of which require a total of 30 credit hours at the 5000 level or above (up to 6 credit hours may be at the 3000 or 4000 level if approved by the physics graduate chair). All but 3 credit hours must be in physics (more credit hours may be allowed with permission of the physics graduate chair). A minimum of a "B" average (GPA of 3.0) must be maintained.

Plan 1 (with Thesis) requires 4-6 thesis credit hours and completion with at least a C of 5 of the

courses PHYS 5430, 5250, 5260, 7310, 7320, 5210, 7230. The student must write a thesis and present a talk to a 3-member faculty committee.

Plan 2 (without Thesis) requires completion with at least a C in 5 of the courses PHYS 5250, 5260, 7310, 7320, 5210, 7230.

**Qualifying Examination.** The Graduate Record Examination aptitude tests and advanced test in physics are normally used in place of a qualifying examination, and this examination is normally taken before the time of entry into the Graduate School.

**Comprehensive-Final Examination.** Plan 1 students must write a thesis and defend the thesis to a 3-member faculty committee. Plan 2 students must pass the Comprehensive Exam II, which is three-section examination that includes a formal research review paper and a formal presentation, followed by a question and answer oral session.

## Doctoral Degree

**Prerequisites.** Entering graduate students must have a thorough undergraduate preparation in physics, equivalent to an undergraduate physics major at a recognized college or university. This preparation includes courses in general physics, analytical mechanics, electricity and magnetism, thermodynamics, quantum mechanics, atomic physics and mathematics through differential equations and complex variables.

**Languages.** The department has no requirement in foreign languages.

**Qualifying Examination.** Same as for master's degree, above.

**Comprehensive Examination.** The comprehensive examination is divided into three parts. Part I consists of passing any five of the following six courses with a *B-* or better: PHYS 5210 Theoretical Mechanics, PHYS 7230 Statistical Mechanics, PHYS 5250 and 5260 Quantum Mechanics I and II and PHYS 7310 and 7320 Electromagnetic Theory I and II. The associate chair may waive courses for students with graduate level equivalents. Part II is a three-section examination that includes a formal research review paper and a formal presentation, followed by a question and answer oral session. Part III consists of a thesis prospectus presented to the thesis committee.

Part II of the comprehensive examination must be taken after successful completion of Part I, but no later than the student's sixth enrolled regular semester. Part III will generally take place the semester following Part II. Parts II and III of the comprehensive examination may be taken a second time, no more than one semester after the first attempt.

**Course Requirements.** To earn a PhD, candidates must complete 30 credit hours of graduate courses and 30 hours of dissertation credit. At least 27 of the 30 credit hours of course work must be 5000-level or above physics courses. All courses, required or otherwise, must be passed with a grade of *B-* or better, and a course may be repeated only once.



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# Chemical Physics

## Doctoral Degree in Chemical Physics

The interdepartmental doctoral program in chemical physics prepares students for research in such interdisciplinary fields as atomic and molecular radiative processes, spectroscopy, laser chemistry and physics, atmospheric chemistry, molecular quantum mechanics, statistical mechanics, kinetics, chemistry and physics of the surface and condensed phase, semiconductors, and nanoscale processes.

Students wishing to pursue the doctoral degree in chemical physics should apply for admission to either the Department of Chemistry and Biochemistry or the Department of Physics.

Entering students take a qualifying examination in the area of their undergraduate major. The comprehensive examination tests their knowledge of both chemistry and physics. Certain requirements associated with the regular doctoral programs in the participating departments will be replaced by requirements in the complementary field; each student's program of course work and research will be individually planned according to the student's special needs.

The program is administered by an interdepartmental committee. For further information, contact the graduate program assistant in either the Department of Chemistry and Biochemistry or the Department of Physics.

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## Political Science

The Department of Political Science offers instruction and research in the art and science of politics. Work within the department is organized around six basic fields: American government and politics, comparative politics, international relations, public policy, political theory and empirical theory and methodology. The department's mission is to understand the political world and to equip students and their community with the skills for a lifetime of inquiry and engagement.

The mission of the undergraduate program in political science is to provide students with the knowledge and tools to understand important political ideas, political institutions (both domestic and international) and political actors. The curriculum is designed to provide a base of knowledge and the skills necessary to understand and operate effectively in our political world. Students learn the philosophical basis of justice, equality and representation and how that relates to current trends and developments. Understanding the issues surrounding diversity and their political consequences, both globally and domestically, are important areas of study. A strong grasp of the American political system and political society is coupled with learning about how other countries and societies organize politically. Another important component of the major includes understanding global forces and why some countries cooperate while others engage in conflict. Finally, the major exposes students to real-world problems that require political solutions.

Current courses which represent areas of inquiry within our curriculum include:

- PSCI 2116 Introduction to Environmental Policy and Policy Analysis
- PSCI 3062 Revolution and Political Violence
- PSCI 3074 Democracy and Its Citizens in the U.S. and E.U.
- PSCI 3225 Strategy and Politics
- PSCI 3271 Law and Society: Legal Institutions and Human Behavior
- PSCI 4243 Modern Warfare: Terrorism, Ideology, Identity
- PSCI 4341 Media and Politics
- PSCI 3774 Free Speech and Dangerous Ideas

The program is designed to prepare students for study at the graduate level in political science, law and other cognate disciplines, as well as to equip students with the tools and knowledge essential for work in government agencies, non-governmental organizations, non-profits and business.

### Undergraduate Learning Outcomes

The political science curriculum is designed to develop the following learning outcomes:

#### □ Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
  - Actuarial Studies and Quantitative Finance Certificate Programs
  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

- a solid grounding in politics and the ideas that motivate them at the national and international level
- the ability to both clearly and persuasively articulate ideas and arguments in oral presentation and in written form
- the ability to analyze problems using logical inference based on quantitative and qualitative evidence
- the ability to critically evaluate arguments both in political science research and in our current political world

Students interested in political science may want to consider the [Global Studies Residential Academic Program](#).

**Course code for this program is PSCI.**

## Bachelor's Degree Program(s)

### Bachelor's Degree in Political Science

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below.

#### *Required Courses and Semester Credit*

The following requirements apply to students who declare a Political Science major in fall 2016 and thereafter.

- Total hours required in Political Science courses: 42 credits.
- Four required lower division Political Science courses: PSCI 1101, PSCI 2012, PSCI 2223 and PSCI 2004—12
- Two required Empirical Theory and Research Methodology courses in sequence: PSCI 2075 and PSCI 3105—6
- Upper division distribution requirement: one course in four of the six primary fields - American, Comparative, International Relations, Political Theory, Empirical Theory and Research Methodology, and Public Policy—12. Note that PSCI 3105 does not count towards the upper division distribution requirement for the Empirical Theory and Research Methodology field.
- Political science electives: three upper division PSCI elective courses (9 credits) plus one lower or upper division PSCI elective course (3 credits)—12.
- No courses for the PSCI major may be taken pass/fail,
- A student must have a grade of C- or better in all 42 required hours in Political Science and a cumulative GPA of 2.0 or better in Political Science courses.
- No more than 45 credits in Political Science credit will count toward the /arts and Sciences graduations requirement of 120 credits (Core Curriculum) or 124 hours (College List). This may be exceeded by 6 credits (for a total of 51 credits), provided that the excess credits are taken in PSCI 4715 and PSCI 4725 (honors thesis credit).

Note: For students who declared a Political Science major prior to Fall 2016 the requirement includes ancillary course ECON 2010 Microeconomics (4 credits), which must be completed with a grade of C- or better, instead of the required course PSCI 3105.

## Graduating in Four Years

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- **Political Science**
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in political science, students should meet the following requirements:

- Declare major by the end of the second semester.
- Complete PSCI 1101 and two of the following required courses by the end of the third semester: PSCI 2012, 2223, 2004 or 2075.
- Complete the remaining lower-division political science courses by the end of the fourth semester.
- Complete 12 upper-division credit hours of political science courses, including at least one course in three of the following fields by the end of the sixth semester: American, comparative, international relations, methodology, policy and theory. In addition, complete three upper division or lower division political science elective credits.
- Complete 12 credit hours of political science courses, including at least 9 upper-division political science elective credits and all remaining upper-division field distribution requirements during the seventh and eighth semesters.

Students who have completed ECON 1000 prior to declaration of the major should consult an undergraduate advisor in political science.

## Minor Program

A minor is offered in political science. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school.

- Students must complete 21 credits of political science to complete the political science minor, of which 9 credits must be in upper-division course work. All 21 credits must be completed with grades of C- or better and an overall GPA of 2.00. None of the required hours may be taken *pass/fail*.
- 9 credits of lower-division courses are required:  
PSCI 1101 American Political Systems—3  
6 credits to be distributed from two of the following courses:  
PSCI 2012 Introduction to Comparative Politics—3  
PSCI 2223 Introduction to International Relations—3  
PSCI 2004 Survey of Western Political Thought—3  
PSCI 2075 Quantitative Research Methods—3
- 9 credits upper-division courses must be distributed in a minimum of two primary fields: American, comparative, international relations, theory, methodology and policy. PSCI 4938 Internship will not fulfill a primary field area in the minor.
- 3 credits of lower- or upper-division political science.

International affairs majors who wish to minor in political science must apply the following additional rules:

- No more than 9 credits toward the PSCI minor can come from courses which count toward another major.
- International affairs majors must take at least one upper-division course in American Politics and one course (lower- or upper-division) in political theory, in addition to the regular minor requirements.

## Graduate Degree Program(s)

Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

# Graduate Study in Political Science

## PhD in Political Science

The Department of Political Science at CU-Boulder has a long tradition of excellence in training graduate students. A diverse faculty of nearly 30 professors trains graduate students to conduct original research in six areas of political science:

- American government and politics
- comparative politics
- international relations
- political theory
- public policy
- empirical theory and methodology

Admission is highly competitive with approximately 10-12 new students enrolled each fall. This ensures a high faculty-student ratio and close mentoring opportunities. In addition, the department holds an outstanding placement record. Full-time students are expected to complete all requirements for the PhD degree within five years of entering the program; the maximum time allowed by the Graduate School is six years.

### Program Requirements

- course work
- qualifying research paper and defense
- comprehensive examinations
- doctoral prospectus defense
- final dissertation defense
- minimum 30 dissertation credit hours

The Department of Political Science offers graduate-level courses in the above mentioned six fields of study. While students take a wide range of courses, they must demonstrate mastery of two different fields: the major or first field and the minor or second field. Students must complete a minimum of three seminars in each field. Also, students are required to take at least three courses outside of their major and minor fields. Students must complete a minimum of 42 hours of course work with a B average or better. Of these 42 hours, 39 must be at the 7000 level or higher and 35 hours must be taken in the political science department. Students must also take a minimum of 30 dissertation credit hours.

Students must take additional course work with the consideration that they will fulfill all requirements needed to complete the program. During a student's first semester in residence they are required to take three introductory courses: PSCI 7008: Teaching Political Science, PSCI 7075: Scope and Methods, and PSCI 7085: Introduction to Political Data Analysis.

As a condition of funding, all students appointed as graduate assistants are required to enroll in a minimum of nine credit hours per semester for their first five semesters or until they have passed comprehensive exams.

The department does not accept applications for a terminal MA in political science. Students in the PhD program earn a MA in Political Science after the completion of a successful qualifying paper and defense at the end of the second year in the program.

Students wishing to pursue graduate work toward this degree should carefully read the Graduate School requirements and review courses offered in this catalog. Requirements for the political science graduate program are clarified in more detail in the Guide to Graduate Studies posted under the graduate tab on the Department of Political Science website:

[polisci.colorado.edu/graduate/graduate-program](http://polisci.colorado.edu/graduate/graduate-program).

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# Religious Studies

## Religious Studies

The curriculum in Religious Studies at the University of Colorado Boulder trains students in the scholarly understanding and interpretation of the complex phenomenon we call religion, through careful study of history, texts, rituals, narrative, art, and media. The program offers the skills to approach the comparative study of religion with the option of gaining deeper knowledge in one religious tradition, such as Buddhism, Christianity, Daoism, Hinduism, Islam and Native American traditions.

The undergraduate degree in religious studies emphasizes the application of various theoretical and methodological approaches to the study of religion; the understanding of religious practices and traditions with attention to historical context and present-day impact; and the development of media literacy, critical thinking, effective oral and written communication, and research skills in our increasingly globalized and religiously diverse world.

In addition, students with a degree in religious studies are expected to achieve basic religious literacy: the ability to communicate and analyze practical information regarding religious diversity as educated citizens of a pluralistic society and thereby to effectively understand and participate in public debates and discussions about religion.

**Course codes for this program are RLST and SNSK.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Religious Studies

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below.

### Major Requirements

Students must complete at least 36 credit hours of Religious Studies course work. At least 27 credit hours must be taken in the CU Department of Religious Studies in addition to the following requirements.

Two required classes in the Academic Study of Religion:

- RLST 1620 Religious Dimensions of Human Experience—3
- RLST 4830 Senior Seminar in the Study of Religion—3

Cluster Requirement (three courses, 9 credit hours): Students are required to take 3 courses in either (a) a single religious tradition or (b) a particular theme selected from the themes and

### □ Arts & Sciences

- Policies & Requirements
- Programs of Special Interest
- Residential Academic Programs (RAPs)
- Programs of Study
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  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

associated courses listed on the Department of Religious Studies website.

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in religious studies, students should meet the following requirements:

- Declare the major at the beginning of the second semester of study.
- Complete two religious studies courses each semester.
- Take the senior seminar the last spring semester in residence.

## Graduation with Honors

The honors program in religious studies offers the opportunity for highly motivated undergraduates to undertake a deeper and more individualized study than is provided by the regular BA curriculum and to earn an honors designation on their diploma. Religious studies majors with at least a 3.30 overall grade point average and 3.50 in the major are eligible to participate in the program. Honors that may be earned are cum laude (with honors), magna cum laude (with high honors), and summa cum laude (with highest honors).

Students interested in pursuing departmental honors are encouraged to consult with the departmental undergraduate advisor by the beginning of their junior year.

## Minor Program

Students must complete at least 18 credit hours in Religious Studies course work, including at least 6 hours of lower-division and 9 hours of upper-division work. At least 12 hours must be taken in the CU Department of Religious Studies.

## Concurrent Bachelor's/Master's Program

### Concurrent Bachelor's/Master's in Religious Studies

A concurrent bachelor's/master's degree program offers a select group of exceptional undergraduates the opportunity to begin graduate work while still an undergraduate and thereby complete the BA and MA degrees simultaneously and on an accelerated schedule. The entire program normally requires five to six years and permits 6 credits to be double-counted toward both degrees. Otherwise requirements for the two degrees remain unchanged.

### Admission to the Program

Applicants to the program must be full-time, continuously enrolled students with a minimum overall GPA of 3.00, and a 3.50 GPA in RLST courses. They must have completed at least 24 credit hours prior to admission to the concurrent BA/MA degree program, and must have satisfied any MAPS deficiencies. Applications will include letters of recommendation from RLST faculty and will be evaluated by faculty as a whole, much as graduate applications are.

### Continuation in the Program

Students enrolled in the concurrent BA/MA program must maintain a minimum cumulative GPA of 3.25, and 3.50 in the department. Concurrent degree students may not participate in the Time Out program; exceptions may be granted by the CDAC (Concurrent Degree Appeals Committee) based on a review of extenuating circumstances. Each BA/MA student will be assigned a graduate advisor with whom to meet regularly and will be required to demonstrate satisfactory progress toward degree to the advisor within the framework of the department's graduate student assessment policies.

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- **Religious Studies**
- Sociology
- Spanish and Portuguese
- Speech, Language

## Curriculum

Students enrolled in the concurrent BA/MA program are permitted to double-count 6 credits of course work, thereby reducing the total amount of RLST course work to  $(36 + 31 - 6 =)$  61 credit hours. One of these courses must be RLST 6830 Introduction to the Academic Study of Religion, which would replace Senior Seminar for BA/MA students, and the other must be in an area of depth concentration. Otherwise program students will fulfill all the normal requirements for the BA and the MA degree.

## Graduate Degree Program(s)

### Master's in Religious Studies

A graduate degree represents the mastery of a significant body of knowledge and interpretation within an academic discipline. A degree is not granted merely because a student completes a specific number of courses. The student is expected to acquire both breadth and depth in religious studies. Breadth is achieved by satisfying two types of course requirements as set forth in number two below, which include exposure to a diversity of approaches to the study of religion. Depth is achieved through three courses in a particular area or approach and by independent work related to the thesis or concentration, as set forth in list item three below. Listed below are the minimum formal requirements for the MA degree in religious studies.

1. The student must successfully complete 31 semester hours of academic work, at least 24 of which must be completed at the 5000 level or above. Up to 9 credit hours of course work may be taken outside the department or transferred from another accredited institution, consistent with the student's special needs and interests and with the advisor's approval. Independent study credit hours shall not exceed six hours.
2. To insure breadth of learning, the student must successfully complete two types of required courses:
  - a) RLST 6830 Introduction to the Academic Study of Religion, offered every fall term. This course should be taken the first fall term the student is in residence.
  - b) Three seminars in the academic study of religion. At least one seminar will be designated each semester.
3. To ensure depth of learning, the student must successfully complete two types of required courses:
  - a) Three **research concentration** courses (to be determined in consultation with one's advisor). These may be taken in or out of the department, as appropriate.
  - b) In the final semester of graduate study, which must be taken in residence, students will select either a **thesis or non-thesis research option**. Those selecting the thesis option will take a 4-credit thesis course, which will culminate in the completion and defense of a thesis. Those selecting the non-thesis option will take a 4-credit directed readings course on secondary scholarship in a specific field (theoretical topic, geographic area or religious tradition) which will culminate in the successful passing of a written examination on this topic.
4. A final oral comprehensive examination, given by the student's research committee, will focus on three substantial term papers and either the thesis or the written examination in a specific field.
5. Courses for each term must be approved by the student's faculty advisor and be in compliance with the requirements of the Graduate School where necessary. In order to register for any given term, the student must have the course of study for that term approved in writing by the advisor on the student's "Record of Progress Toward the MA Degree" form. No changes can be made in registration without the advisor's approval.
6. In order to receive the degree a student must meet the foreign language requirement. The

and Hearing  
Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

student must have a satisfactory reading knowledge of a language other than English, demonstrated by a *B* or better in the fourth semester of the language.

7. All students must fulfill the residency requirement. In general this can be fulfilled by either two full-time semesters or four part-time semesters of study. A full-time program is defined as either five hours of course work at the 5000 level or higher, eight hours of total course work or at least one hour of thesis research.

A student who has not completed at least 12 semester hours, or the equivalent, of undergraduate academic course work directly related to the study of religion will be required to do remedial work to make up this deficit before beginning graduate study, or, with the director of Graduate Studies' permission, after beginning the program. This can be done by attaining a grade of *B* or better in an appropriate 2000- or 3000-level course taken within the first year. Remedial courses may not be counted toward the degree.

## Dual Degree Programs

### Dual Master's in Religious Studies

The Department of Religious Studies also participates in a dual master's degree program with the Departments of History and Asian Languages and Civilizations. Students interested in exploring this option should contact the graduate director of the department for specific requirements.

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## Sociology

The undergraduate degree in sociology emphasizes knowledge and awareness of:

- the basic data, concepts, theories and modes of explanation appropriate to the understanding of human societies;
- the structure of modern American society, its social stratification, its ethnic, racial, religious, and gender differentiation and its main social institutions—family, polity, economy and religion;
- the basic social processes that maintain and alter social structure, especially the processes of integration, organization and conflict; and
- the diversity of human societies, including the differences between major historical types such as foraging, agricultural, industrial and post-industrial societies.

In addition, students completing the degree in sociology are expected to acquire the ability to:

- locate and consult works relevant to a sociological investigation and write a sociological paper that is coherent, cogent and grammatically correct;
- understand the basic procedures of sociological research and analyze sociological data;
- understand and interpret the results of sociological research; and
- integrate and evaluate sociological writings.

**Course code for this program is SOCY.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Sociology

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below. A minimum of 36 credit hours (but not more than 45) in sociology is required for the degree. Of the 36 semester hours, 21 must be upper division with a minimum of 15 upper-division credit hours of course work in the major taken on the Boulder campus. All required major courses must be completed with a grade of C- or better. The cumulative GPA required in sociology courses is 2.00.

### *Required Courses and Semester Credit Hours*

- SOCY 1001 Introduction to Sociology—3
- SOCY 2061 Introduction to Social Statistics or SOCY 4061 Social Statistics. A non-SOCY statistics course (C- grade or higher) can be used to substitute for SOCY 2061 or 4061 if one additional SOCY course is taken.—3
- SOCY 3001 Classical Theory—3

### □ Arts & Sciences

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  - Anthropology
  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

- SOCY 3301 Survey Methods or SOCY 3401 Field Methods—3
- Electives—24

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in sociology, students should meet the following requirements:

- Declare the major by the beginning of the second semester.
- Complete SOCY 1001 and 3001 and 6 credit hours of sociology electives by the end of the fourth semester.
- Complete SOCY 2061 or 4061 and either 3301 or 3401 and 15 credit hours, with a minimum of 9 upper-division credit hours of sociology electives, by the end of the sixth semester.
- Complete 36 credit hours (but not more than 45), in sociology with at least 21 credit hours in upper-division courses by the end of the eighth semester.

## Graduate Degree Program(s)

### Graduate Study in Sociology

Students wishing to pursue graduate work in sociology leading to candidacy for an advanced degree should carefully read the requirements for advanced degrees in the Graduate School section.

In addition, to be admitted to the graduate degree programs of the department, students must have satisfactory scores (as determined by the department) on the Graduate Record Examination, including both the verbal and quantitative sections.

The deadline for applications is December 1 for the academic year.

### Master’s Degree

The Department of Sociology does not have a master’s degree program. All accepted applicants are admitted to the PhD program. However, students who are unable to meet the requirements for the doctoral degree may pursue an MA with Graduate Committee approval. In addition, PhD students may obtain the MA in the process of completing the doctoral degree. The department does not allow extra time for the completion of the MA degree while pursuing the PhD.

All MA students are required to complete a minimum of 30 semester hours of graduate course work. These 30 hours must include at least 6 credit hours in at least two seminars in the student’s major fields. Students may take a maximum of 6 hours of independent study. Independent study may not be substituted for regular seminars. In addition, all students must take courses from at least four faculty members. Finally, all MA students must designate a Master’s Advisory Committee that consists of at least three regularly appointed graduate faculty members from the Department of Sociology.

### Plan I—Thesis Option

For the MA degree, a student must complete 30 credit hours of course work at the 5000 level or above, including 4-6 thesis credits and the required Theory and Methods sequence with a B or higher in addition to the preparation of a written thesis and a successful oral defense of the thesis. Students must register for thesis credit hours in the semester of thesis defense.

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- **Sociology**
- Spanish and Portuguese
- Speech, Language and Hearing

OR

## Plan II—Non-Thesis

For the MA degree, a student must complete 30 hours of course work at the 5000 level or above, including the required Theory and Methods sequence with a B or higher and take a written exam in their major area within sociology. The Advisory Committee, here constituted as an examining committee, creates an exam that will assess the candidate's competence in the relevant areas of sociological knowledge.

## Doctoral Degree

The main requirements for the doctoral degree are:

- A minimum of 45 credit hours at or above the 5000 level. At least 24 of these 45 hours must be completed in the Sociology Department at CU-Boulder, and the remaining 21 hours may be taken outside the department.
- The following required courses must be included in the 45 hour minimum: 6 hours of sociological theory including SOCY 5201 and a second theory course in the student's area of interest; 9 hours of research methods and statistics (SOCY 5031, 5111 and 6111); two 1 hour graduate forums (SOCY 6821); and one 1-hour professional seminar.
- Completing all first-year course work with at least a 3.50 GPA and no grade lower than a *B* to continue into the second year.
- Successful completion of exams in sociological theory and methods by the end of the first year.
- Successful first-year and second-year reviews.
- Passing the comprehensive examination, having become eligible to take this examination only after having satisfied requirements 1-3 above.
- Writing and successfully defending a PhD dissertation and defend this dissertation in an oral examination.

A detailed description of the PhD program is given in the *Graduate Handbook* available on the department website at [sociology.colorado.edu](http://sociology.colorado.edu).

## Certificate Program(s)

### Graduate Certificate in Population Studies

For information on this certificate, see [Geography](#).

#### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

 Business

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 Engineering & Applied Science

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## Spanish and Portuguese

Although no major in Portuguese alone is offered, the department offers a combined Spanish and Portuguese Languages and Cultures degree option (*see the Spanish Majors section below*), as well as a Portuguese minor. Language courses at the elementary and intermediate levels are also available, as well as senior and graduate courses in Luso-Brazilian civilization, literature and cultures.

The department has identified the following as educational outcomes for the three tracks within the Spanish major.

The undergraduate degree in Spanish language and literature emphasizes knowledge and awareness of:

- the fundamental outlines of the history of Spanish literature and of Spanish American literature;
- the major creative writers in both Spanish and Spanish American literature;
- basic critical methodologies in the study of poetry, drama, narrative fiction and nonfiction; and
- the cultural and historical contexts in which Spanish-speaking societies developed.

In addition, students completing the degree in Spanish language and literature are expected to acquire the ability and skills to:

- read sophisticated Spanish texts at a level at which literary analysis can be performed;
- write and speak Spanish sufficiently to participate in critical discussions and write critical essays;
- analyze and interpret texts in terms of themes, characters, structure, style and overall textual strategies;
- relate analysis and interpretations of different texts to one another; and
- communicate such interpretations competently in written form in Spanish.

The undergraduate degree in Spanish and Portuguese language and culture emphasizes knowledge and awareness of the same topics listed in the degree in Spanish Language and Literature, but specifies electives focusing on the Luso-Brazilian culture and adding knowledge of the Portuguese language.

The undergraduate degree in international Spanish for the professions emphasizes knowledge and awareness of:

- modern business practices as applied to the Spanish-speaking world;

### □ Arts & Sciences

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  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

- the theories of economics, business law and international trade and finance;
- fundamental business Spanish terminology;
- the cultural environment in which business is conducted in the Spanish-speaking world;
- basic business according to the canons of this discipline; and
- international relationships.

In addition, students completing the degree in international Spanish for the professions are expected to acquire the ability and skills to:

- read and interpret in cultural and business-related terms sophisticated Spanish texts concerning business transactions;
- write and speak Spanish sufficiently to communicate effectively on business-related issues, be involved in critical discussions and write critical essays on the subject;
- analyze a particular business problem to place it in a relevant context and formulate an appropriate response; and
- adequately translate business-related documents.

**Course codes for this program are SPAN and PORT.**

## Bachelor's Degree Program(s)

### Bachelor of Arts in Spanish

Students must complete the required courses of the College of Arts and Sciences and the required courses listed below. All Spanish majors are encouraged to consult with their designated departmental advisor before they register each semester.

#### *Required Courses and Semester Credit Hours*

#### BA in Language and Literature Option

- SPAN 3000 Advanced Spanish Language Skills, SPAN 3100 Literary Analysis in Spanish and SPAN 3120 Advanced Spanish Grammar—11
- Hispanic linguistics requirement.** Of the total 32 credit hours required for the degree, at least 3 credit hours must be in Hispanic linguistics (SPAN 3050, 3150, 4430, or 4450).
- At least 9 credit hours in upper-division literature, culture and/or language (may include the Hispanic linguistics requirement)—9
- At least 12 credit hours in courses at the 4000 level or above, with at least 9 credit hours devoted to literature (3 credit hours must come from either SPAN 4150 or 4160, and 3 credit hours must come from either SPAN 4170 or 4180). (Twelve credit hours may include the Hispanic linguistics requirement.)—12
- In addition to the 32 credit hours in the Department of Spanish and Portuguese, 6 credit hours in courses from outside the Spanish department in one or more related fields—6

#### BA in Spanish and Portuguese Language and Culture Option

Students must complete the required courses of the College of Arts and Sciences and the required courses listed below. All majors are encouraged to consult with their designated departmental advisor before they register each semester.

Note that prerequisites for the program include sufficient Spanish knowledge to be admitted to 3000-level courses and sufficient knowledge of Portuguese to be admitted to 2000-level courses.

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese**
- Speech, Language and Hearing

- PORT 2110 Second-Year Portuguese 1 or PORT 2350 Portuguese for Spanish Speakers—3
- PORT 2120 or SPAN/PORT upper-division—3
- PORT 3220 Latin American Culture: Spanish America and Brazil or PORT 3230 Lusophone Cultures: Brazil, Portugal and Lusophone Africa—3
- 4000-level PORT course—3
- SPAN 3000 Advanced Spanish Language Skills, SPAN 3100 Literary Analysis in Spanish and SPAN 3120 Advanced Spanish Grammar—11
- **Hispanic linguistic requirement.** Of the total 32 upper-division credit hours required for the degree, at least 3 hours must be in Hispanic linguistics (SPAN 3050, 3150, 4430 or 4440)—3
- Upper division SPAN or PORT literature, culture and/or language (may include Hispanic linguistics requirement)—6
- “Major Works and Trends” courses. Three of these credit hours must come from either SPAN 4150 or 4160, and 3 credit hours must come from either SPAN 4170 or 4180—6
- SPAN or PORT 4000-level course—3

*NOTE: Directly-related courses outside of the department, such as ANTH 4730, can replace 3 hours of Spanish or Portuguese elective credits. These courses must be preapproved by the department.*

Native speakers of Portuguese, and in general, all students whose Portuguese skills are beyond the PORT 2120 or 2150 level, are not required to take these courses. However, students have to make up these credit hours by taking 6 hours of upper-division SPAN or PORT courses or any related courses outside the department. Related courses must be approved by the department.

*NOTE: To fulfill the requirements for a Spanish Language and Literature or a Spanish and Portuguese Language and Culture major, students must complete 32 credit hours in courses at the 3000 level or above and at least 12 upper-division credits at CU-Boulder, 6 of which must be from the major works/trends courses listed previously (SPAN 4150 or 4160, and SPAN 4170 or 4180 and SPAN 3100).*

No more than 3 independent study credit hours may count toward the major.

No grade lower than C- in a Spanish course will be counted in the major requirement.

Students seeking teaching certification in Spanish must take SPAN 3050, 3120 and 3200 or 3210.

Students who want certification for teaching at the secondary level should note that the School of Education requires SPAN 4650 and 4660. Students who major in Spanish are expected to meet with their departmental advisor before registration. Failure to do so may delay graduation. Students considering entering graduate school for an advanced degree in Spanish, either at CU-Boulder or any other institution, should see a departmental advisor as early as possible.

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in Spanish, students should consult with the department associate chair for undergraduate studies to obtain

### Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

detailed guidelines.

## BA in International Spanish for the Professions Option

In cooperation with the Leeds School of Business, the department offers an interdisciplinary major in International Spanish for the Professions which includes the completion of the business minor. It offers students numerous career possibilities, both in government and private industry, at home and abroad. Those choosing this major are not able to enter the Boulder graduate program in Spanish without fulfilling the requirements in the language and literature major. Only a limited number of students may enroll in the International Spanish for the Professions major. Courses within the major normally are completed in the student's junior and senior years. Declaration of the major and the business minor should be completed as early as possible in the student's academic career, but no later than the second semester of the sophomore year.

*NOTE:* Prerequisites for the program include sufficient Spanish to be admitted to 3000-level courses, ECON 2010 and 2020 and a C- or better in a statistics or calculus course (the statistics or calculus class will also count as one of the LD area courses described below). SPAN 3040 and SPAN 4070 must be taken at CU-Boulder. A 2.00 GPA or better is required for the Leeds courses.

### **Professional Spanish Courses** (no substitutions permitted): **15 credit hours**

- SPAN 3030 Professional Spanish for Business 1—3
- SPAN 3040 Professional Spanish for Business 2—3
- SPAN 3200 Spanish Culture or SPAN 3210 The Cultural Heritage of Latin America or 3220 Latin American Culture: Spanish America and Brazil or SPAN 3420 Catalan Culture—3
- SPAN 4060 Problems of Business Translation in Spanish 1—3
- SPAN 4070 Problems of Business Translation in Spanish 2—3

### **Spanish Language Courses: 17 credit hours**

- SPAN 3000 Advanced Spanish Language Skills—5
- SPAN 3100 Literary Analysis in Spanish—3
- SPAN 3120 Advanced Spanish Grammar—3
- Any SPAN 4000-level course—3
- Upper-division elective (recommended: SPAN 3050, 3310, 3340, 4930)—3

### **Courses in Economics and the Leeds School of Business for College of Arts and Sciences students** (no substitutions allowed): **15 credit hours:**

- ECON 3403 International Economics and Policy (prereq., ECON 1000 or ECON 2010 and 2020)—3
- BUSM 2001 Management/Marketing—3
- BUSM 2002 Accounting/Finance—3
- BUSM 3XXX Track (any one of three)—3
- BUSM 4XXX Strategy/CES and Business Plan—3

*NOTE:* To enroll in Leeds Business minor courses, arts and sciences students must have a minimum 2.00 GPA and must apply for the business minor after completing statistics or calculus with C- and 26 hours (12 hours at CU or with transfer work). In addition, they must

attend a five hour "On-Boarding Experience" before the first BUSM class and pay applicable course fees. For complete information and application forms visit [leeds.colorado.edu/minor#overview](https://leeds.colorado.edu/minor#overview).

### Courses in Leeds School of Business for Double Degree students:

15 credit hours of BCOR classes, which cover comparable functional areas as those in the BUSM courses will be approved for the business course component and the 12 credit area course requirement will be covered by other courses required for the Leeds degree. See faculty director of the international Spanish for the profession major for approval of specific courses.

### Area Courses: 12 credit hours.

Students are required to take courses outside the Spanish department in a field related to their professional interests or a certificate program, second major or degree. These may include courses in business, economics, computer science, linguistics, another foreign language, Chicano/a studies, Latin American studies, international affairs, any course dealing with the Hispanic world from anthropology, history, political science and geography. Often some of these courses can be fulfilled on study abroad. Courses meeting this requirement must be approved by the faculty director of the major.

Six credits may be taken in lower-division courses and three of these credits can be the statistics or calculus class taken as the prerequisite to the BUSM courses.

Six credits must be taken in upper-division courses.

*NOTE: The College of Arts and Sciences does not allow more than 45 credit hours in any one discipline to be counted toward the 120 credit hours required for a BA degree. This rule does not mean that a student may not take more than 45 credit hours in Spanish, but rather that one must have at least 75 credit hours in courses other than Spanish. PORT 2120 or 2150 will be accepted as partially fulfilling upper-division courses in other foreign languages. No Spanish or approved area courses with a grade lower than a C- will be counted in the major requirements. The ancillary GPA (made up of the combined grades from the economics, business and area courses) must be at least 2.00.*

## Study Abroad

The department strongly recommends that all majors include some study in a Spanish-speaking country in their major program. The university cooperates with full-year and semester programs in Argentina, Bolivia, Chile, Costa Rica, Dominican Republic, Ecuador, Mexico, Nicaragua, Panama and Spain. There are also programs in Brazil and Portugal for Portuguese speakers. Credit earned normally counts toward satisfaction of the major requirements, but the student should see the Professional Undergraduate Advisor before enrolling in a foreign program to discuss transfer of credit. Credit for work done in special programs offered by foreign universities is evaluated on an individual basis. It should be noted that courses taken abroad and designated as Spanish are also subject to the 45-hour maximum rule of the College of Arts and Sciences.

Students who present transfer work or credit earned in CU study abroad programs to satisfy major requirements are expected to complete at least 12 upper-division credits, including at least 6 from the 4000-level "Major Works and Trends" courses listed above and SPAN 3100, on the Boulder campus.

## Minor Program in Spanish

This track emphasizes knowledge of the Spanish language as well as the arts and cultures of Spanish-speaking countries. The program focuses on critical thinking and communicational

skills (written and oral) and their application in today's real-world global setting. The Undergraduate Minor in Spanish consists of 20 credits. For more information, visit [spanish.colorado.edu/content/minors-spanish-portuguese](http://spanish.colorado.edu/content/minors-spanish-portuguese).

## Minor Program in Portuguese

A minor program is offered in Portuguese. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school. For more information, visit [spanish.colorado.edu/content/minors-spanish-portuguese](http://spanish.colorado.edu/content/minors-spanish-portuguese).

## Concurrent Bachelor's/Master's Program

### Concurrent BA/MSIB in Spanish

This program is designed for students who wish to combine their BA in international Spanish for the professions with an MS in international business (MSIB) from the University of Colorado Denver. Students are able to complete both degrees in five years, including two summer sessions because the 15 credit hours of economics and business courses from the undergraduate degree count toward prerequisites for the MS program.

**Admission Procedures:** Students apply for the MSIB program during their third year by declaring their intention to the international Spanish for the professions faculty director, submitting the standard MSIB application forms, and completing admissions requirements, which include the GMAT (Graduate Management Admissions Test). Students are notified of acceptance to the program before the start of their fourth year. Students must have at least a 3.00 GPA to be considered for admission.

## Graduate Degree Program(s)

### Graduate Study in Spanish

Students wishing to pursue graduate work in Spanish leading to candidacy for advanced degree should read carefully requirements for advanced degrees in the Graduate School section.

## Master's Degree

**Language Requirement.** Students must demonstrate, as early as possible and before taking the comprehensive examination, a communication knowledge (as defined by the Graduate School) of a foreign language other than Spanish. They also must be able to speak, read and write English well.

**Areas of Concentration.** The MA in Spanish is offered in two areas of concentration: one with an emphasis on literature and one with an emphasis on linguistics. (Contact the department for further information.)

## Doctoral Degree

**Residence Requirement.** PhD students must complete a minimum of one academic year in residence on the Boulder campus (excluding summer) within the four years immediately preceding the date on which they present themselves for the PhD comprehensive examination.

**Language Requirement.** The student must demonstrate as early as possible, but at least one full semester before taking the comprehensive examination, a communication knowledge (as defined by the Graduate School) of one foreign language and a reading knowledge of a second language in addition to Spanish. The languages are chosen by the student in consultation with the advisory committee.

**Areas of Concentration.** The PhD in Spanish is offered in six literary periods of concentration:

medieval, golden age, 18th and/or 19th century peninsular, 20th and 21st century peninsular, colonial and 19th century Spanish American and 20th and 21st century Spanish American. For further information on these options, contact the department.

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## Speech, Language and Hearing Sciences

The undergraduate program in speech, language and hearing sciences (SLHS) introduces concepts basic to human communication and provides opportunities for students to acquire an understanding of normal and disordered speech, language and hearing processes. The curriculum for the undergraduate degree in SLHS provides a strong academic foundation for students interested in a wide variety of careers related to the fields of disabilities and education. Additionally, it provides the appropriate undergraduate background for students interested in continuing onto graduate school in speech pathology, audiology and/or special education.

The undergraduate degree in speech, language and hearing sciences emphasizes knowledge of:

- the anatomy of the speech and hearing mechanisms, as well as the processes of speech production, transmission and reception;
- the development of language;
- scientific methods used in investigating speech/language/learning and hearing processes;
- the etiologies, characteristics and treatments of speech/language/learning and hearing disorders; and
- the role of the professional speech-language pathologist and audiologist, including the scientific traditions of the discipline and the ethical issues in providing service to individuals with communication disorders.

In addition, students completing the degree in speech, language and hearing sciences are expected to acquire the ability and skills to:

- express themselves effectively both orally and in written scientific and clinical discipline-specific reports;
- critically evaluate literature in the discipline; and
- analyze the acoustic output of the speech production process auditorily and/or instrumentally.

**Course code for this program is SLHS.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Speech, Language and Hearing Sciences

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below. The major includes 35 credit hours of required course work.

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  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

**Required Courses and Semester Credit Hours**

- LING 2000 Introduction to Linguistics—3
- SLHS 2000 Introduction to Communication Disorders—3
- SLHS 2010 Human Communication Science—3
- SLHS 3006 Phonetics or LING 3100 Sound Structure of Language—3
- SLHS 3106 Hearing Science—3
- SLHS 3116 Speech Science—3
- SLHS 4502 Language Disorders: Child and Adult—3
- SLHS 4512 Speech Disorders—3
- SLHS 4560 Language Development—3
- SLHS 4704 Audiological Evaluation—3
- SLHS 4714 Audiological Rehabilitation—3
- SLHS 4918 Introduction to Clinical Practica—2
- PSYC 1001 General Psychology (as prerequisite for SLHS 4560)—3

**Graduating in Four Years**

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in the Department of Speech, Language and Hearing Sciences students should meet the following requirements:

- Declare the major by the beginning of the sophomore year
- Complete prerequisite courses—LING 2000, SLHS 2010 and PSYC 1001—by the end of spring semester of sophomore year.

**Graduate Degree Program(s)****Graduate Study in Speech, Language and Hearing Sciences**

The graduate curriculum in speech, language and hearing sciences leads to either a master’s or a doctoral degree. The programs in speech-language pathology and audiology are accredited by the Council on Academic Accreditation (CAA) and the Colorado State Department of Education.

Prospective students should read requirements for advanced degrees in the Graduate School section.

**Master’s Degree**

There are two areas of focus available at the MA level: 1) MA leading to professional certification in speech-language pathology by the American Speech Language Hearing Association (ASHA) and licensure for the Colorado State Department of Education and 2) research. Within departmental and ASHA guidelines, master’s students with a focus in speech-language pathology devise individualized programs of academic and clinical study that allow them to develop clinical specialities of their choosing. Clinical assignments are initiated in the department on-site Speech, Language and Hearing Center; later, student input is obtained in making off-campus clinical assignments in educational and medical settings.

**Program**

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- **Speech, Language and Hearing**

Students with an undergraduate degree in speech-language pathology and audiology can expect to complete the program in two calendar years. Those without such a background are required to make up undergraduate deficiencies, which normally require at least an additional 18 credit hours of courses in speech, language and hearing sciences and related disciplines. Students must meet standards for both academic and clinical competence, as well as professional conduct. Full-time graduate study is required. Students not seeking clinical certification place major emphasis on speech, language or hearing sciences under the guidance of their primary advisor and thesis research committee.

## Doctoral Degree

There are two areas of focus available at the doctoral level: 1) AuD leading to professional certification in audiology, and 2) PhD with emphasis on research. The PhD program is grounded in research. Supervisory, administrative, instructional and research activities are provided to acquaint students with problems and concepts at a higher level of professional activity and responsibility.

Wide latitude prevails in planning individual PhD programs. It is expected that students have some professional experience before entering the program, and that they have specific academic or professional goals in mind. PhD candidates must take a four-course sequence in statistics and computer science and four core courses within Speech, Language and Hearing Sciences (SLHS). Beyond that, student degree plans are individually prepared through the joint efforts of the student and an advisory committee. Students may also pursue a dual PhD with SLHS and Neuroscience or SLHS and Cognitive Psychology.

The AuD program is a four-year post-baccalaureate program consisting of academic course work, clinical practicum experiences, capstone project and advanced clinical rotations. Clinical assignments are initiated in the Boulder satellite of the University of Colorado Hospital; later, student input is obtained in making off-campus clinical assignments. The program is designed so students complete all requisite clinical and academic experience for ASHA certification.

In addition, the department offers students the opportunity to pursue an integrated program of study leading to dual doctorate degrees in the field of audiology and speech, language and hearing science. The PhD/AuD dual degree program trains students in clinical research and clinical practice in audiology. Students in the program gain training that will prepare them to become independent scholars, to teach in higher education, to conduct research, to become certified clinical audiologists and to gain skills in leadership. The dual degree program allows students to pursue both their clinical training and their research training in a rigorous, intensive and streamlined program. Students may apply to both programs simultaneously, or may apply to the PhD portion after having been accepted into the AuD portion or may apply to the AuD portion after having been accepted into the PhD portion.

### Sciences

- Theatre & Dance
  - Western American Studies
  - Western Civilization Studies
  - Women and Gender Studies
  - Writing and Rhetoric, Program for
  - Faculty: Arts & Sciences
- Business
  - Education
  - Engineering & Applied Science
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## Theatre & Dance

The Department of Theatre & Dance offers undergraduate and graduate degrees in both theatre and dance. These programs combine traditional studies with practical training. Ambitious seasons of theatre productions and dance concerts feature student performers, designers, directors and choreographers. Guest artists of national and international fame often participate in curricular and extracurricular activities. Recent guests have included Millicent Johnnie, Ananya Chatterjea, Helanius Wilkins, Maria Bauman, Jane Hawley, Tim O'Donnel, Ms. Prissy, April Rose, Chris Aiken and Angie Hauser, Art Bridgman/Myrna Packer, Rennie Harris, Heidi Henderson, Kathleen Hermesdorf, Deborah Jowitt, Darrell Jones, Susan Marshall & Co., Bebe Miller, David Dorfman, Joe Goode, Kevin Wynn, John Scott, Teena Marie Custer and Shelley Senter in dance; Jennifer Hubbard, Geoffry Kent, Eric Van Baars, Silvia Gregory, Gary John LaRosa, Ami Dayan, Terry Berliner, Lee Blessing, Jill C. Donne, Elizabeth Dowd, Melanie Marnich, Jim Moody, Tim Miller, Holly Hughes, Jane Page, Joan Schirle, Karen Finley and Mark Medoff in theatre.

Students interested in theatre and dance are urged to consult with an advisor in the appropriate field to obtain both advice and the most current information concerning program opportunities and expectations.

**Course codes for this department are THTR and DNCE.**

### Theatre

The undergraduate degrees in theatre emphasize knowledge and awareness of:

- the major works of dramatic literature that are representative of the most important eras in the development of theatre and drama;
- the history of theatrical production—its styles, conventions and socially related mores—from ancient civilizations to the present time;
- the various means through which a theatrical concept is realized; and
- the aesthetic and intellectual relationship between theatre in its various 21st century modes and contemporary society.

In addition, students completing a degree in theatre are expected to acquire the ability and skills to:

- analyze and interpret plays and performances with particular attention to acting and performance of literature, designing, directing and/or playwriting and criticism;
- use, with safety and efficiency, the tools and equipment basic to theatre production technology;
- communicate to an audience through at least one of the components of theatrical art—

#### Arts & Sciences

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  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Behavioral Genetics
  - Biological Sciences
  - British and Irish Studies
  - Central and East European Studies
  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

acting, directing, designing, playwriting or criticism; and

- function effectively as a collaborative member of a production team in the preparation of regularly scheduled public productions.

## Dance

The University of Colorado Boulder has an exciting and diversified dance program which offers BA, BFA and MFA degrees. We are a contemporary dance program—one that values and provides study in a range of styles that influence the multifaceted nature of concert dance today. Our training reflects the influences of both West and North African traditional dance and Western European (ballet) folk dance traditions. Our curriculum is designed to develop concrete skills in performance and choreography and to instill an appreciation of the role that dance plays in human culture around the world. The following areas of knowledge and experience are central to all undergraduate degrees in dance:

- physical investigation of a myriad of styles including: contemporary, hip-hop, ballet, jazz, African and fusion forms, to deepen the somatic awareness and technical refinement of today's contemporary dancer;
- experience with the process and underlying aesthetics of dance creation and composition;
- basic familiarity with cultural, sociological and aesthetic issues important to the contemporary realities of the field of dance, including a working knowledge of major world dance styles, works of dance literature and the history of dance;
- knowledge of the various means, such as stagecraft, costuming, makeup and promotion, through which a public presentation of dance is realized;
- study and practical experience with the act of teaching dance, including issues of creativity, style and pedagogical appropriateness;
- basic knowledge of tactics for prevention of injury to the dancer's body, first aid and approaches to rehabilitation from injury and of various somatic approaches to dance training; and
- experiential study of the relationship between dance and music, including concrete practice of skills in playing and hearing music.

In addition, students completing a degree in dance are expected to acquire the ability and skills to:

- actively participate in dance as an art form with particular attention to at least one of the following areas of dance: performance, choreography, dance production, scholarship, pedagogy or criticism;
- understand and mobilize knowledge of appropriate use of the anatomy and physiology of the body in performance and teaching;
- communicate effectively to an audience through at least one of the components of dance—performance, choreography, teaching or scholarship;
- function constructively as a member of a dance community in the preparation of regularly scheduled public productions; and
- connect and collaborate with communities outside the department through dance outreach.

BA and BFA students are expected to take a variety of technique styles. A minimum of three different styles, as well as African dance, are required. Dance majors must earn a C- or better in all required courses. Students who have not placed in the major technique class (DNCE 2021, 3041 or 4061) by their second semester in dance program are strongly advised not to

### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

continue in the major program in dance. Placement into and successful completion of major technique is a prerequisite for enrollment in other required dance courses.

## Bachelor's Degree Program(s)

### Undergraduate Study in Theatre and Dance

#### Bachelor of Arts in Theatre

The BA degree program in theatre requires 44 credit hours in theatre, 3 in dance and 6 in dramatic literature and/or global arts outside the department. It is a broadly based program of theatre practice and study for the student who may wish to pursue in-depth studies in another area as well. It also serves as the core of studies for a student who wishes to pursue further theatre training in one of the BFA areas of concentration. A grade of C- or better is needed in each required course toward the BA degree, as well as an overall theatre GPA of 2.00.

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below.

#### Required Courses and Semester Credit Hours

- THTR 1003 Acting 1—3
- THTR 1011 Development of Theatre 1: Global Theatre Origins—3
- THTR 1019 Theatre Foundations—3
- THTR 1105 Stage Technologies—3
- THTR 1115 Costume Technologies—3
- THTR 2021 Development of Theatre 2: Modern Theatre and Drama—3
- THTR 2105 Introduction to Performance Design—3
- THTR 3035 Practicum (including section 821 Tech Studio)—5
- THTR 3149 Professional Orientation—2
- THTR 4021 American Theatre and Drama—3
- THTR 4149 Theatre Internship—1
- One upper-division performance course from the following:—3
  - THTR 3053 Acting 2
  - THTR 4039 Musical Theatre Reperatory
  - THTR 4059 Open Topics: Performance for Justice and Development
  - THTR 4063 Audition Techniques
  - THTR 4073 Performing Voices of Women
  - THTR 4103 Acting for Camera
- Electives in theatre (6 must be upper-division)—9
- Electives in dance—3
- Electives in dramatic literature and/or global arts, outside the Department of Theatre & Dance, including at least three upper-division—6

#### Notes:

1. Choices must be advisor approved; BFAs do not have the same options as BAs.
2. BFA Performance students must take 3 credits in Shakespeare (ENGL 3563 or 3573).
3. No more than 2 credit hours of THTR 3035 may be taken in a given semester.

Recommended sequence of courses during the initial year of theatre major program, BA and

#### Sciences

##### • Theatre & Dance

- Western American Studies
- Western Civilization Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

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## BFA:

- THTR 1003 Acting 1—3
- THTR 1011 Development of Theatre 1—3
- THTR 1019 Theatre Foundations—3
- THTR 1105 Stage Technologies—3
- THTR 1115 Costume Technologies—3

## Graduating in Four Years with a BA in Theatre

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress toward a BA in theatre, students should meet the following requirements:

- Complete THTR 1003, 1011, 1019, 1105, 1115, 2021 and 2105 by the end of the fourth semester
- Complete THTR 3149, 3 upper-division credit hours plus 2 credits of THTR 3035 by the end of the fifth semester
- Complete 8 additional upper-division credit hours, including 2 more credits of THTR 3035 by the end of the sixth semester
- Complete THTR 4149, 6 additional upper-division credit hours, plus all 3 credits in dance by the end of the seventh semester
- Complete THTR 4021, 3 upper-division credit hours, and 1 credit of THTR 3035 by the end of the eighth semester

## Bachelor of Fine Arts in Theatre

The BFA degree programs in theatre offer preprofessional training to a limited number of highly motivated and talented students aiming at professional careers. The BFA student pursues one of four possible areas of concentration: performance, theatre design/technology, management or musical theatre.

Admission is limited not only due to student capacity, but also to ensure the type of individual attention necessary for effective training. Interested students should identify themselves as early as possible.

Formal application to the musical theatre concentration should be made concurrent with application to the university. Auditions/interviews will be held at the regular spring auditions for the College of Music. Formal application to the performance concentration should be made at the beginning of the second semester. Formal application to the design/technology/management concentrations should be made at the beginning of the third semester.

Admission is based on talent, academic record, motivation and audition/interviews. Contact the department for information concerning audition/interviews for these BFA tracks.

The college counts a maximum of 67 credit hours of THTR credits toward the total hours required for graduation. A grade of C- or higher is needed in each course required to fulfill the requirements of the BFA degree, as well as an overall theatre GPA of 2.00.

In addition to the general College of Arts and Sciences requirements for the BA degree, requirements for the BFA degree are as follows. (Courses taken as part of a student BFA

concentration cannot also be counted towards fulfillment of the BA electives.)

## Concentration in Performance

67 credit hours are required in THTR, plus 9 in other disciplines (3 dance; 6 dramatic literature). Students accepted into the performance concentration each year constitute an ensemble and as a group follow the required sequence of courses. Specific details about this sequence are available from the department. Students in this concentration must fulfill BA requirements in theatre, with specified electives, and are required to audition for theatre season productions each semester.

### *Required Courses and Semester Credit Hours*

- THTR 3013 Studio 1: Building a Character—3
- THTR 3023 Studio 2: Creating a Role—3
- THTR 3033 Acting Practicum (1 credit repeated twice)—2
- THTR 3043 Advanced Voice for the Stage—3
- THTR 4013 Studio 3: Acting Shakespeare—3
- THTR 4023 Studio 4: Playing with Styles—3
- THTR 4033 Movement for the Actor—3
- THTR 4193 Studio 5: Creating an Ensemble—3

## Concentration in Design, Technology and Management

64 credit hours are required in THTR, plus 15 in other disciplines. Students in the design, technology and management concentration must fulfill BA requirements in theatre as advised and will use the electives in the BA requirements to fulfill prerequisites for the following:

### *Required Courses and Semester Credit Hours*

- THTR 4085 Theatre Management—3
- THTR 4555 Production Studio (1–2 credits repeated for a total of 5)—5
- Four Advanced Technical Theatre electives (as advised)—12
- As advised, courses in other departments in drawing, painting, drafting, sculpture, art history, communication, film, media, business management, environmental design and/or physics—6

## Concentration in Musical Theatre

### *Required Courses and Semester Credit Hours*

60 credit hours are required: 26 in THTR courses, 4 in DNCE courses and 30 in the College of Music. See department website for audition information and application,

[www.colorado.edu/theatredance/admissions](http://www.colorado.edu/theatredance/admissions).

### **Theatre/Dance**

- THTR 1003 Acting 1—3
- THTR 1019 Theatre Foundations—3
- THTR 1105 Stage Technologies—3
- THTR 1115 Costume Technologies—3

- THTR 3011 Development of American Musical Theatre—3
- THTR 3035 Production Practicum (including section 821 Tech Studio)—5
- THTR 3053 Acting 2 or THTR 2043 Voice for the Stage—3
- THTR 4039 Musical Theatre Repertory—3
- Electives in Dance Technique—4

### Music

- MUSC 1081 Intensive Music Theory—(3) if needed
- MUSC 1101 Semester 1 Theory—2
- MUSC 1111 Semester 2 Theory—2
- MUSC 1121 Aural Skills—1
- MUSC 1131 Aural Skills—1
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1105 Keyboard Musicianship 1—1
- PMUS 1205 Keyboard Musicianship 2—1
- PMUS 1726 Voice—9
- PMUS 4137 Opera Theatre 1—1
- PMUS 4147 Opera Theatre 2—1
- PMUS 4157 Opera Practicum—2
- Or two credits of Choir: EMUS 1227, 1237, 1247, 1257, 3227, 3237, 3247, 3257
- Non-Western Music History (2000–4000 level)—3
- Western Music History (2000–4000 level)—3

## Graduating in Four Years with a BFA in Theatre

Consult the Four-Year Guarantee Requirements for information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress toward a BFA in theatre, students should meet the following requirements:

- All potential BFA students in musical theatre must declare, in writing, their intention to audition before December 1, the year before they intend to start at CU. Continuing students must audition prior to their sophomore year. Auditions and interviews for the performance concentration occur in the second semester and for the design/technology concentrations take place in the third semester of study. Students who are accepted into one of these BFA concentrations must declare their major immediately upon acceptance. In addition to the specific course requirements listed for completing a BFA degree in the performance, design/technology, and management concentrations, students must fulfill all requirements for the BA degree in theatre. Once accepted into a BFA concentration, students should meet with a departmental advisor to confirm, in writing, specific courses to be completed within the remaining semesters of study.
- As part of the first two years of study, all students who intend to enter the BFA programs in performance and design/technology must complete the following courses: THTR 1003, 1011, 1019, 1105, 1115 and one semester of 3035.

## Performance Concentration

Upon acceptance to the performance concentration, students must meet immediately with a departmental advisor. All BFA performance majors must complete the following courses in the prescribed order: THTR 3013, 3023, 3043, 4013, 4023, 4033, 4193. Students are also encouraged to complete EMUS 1184 (voice).

- All students in this concentration must audition for all main season theatre productions.

## Theatre Design, Technology and Management Concentration

- Upon acceptance to the theatre design, technology and management concentration, students must meet immediately with a departmental advisor.
- Students in this concentration must take THTR 2015 Introduction to Performance Design, as well as complete a design course in their chosen area by the end of the sophomore year.

## Musical Theatre Concentration

All potential BFA musical theatre students must declare in writing, during the application process, their intention to audition by submitting the appropriate pre-audition materials ([www.colorado.edu/TheatreDance/admissions](http://www.colorado.edu/TheatreDance/admissions)). Students who are accepted into the BFA musical theatre concentration must confirm their decision to enroll as TBFA-MUS major immediately upon acceptance following the audition. They must also meet immediately with a departmental advisor.

## Minor in Theatre

The minor in theatre is designed to provide the student with a broad overview of theatre. Requirements include a minimum of 19 credit hours from the courses below; 9 hours of which must be upper division with a minimum grade of C- in each THTR course and a minimum of 2.00 GPA for all THTR courses. Transfer students may apply a maximum of 9 transfer hours with a maximum of 6 upper-division hours to the theatre minor. Students select courses from the theatre curriculum based on their interests and course availability.

### *Required Courses (total 19 credit hours) to include:*

- One of the following:
  - THTR 1003 Acting for Nonmajors—3
  - THTR 1009 Introduction to Theatre—3
  - THTR 2105 Introduction to Performance Design—3
- One of the following:
  - THTR 1011 Development I—3
  - THTR 2021 Development 2—3
  - THTR 3011 Development of American Musical Theatre—3
  - THTR 4021 Development 4—3
- One of the following:
  - THTR 1105 Stage Technologies—3
  - THTR 1115 Costume Technologies—3
- THTR 3035 Production Practicum (including 1 run crew). THTR 3033 Acting Practicum is acceptable in place of one of the 3 credits.—3
- Dance class—1
- Theatre electives (must be upper division)—6

## Dance

BA and BFA students are expected to take a variety of technique styles. A minimum of three different styles, as well as African dance, are required. Dance majors must earn a C- or better

in all required courses. Students who have not placed in the major technique class (DNCE 2021, 3041 or 4061) by their second semester in dance program are strongly advised not to continue in the major program in dance. Placement into and successful completion of major technique is a prerequisite for enrollment in other required dance courses.

## Bachelor of Arts in Dance

### *Required Courses and Semester Credit Hours*

- DNCE 1012 Dance Production—2
- DNCE 1013 Improvisation—2
- DNCE 1027 Introduction to Dance and Culture—3
- DNCE 1908 Freshman Dance Seminar—1
- DNCE 2501 African Dance—2
- DNCE 2005 Movement Awareness and Injury Prevention for the Dancer—3
- DNCE 2021 (2) or DNCE 3041 (2) or DNCE 4061 Major Technique (2) (Note 1)—total 6
- DNCE 3014 Rhythmic Skills for Dancers or DNCE 3024 Musical Resources—2
- DNCE 3033 Choreographic Resources or DNCE 3034 Choreographic Process—3
- DNCE 3035 Practicum—2
- DNCE 4016 Creative Dance for Children or DNCE 4036 Methods of Teaching Dance—3
- DNCE 4017 History and Philosophy of Dance—3
- DNCE 4939 Senior Project: Internship—1
- THTR 3149 Professional Orientation—2
- THTR 4029 Dance and Community Engagement—2
- THTR 4081 Senior Seminar—3
- Electives in dance technique courses ending in “1”—6
- THTR Production—3
  - Choose one of the following: 1105, 1115, 2105, 3005, 3015, 3045, 3055, 3075, 4035, 4055, 4105, 5025 and some 4095 sections including Tailoring, Conceptualization or Product Design

#### *Notes:*

1. Students are placed at the appropriate level based on audition. Students without sufficient training will be asked to take nonmajor technique classes to make up the deficiency. These classes will not count toward the major requirement.

#### Graduating in Four Years with a BA in Dance:

Consult the Four-Year Guarantee Requirements for more information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress toward a BA in dance, students should meet the following requirements:

- Declare the major by the beginning of the second semester
- Complete by the end of the sophomore year: 2 credits of DNCE 2021, 3041 or 4061; 2 credits of DNCE 2501
- Complete by the end of sophomore year: DNCE 1012, 1013, 1027, 1908, 2005, 3014, or

3024, 3033 or 3043 and one credit of 3035; THTR production and 4029

- Complete during junior and senior years: one credit of 3035, 4016 or 4036, 4017 and THTR 3149
- Complete during senior year: DNCE 4939, THTR 4081.
- Complete additional 4 hours of DNCE 2021, 3041 or 4061; 6 hours of additional courses ending in "1"; and 3 hours of dance electives at appropriate time with the advice of the advisor

## Bachelor of Fine Arts in Dance

The BFA in dance is designed to meet the needs of highly talented students interested in preparing for a professional dance career while in an academic setting. The degree requires 76-77 credit hours in dance and theatre. Admission is limited by faculty consent to ensure the type of individual attention necessary for effective training.

### *Required Courses and Semester Credit Hours*

- DNCE 1012 Dance Production—2
- DNCE 1013 Improvisation—2
- DNCE 1027 Introduction to Dance and Culture—3
- DNCE 1908 Freshman Dance Seminar—1
- DNCE 2501 African Dance—2
- DNCE 2005 Movement Awareness and Injury Prevention for the Dancer—3
- DNCE 2021, 3041 or 4061 Major Technique (Note 1)—12
- DNCE 3014 Rhythmic Skills for Dancers—2
- DNCE 3024 Musical Resources—2
- DNCE 3033 Choreographic Resources—3
- DNCE 3035 Practicum—1
- DNCE 3043 Choreographic Process—3
- DNCE 3601 Alexander Technique—2
- DNCE 4012 Concert Production—1
- DNCE 4016 Creative Dance for Children or DNCE 4036 Methods of Teaching Dance—3
- DNCE 4017 History and Philosophy of Dance—3
- DNCE 4037 Looking at Dance—3
- DNCE 4053 Advanced Composition—3
- DNCE 5052 Studio Concert—3
- THTR 1003 or DNCE 4023 Performance Improvisation Techniques—2-3 or THTR 4073 Performing Voices of Women—3
- THTR 3149 Professional Orientation—2
- THTR 4029 Dance and Community Engagement—3
- THTR 4081 Senior Seminar—3
- Electives in dance technique courses ending in "1"—9
- THTR Production—3

Choose one of the following: 1105, 1115, 2105, 3005, 3015, 3045, 3055, 3075, 4035, 4055, 4105, 5025 and some 4095 sections including Tailoring, Conceptualization or Projection Design.

*Notes:*

1. Students are placed at the appropriate level based on audition. Students without sufficient training will be asked to take nonmajor technique classes to make up the deficiency. These classes will not count toward the major requirement.

### Graduating in Four Years with a BFA in Dance

Consult the Four-Year Guarantee Requirements for more information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress toward a BFA in dance, students should meet the following requirements:

- Acceptance into the BFA by the end of the third semester with consent of dance faculty
- Complete by the end of the sophomore year: 4 credits of DNCE 2021, 3041 or 4061; 2 credits of DNCE 2501
- Complete by the end of the sophomore year: DNCE 1012, 1013, 1027, 1908, 2005, 2014, 2033 and 3035; THTR 1115 and 2 credits of THTR 4029
- Complete during junior or senior years: DNCE 3024, 3043, 4012, 4016 or 4036, 4017, 4037, 4053; THTR 3149; 1 credit of THTR 4029
- Complete during senior year: DNCE 5052, THTR 4081
- Complete at appropriate time with advice from advisor: 8 additional credits of DNCE 2021, 3041 or 4061; 9 hours of dance technique courses ending in “1”; DNCE 3601; THTR 1003 or DNCE 4023 or THTR 4073

## Minor in Dance

The minor in dance is designed to provide the student with a broad overview of dance. Requirements include a minimum of 20 credit hours; 9 of which must be upper division; a minimum grade of C- in each dance class; and a minimum of a 2.00 GPA for all dance and approved non-dance courses. Transfer students may apply a maximum of 9 transfer hours with a maximum of 6 upper-division hours to the dance minor. Students select courses from the dance curriculum based on their interests and course availability.

***Required Courses (total 10 credit hours) to include:***

- Two of the following courses:
  - DNCE 1017 Dance and Popular Culture—3
  - DNCE 1027 introduction to Dance and Popular Culture—3
  - DNCE 4017 History and Philosophy of Dance—3
  - DNCE 4037 Looking at Dance—3
  - DNCE 4047 Hip Hop Dance History—3
- Plus 4 additional credits of dance technique (courses ending in 0 or 1), which could include DNCE 1013 Improvisation

***Elective Courses (total 10 credit hours)***

## Graduate Degree Program(s)

## Graduate Degrees in Theatre & Dance

The Department of Theatre & Dance offers the following graduate degrees:

- MA in theatre
- MA/MBA in theatre offered jointly with the CU Leeds School of Business
- PhD in theatre
- MFA in dance

**Departmental Requirements.** Students wishing to pursue graduate work in theatre or in dance should carefully read both requirements for advanced degrees in the Graduate School section and the individual degree handbooks published on the department website:

[www.colorado.edu/theatredance](http://www.colorado.edu/theatredance). Students should note that departmental requirements are sometimes more comprehensive than those minimums established by the Graduate School.

**Prerequisites.** Applicants are admitted to the graduate program in theatre and in dance on the basis of their academic records and recommendations. Student admitted who are unable to offer a substantial number of credit hours of work in the area of their intended specialization or allied fields must expect that a significant number of additional courses and credit hours are required of them in order to make up deficiencies.

**Applications for Dance.** Applicants for the MFA program in dance must audition in person; international students may audition in digital format. Auditions are usually held in January for admission the following fall. The specific audition dates can be found on the department website. Applicants are expected to show a high level of proficiency in dance performance and choreography. The deadline for applications for U.S. citizens and non-U.S. citizens in December 1. Applicants who want to apply for graduate part-time instructor (GPTI) positions must apply by December 1.

**Applications for Theatre.** The deadline for applications for U.S. citizens is December 15. The deadline for applications from non-U.S. citizens is December 1.

**Advising Meeting.** Every student will have a meeting with faculty upon entering the program. Topics discussed in the meeting and other available information are employed to design the best possible course of study for the student. This evaluation may indicate course work as necessary above and beyond the required hours for the degree.

All candidates for a degree have the responsibility of making certain that the appropriate persons or committees have been appointed to supervise the various steps in their graduate programs. Detailed instructions are available from the department.

## Master's Degree in Theatre

After any undergraduate deficiencies have been removed, students must earn 30 semester hours, at least 16 of which must be in THTR courses at the 5000 level or above. Four to six thesis credit hours may be counted toward the 30-hour requirement. At least 24 of the 30 hours must be at the 5000-level or above.

**Course Requirements.** All master's degree students in theatre are required to complete:

- THTR 5011 Theory and Criticism
- THTR 5049 Problems in Theatre: Introduction to Performance Studies
- THTR 6009 Research Strategies and Techniques

Plus two of the following:

- THTR 5051 Special Topics in Theatre: Contemporary Theatre

- THTR 5061 Seminar: Asian Performance
- THTR 6011 On-Stage Studies: Global Ancient and Classical Theatre
- THTR 6021 On-Stage Studies: English Renaissance Drama
- THTR 6031 On-Stage Studies: American Theatre
- THTR 6041 On-Stage Studies: Modern Theatre

Students can choose either a thesis or non-thesis track program.

## Doctoral Degree in Theatre

Doctoral students in theatre are normally expected to earn 30 credit hours of course work beyond the master's degree at the 5000-level or above. When approved by the student advisory committee, credits from other departments on campus may count, provide the course is taught by a member of the graduate faculty in that department. In addition to the 30 hours of course work, 30 dissertation credits (THTR 8999) are required.

Doctoral study in theatre is based on the following core of required advanced course:

- THTR 5011 Theory and Criticism
- THTR 5049 Prob
- lems in Theatre: Introduction to Performance Studies
- THTR 6009 Research Strategies and Techniques

Plus three of the following:

- THTR 5051 Special Topics in Theatre: Contemporary Theatre
- THTR 5061 Seminar: Asian Performance
- THTR 6011 On-Stage Studies: Global Ancient and Classical Theatre
- THTR 6011 On-Stage Studies: English Renaissance Drama
- THTR 6011 On-Stage Studies: American Theatre
- THTR 6011 On-Stage Studies: Modern Theatre

Beyond the core courses, studies are determined by students and their advisors, consistent with Graduate School and departmental requirements. Doctoral students are required to demonstrate proficiency in a foreign language equivalent to the completion of a second-semester college level before taking the comprehensive exam.

## MFA Degree in Dance

**Course Requirements.** The three-year program requires a minimum of 60 credit hours, at least 30 of which must be taken in dance at the 5000 level or above. The program focuses on performance/choreography and secondary areas of specialization. At least 6 credit hours must be taken outside of dance in an approved allied field. The program is designed to accommodate recent BA or BFA graduates and practicing professionals desiring a graduate degree who have a bachelor's degree.

The MFA in dance is based on a required core of courses including contemporary dance, ballet, African dance, Alexander technique, choreography, history, readings in dance, seminars in dance and music, research strategies, pedagogy and a creative project or thesis. Detailed information is published in the MFA Handbook at [colorado.edu/theatredance/dance/academics](https://colorado.edu/theatredance/dance/academics).

The required core curriculum is as follows:

- DNCE 5001 Graduate Technique
- DNCE 5012 Concert Production
- DNCE 5014 Rhythmic Skills or DNCE 5024 Musical Resources
- DNCE 5017 History and Philosophy\*
- DNCE 5053 Advanced Composition
- DNCE 5048 Dance & Community Engagement
- DNCE 5056 Teaching Seminar
- DNCE 5601 Alexander Technique
- DNCE 6009 Research Strategies
- DNCE 6017 Readings in Dance
- DNCE 6047 Seminar in Dance
- DNCE 6073 Choreography
- DNCE 6959 Thesis or DNCE 6969 Graduate Project

**Project or Thesis.** The culmination of graduate study is choreographic/creative project accompanied by a paper. In the second year of the degree program, a written proposal for the creative project must be presented and approved. Upon its completion, an oral defense of the project and paper is required. On rare occasions students undertake a scholarly thesis instead of artistic project and paper.

**Graduate Comprehensive Portfolio.** MFA candidates submit a collection of scholarly, pedagogical and creative work. The portfolio is intended to document and synthesize the graduate's reasoned personal philosophies, choreography and academic investigations. It includes creative and pedagogical statements, scholarly essays, a CV, and digital documentation of teaching, performance and choreography.

Dual Degree Programs

## Master of Business Administration/Master of Arts in Theatre

The Leeds School of Business, in conjunction with the Department of Theatre & Dance, offers students the ability to earn an MBA and an MA in theatre through a three-year dual-degree program. Students in the MBA/MA dual-degree program pursue careers in a wide variety of fields and jobs in the world of the performing arts. Types of organizations include theatre companies, dance companies, opera companies, symphonies, arts councils, performing arts complexes, civic auditoriums and arts presenters.

**Admission.** An individual must apply separately and be admitted to both programs under each school's or college's admission procedures and standards. Applicants are encouraged to apply to the two programs concurrently.

**Course of Study.** Students in the MBA/MA in theatre spend the first year of their dual-degree program exclusively in either the business school or the theatre program. In the second year, courses are taken exclusively in the other department. The third year offers students the opportunity to take both the MBA and theatre/dance elective courses.

**Credit for Courses.** Dual-degree students are required to complete 43 hours of MBA course work and 24 hours of both theatre/dance course work. A minimum of 67 approved credits must

be completed to earn both degrees.

## Dual Degree Programs

### Master of Business Administration/Master of Arts in Theatre

The Leeds School of Business, in conjunction with the Department of Theatre & Dance, offers students the ability to earn an MBA and an MA in theatre through a three-year dual-degree program. Students in the MBA/MA dual-degree program pursue careers in a wide variety of fields and jobs in the world of the performing arts. Types of organizations include theatre companies, dance companies, opera companies, symphonies, arts councils, performing arts complexes, civic auditoriums and arts presenters.

**Admission.** An individual must apply separately and be admitted to both programs under each school's or college's admission procedures and standards. Applicants are encouraged to apply to the two programs concurrently.

**Course of Study.** Students in the MBA/MA in theatre spend the first year of their dual-degree program exclusively in either the business school or the theatre program. In the second year, courses are taken exclusively in the other department. The third year offers students the opportunity to take both MBA and theatre/dance elective courses.

**Credit for Courses.** Dual-degree students are required to complete 43 hours of MBA course work and 24 hours of theatre/dance course work. A minimum of 67 approved credits must be completed to earn both degrees.

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## Western American Studies

The Center of the American West offers an undergraduate certificate program in Western American Studies for students who have an intellectual commitment to any of a broad range of issues and aspects of the American West, including history and literature, culture and society and economic and environmental challenges facing western communities. Courses involve students in an exploration of the past, an appreciation for traditional and contemporary stories and art in the region and an understanding of western landscapes, ecosystems and the factors that affect them.

**Course code for this program is CAMW.**

### Certificate Program(s)

#### Certificate in Western American Studies

The interdisciplinary certificate draws on courses and expertise from over a dozen departments spanning the humanities, natural sciences and social sciences. Course work may be taken concurrently with undergraduate studies. Students complete 18 credit hours of course work including the introductory course, CAMW 2001 and the capstone course, CAMW 4001. Contact the Center of the American West at **303-735-1399** or visit [www.centerwest.org/academics/certificate](http://www.centerwest.org/academics/certificate) for program details.

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  - Behavioral Genetics
  - Biological Sciences
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  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

Program

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## Western Civilization Studies

The Center for Western Civilization (CWC) offers an undergraduate certificate program, Foundations of Western Civilization, for students interested in a rigorous grounding in Western culture. The certificate promotes critical reflection and academic research on the traditions and issues that characterize Western civilization through the study of Western culture, science and government in their ancient, medieval and modern forms. It helps students understand their role as citizens in a nation founded on the ancient ideals of consensual rule and republican government.

**Course code for this program is CWCV.**

### Certificate Program(s)

#### Certificate in Foundations of Western Civilization

The interdisciplinary curriculum of over 30 courses taught by faculty in departments that include classics, English, history, philosophy, religious studies and Germanic languages and literatures. The certificate requires the completion with a grade of C- or better of eight courses (24 credit hours), of which 12 credit hours must be at the upper-division level. Up to three courses (or 9 credit hours) may come from the student's major. In addition, students must fulfill the requirements for a BA in their major in a school or college at the University of Colorado. For more information on the program, requirements and current course offerings ([www.colorado.edu/cwc](http://www.colorado.edu/cwc)), contact CWC Director Robert Pasnau at **303-492-4837** or [pasnau@colorado.edu](mailto:pasnau@colorado.edu).

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  - Atmospheric and Oceanic Sciences
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  - British and Irish Studies
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  - Chemistry and Biochemistry
  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
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## Women and Gender Studies

The interdisciplinary women and gender studies undergraduate major and minor offer students a rigorous but flexible program of study that examines women, gender and sexuality in relation to race, class, national identity and ability. (A Graduate Certificate in Women and Gender Studies and an Undergraduate Certificate in Global Gender and Sexuality Studies are also offered, *see below*.) Students explore the ways that gender and sexuality work in diverse communities and in different cultural and historical contexts. Areas of inquiry include but are not limited to: gender/sex systems across cultures and historical periods; gender, sexuality and culture; legal and public policy issues around gender and sexuality; women's participation in social and cultural production; transnational feminisms; feminist theory and its relation to different philosophical and epistemological traditions; sexual identity politics and histories; and queer theory. Drawing from approximately 50 courses, many cross-listed with other academic units, students fulfill the requirements of the major or minor and can design an emphasis relevant to their special interests by focusing on one of three cognate areas: gender/sexuality, race/ethnicity or global/transnational. The program houses a reading library and organizes colloquia, workshops and other cultural and educational events.

Students have gone on to careers in fields such as law, medicine, government, public health, public policy, social work, teaching, counseling, advocacy, media, public relations, education, politics, fundraising, small business development, librarianship and arts administration.

The undergraduate degree and the minor in women and gender studies will provide students with an in-depth understanding of:

- the historical and cross-cultural variability of social norms of masculinity and femininity
- the ways in which gender/sex systems intersect with other axes of domination, such as class, race, ethnicity, ability and national identity
- the centrality of gender and sexuality to politics, economics, social relations and culture at the local, national and international level
- the diversity of global feminism
- how gender roles and expectations play out in the global economy
- how power and privilege function at the intersection of gender, sexuality, race, class, ability and national identity
- how women participate in, contribute to, and transform areas of social life including politics, economics, social relations, culture and religion
- institutionalized discrimination and violence against women, girls and LGBTQ individuals
- women's activism and resistance to oppression
- the varied research methods and theoretical perspectives used in women, gender and sexuality studies, including the relationship between theory and practice

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- the history of women, gender and sexuality studies as an academic discipline and the main themes that have characterized its emergence

In addition, students with degrees in women and gender studies will be able to:

- communicate complex ideas related to women and gender studies to academic and general audiences
- employ creative problem solving techniques, especially with regard to research and analysis of the issues noted in the previous section
- organize and synthesize material in new ways, especially with regard to research and analysis of the issues noted in the previous section
- read, critically evaluate and synthesize women and gender studies scholarship
- work collaboratively with colleagues and the general public, especially with regard to the issues noted in the previous section

For more information, visit [wgst.colorado.edu](http://wgst.colorado.edu).

**Course code for this program is WMST.**

## Bachelor's Degree Program(s)

### Bachelor's Degree in Women and Gender Studies

Students must complete the general requirements of the College of Arts and Sciences and the required courses listed below.

#### **Required Courses and Semester Credit Hours**

Students must complete a minimum of 36 credit hours with grades of C- or better in approved women and gender studies courses, a minimum of 24 credits of which must be upper division (3000 or 4000 level).

#### **Required Courses—12 semester credit hours**

- WMST 2000 Introduction to Feminist Studies—3
- WMST 2600 Gender, Race and Class in a Global Context—3
- WMST 3100 Feminist Theories—3
- WMST 4800 Senior Colloquium in Feminist Studies (Note 1)—3

#### **Notes:**

1. This course is ONLY offered in spring semesters. Students graduating in the fall should take this course in the prior spring semester.

#### **Lower-division Elective Courses**

(no more than 6 additional credit hours at the 1000–2000 levels)

Students may choose from any of the lower-division courses listed below, or courses approved by the women and gender studies advisor and the department, that are not applied to courses listed either above or below.

- LING 2400 Language and Gender—3
- LGBT/ENGL 2707 Introduction to Lesbian, Bisexual and Gay Literature—3

#### Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
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- Geography
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- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
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- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

- WMST/SOCY 1006 Social Construction of Sexuality or WMST/SOCY 1016 Sex, Gender and Society 1—3
- WMST/ENGL 1260 Introduction to Women's Literature—3
- WMST 2020 Feminities, Masculinities, Alternatives—3
- WMST 2030/LGBT 2000 Introduction to Lesbian, Gay, Bisexual and Transgender Studies—3
- WMST 2050 Gender, Sexuality and Popular Culture—3
- WMST 2200 Women, Literature and the Arts—3
- WMST 2400/HIST 2636 Women of Color and Activism—3
- WMST/PSYC 2700 Psychology of Contemporary American Women—3

### Upper-division Courses

(at least 18 credit hours; total credits hours must come to 36)

Students must take at least one course from each of the following cognate areas: gender/sexuality; race/ethnicity; global/transnational. For the remaining 9 credits, students may take additional courses from these three categories and/or the upper-division electives list. Consult the women and gender studies advisor or the department for additional choices.

#### Gender/Sexuality (at least 3 credits)

- LGBT 3796 Queer Theory—3
- WMST/SOCY 3046 Topics in Sex and Gender—3
- WMST 3300/PSCI 3301 Gender, Sexuality and U.S. Law—3
- WMST 4010/SOCY 4000 Gender, Genocide and Mass Trauma—3
- WMST/SOCY 4016 Sex, Gender and Society 2—3
- WMST/LGBT 4287 Special Topics in LGBT Literature—3
- WMST/LGBT 4400 Critical Inquiries in Transgender Studies—3
- WMST/HIST 4636 Lesbian and Gay History—3
- WRTG 3020 Topics in Writing: Gender and Sexuality—3

#### Race/Ethnicity (at least 3 credits)

- ETHN 3026 Women of Color: Chicanas in U.S. Society—3
- WMST/ETHN/SOCY 3044 Race, Class, Gender and Crime—3
- WMST 3135/ETHN 3136 Chicana Feminisms and Knowledges—3
- WMST 3210/ETHN 3213 American Indian Women—3
- WMST/PSCI 3311 Gender and U.S. Politics—3
- WMST 3505/ETHN 3502 Historical and Contemporary Issues of African American Women—3
- WMST 3600 Latinas: History, Culture and Social Activism—3
- WMST/JOUR 4331 Gender, Race, Class and Sexuality in Popular Culture—3
- WMST/HIST 4619 Women in East Asian History—3

#### Global/Transnational (at least 3 credits)

Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies

#### • Women and Gender Studies

- Writing and Rhetoric, Program for
- Faculty: Arts & Sciences

Business

Education

Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

- WMST/SOCY 3012 Women and Development—3
- WMST 3220 Women in Islam—3
- WMST 3500 Global Gender Issues—3
- WMST 3650/PSCI 3052 Gender and Politics in Latin America—3
- WMST 3670 Gender, Race, Sexuality and Global Migration—3
- WMST/GEOG 3672 Gender and Global Economy—3
- WMST 4300 Sex, Power, Politics: International Perspectives—3
- WMST/GRMN 4301 Gender, Race and Immigration in Germany and Europe—3
- WMST 4500 Gender Politics and Global Activism—3

### Upper-division Electives

- ARTH 3209 Art, Culture and Gender Diversity: 1400–1600—3
- ENGL 3217 Topics in Gender Studies—3
- FILM 3013 Women and Film—3
- ITAL 4730 Italian Feminisms: Culture, Theory and Narratives of Difference—3
- WMST/SOCY 3016 Marriage and the Family in the United States—3
- WMST 3020 Methods of Inquiry in Gender, Race, Class and Sexuality—3
- WMST/PHIL 3110 Feminist Practical Ethics—3
- WMST/PSCI 3174 Sex, Power and Politics: U.S. Perspectives—3
- WMST/JWST 3200 Religion and Feminist Thought—3
- WMST/ENGL 3267 Women Writers—3
- WMST/INVS 3302 Facilitating Peaceful Community Change—3
- WMST/ETHN/SOCY 3314 Violence against Women and Girls—3
- WMST/ARAB 3410 Gender, Sexuality and Culture in the Modern Middle East—3
- WMST/GRMN 3601 German Women Writers—3
- WMST/RLST 3750 Women in Buddhism—3
- WMST 3800 Advanced Writing in Feminist Studies—3
- WMST/THTR 4041 Women and Theatre of the 20th and 21st Centuries—3
- WMST/HIST 4063 Women in Victorian England—3
- WMST/THTR 4073 Performing Voices of Women—3
- WMST/SOCY 4086 Family and Society—3
- WMST/ENGL 4277 Topics in Women's Literature—3
- WMST/RUSS 4471 Women in 20th-21st Century Russian Culture—3
- WMST/HIST 4616 History of Women in the U.S. to 1890—3
- WMST/HIST 4626 History of Women in the U.S. since 1890—3

### Honors

Students may take up to 6 credits of honors hours in WMST; credits apply to upper-division electives in the major.

- WMST 4950 Honors Research—3
- WMST 4999 Senior Honors Thesis—1-3

## Internship

Students may take up to 6 credits of internship hours in WMST; credits apply to upper-division electives in the major.

- WMST 3930 Women and Gender Studies Internship—1-6

## Special Topics

Students may take up to 6 credit hours in WMST topics courses; course topics vary each semester. Ask the women and gender studies advisor or department about how each course applies to major cognates.

- WMST 3700 Topics in U.S. Gender and Sexuality Studies—3
- WMST 3710 Topics in Global Gender and Sexuality Studies—3
- WMST 4000 Advanced Topics in Gender and Sexuality Studies—3

## Graduating in Four Years

Consult the Four-Year Guarantee Requirements for more information on eligibility. The concept of “adequate progress” as it is used here only refers to maintaining eligibility for the four-year guarantee; it is not a requirement for the major. To maintain adequate progress in women and gender studies, students should meet the following requirements:

- Declare major by the beginning of the second semester
- Complete WMST 2000 and WMST 2600 and 9 additional credit hours of major requirements by the end of the fourth semester
- Complete WMST 3100 and 27 additional credit hours of major requirements by the end of the sixth semester
- Complete WMST 4800 and one additional 3-credit course of the major requirements by the end of the eighth semester

## Minor Program

A minor program in women and gender studies is offered. Declaration of a minor is open to any student enrolled at CU-Boulder, regardless of college or school.

Students must complete a minimum of 21 approved WMST credit hours with a grade of C- or better, 12 credits of which must be upper-division (3000 or 4000 level).

### *Required Courses and Semester Credit Hours*

#### **Required (9 credit hours)**

- WMST 2000 Introduction to Feminist Studies—3
- WMST 2600 Gender, Race and Class in a Global Context—3
- WMST 3100 Feminist Theories—3

#### **Electives (12 credits)**

Students must take at least two courses (6 credits) from two of the three following cognate

areas: gender/sexuality; race/ethnicity; global/transnational. Three of the remaining 6 credits can be any upper-division approved WMST course (those listed under cognate areas or upper-division electives), and 3 can be either a lower or upper-division approved WMST course. Internships and independent study credits may apply, as well as special topics courses (WMST 3700, 3710 and 4000); see advisor or department for more information.

### **Cognate Areas (6 credit hours from two areas)**

#### **Gender/Sexuality**

- LGBT 3796 Queer Theory—3
- WMST/SOCY 3046 Topics in Sex and Gender—3
- WMST 3300/PSCI 3301 Gender, Sexuality and U.S. Law—3
- WMST 4010/SOCY 4000 Gender, Genocide and Mass Trauma—3
- WMST/SOCY 4016 Sex, Gender and Society 2—3
- WMST/LGBT 4287 Special Topics in LGBT Literature—3
- WMST/LGBT 4400 Critical Inquiries in Transgender Studies—3
- WMST/HIST 4636 Lesbian and Gay History—3
- WRTG 3020 Topics in Writing: Gender and Sexuality—3

#### **Race/Ethnicity**

- ETHN 3026 Women of Color: Chicanas in U.S. Society—3
- WMST/ETHN/SOCY 3044 Race, Class, Gender and Crime—3
- WMST 3135/ETHN 3136 Chicana Feminisms and Knowledges—3
- WMST 3210/ETHN 3213 American Indian Women—3
- WMST/PSCI 3311 Gender and U.S. Politics—3
- WMST 3505/ETHN 3502 Historical and Contemporary Issues of African American Women—3
- WMST 3600 Latinas: History, Culture and Social Activism—3
- WMST/JOUR 4331 Gender, Race, Class and Sexuality in Popular Culture—3
- WMST/HIST 4619 Women in East Asian History—3

#### **Global/Transnational**

- WMST/SOCY 3012 Women and Development—3
- WMST 3220 Women in Islam—3
- WMST 3500 Global Gender Issues—3
- WMST 3650/PSCI 3052 Gender and Politics in Latin America—3
- WMST 3670 Gender, Race, Sexuality and Global Migration—3
- WMST/GEOG 3672 Gender and Global Economy—3
- WMST 4300 Sex, Power, Politics: International Perspectives—3
- WMST/GRMN 4301 Gender, Race and Immigration in Germany and Europe—3
- WMST 4500 Gender Politics and Global Activism—3

### Lower-division Electives

- LING 2400 Language and Gender—3
- LGBT/ENGL 2707 Introduction to Lesbian, Bisexual and Gay Literature—3
- WMST/SOCY 1006 Social Construction of Sexuality or WMST/SOCY 1016 Sex, Gender and Society 1—3
- WMST/ENGL 1260 Introduction to Women's Literature—3
- WMST 2020 Femininities, Masculinities, Alternatives—3
- WMST 2030/LGBT 2000 Introduction to Lesbian, Gay, Bisexual and Transgender Studies—3
- WMST 2050 Gender, Sexuality and Popular Culture—3
- WMST 2200 Women, Literature and the Arts—3
- WMST 2400/HIST 2636 Women of Color and Activism—3
- WMST/PSYC 2700 Psychology of Contemporary American Women—3

### Upper-division Electives

- ARTH 3209 Art, Culture and Gender Diversity: 1400–1600—3
- ENGL 3217 Topics in Gender Studies—3
- FILM 3013 Women and Film—3
- ITAL 4730 Italian Feminisms: Culture, Theory and Narratives of Difference—3
- WMST/SOCY 3016 Marriage and the Family in the United States—3
- WMST 3020 Methods of Inquiry in Gender, Race, Class and Sexuality—3
- WMST/PHIL 3110 Feminist Practical Ethics—3
- WMST/PSCI 3174 Sex, Power and Politics: U.S. Perspectives—3
- WMST/JWST 3200 Religion and Feminist Thought—3
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- WMST/ETHN/SOCY 3314 Violence against Women and Girls—3
- WMST/ARAB 3410 Gender, Sexuality and Culture in the Modern Middle East—3
- WMST/GRMN 3601 German Women Writers—3
- WMST/RLST 3750 Women in Buddhism—3
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- WMST/SOCY 4086 Family and Society—3
- WMST/ENGL 4277 Topics in Women's Literature—3
- WMST/RUSS 4471 Women in 20th-21st Century Russian Culture—3
- WMST/HIST 4616 History of Women in the U.S. to 1890—3
- WMST/HIST 4626 History of Women in the U.S. since 1890—3

## Certificate Program(s)

### Undergraduate Certificate in Global Gender and Sexuality Studies

The ever-increasing movement of people, commodities, politics and culture—"globalization"—impacts all of us in different ways. The Undergraduate Certificate in Global Gender and Sexuality Studies provides students with an opportunity to study how individuals and groups from diverse gender, racial, ethnic, national, class and sexual backgrounds live in and engage with the world and how processes of global change affect gender relations locally, nationally and internationally. The certificate is designed for students who wish to understand, analyze and respond to these dramatic global transformations and their impact on women and gender relations, complementing students' majors and interests and preparing them for graduate studies and employment.

This interdisciplinary undergraduate certificate program is designed to take advantage of the research strengths of our core and associate faculty and to enhance the experience of undergraduate students in any major, including international affairs, political science, history, ethnic studies, geography, English, anthropology, sociology, integrative physiology, environmental studies and many others. Career specialization in international gender and sexuality has grown in both the private and public sectors, in fields including international development, finance, public health, public policy and education.

Certificate requirements include 18 credit hours of specified course work, including 12 credit hours at the upper-division level. For specific course requirements and details about the Undergraduate Certificate in Global Gender and Sexuality Studies, visit [wgst.colorado.edu/ggss](http://wgst.colorado.edu/ggss).

### Graduate Certificate in Women and Gender Studies

The Graduate Certificate in Women and Gender Studies offers CU graduate students a cutting-edge, interdisciplinary education in gender and sexuality studies. It provides a thorough grounding in feminist theory and methodology, as well as the opportunity to explore a range of topics in gender and sexuality studies. Designed to help graduate students from a wide range of different CU departments and programs navigate the conceptual gap between discipline-specific studies and interdisciplinary work in gender and sexuality studies. This certificate has proven especially useful to graduate students seeking to demonstrate their expertise in gender and sexuality studies to prospective employers in academia, government and the private sector.

Students wishing to take part in the women and gender studies certificate program must be currently enrolled in a graduate disciplinary degree or professional degree program at CU-Boulder. Requirements for the certificate are 9 credit hours of course work in women and gender studies and one additional course equaling 3 credit hours to be approved by the women and gender studies graduate advisor, for a total of 12 credit hours. For more details, visit [wgst.colorado.edu/graduate](http://wgst.colorado.edu/graduate), or email [wgst@colorado.edu](mailto:wgst@colorado.edu).





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## Writing and Rhetoric, Program for

The Program for Writing and Rhetoric (PWR) is a free-standing unit in the College of Arts and Sciences responsible for campus-wide instruction in writing. The program coordinates and oversees all writing curricula and instruction intended to meet college and campus requirements, including efforts in specific disciplines and targeted campus programs.

The program is committed to training students to think critically about the texts they read and the writing they produce, and to enable them to shape and express ideas with clarity and grace in any context: academic, professional or civic. Classes are generally conducted as intensive writing workshops, placing a premium on thoughtful, substantive revision.

The program offers both lower-division and upper-division courses, as well as some graduate seminars. Certain undergraduate courses fulfill the College of Arts and Sciences written communication requirement, and some also fulfill graduation requirements in other colleges. Students should check with their advisors to be sure that they are taking the right course to fulfill their requirement.

For information about specific classes and their instructors, students should visit [www.colorado.edu/pwr](http://www.colorado.edu/pwr).

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  - British and Irish Studies
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  - Classics
  - Cognitive Science Studies
  - Comparative Literature
  - Computer Science
  - Distributed Studies

Program

- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- History
- Humanities
- Integrative Physiology
- International Affairs
- Jewish Studies
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Linguistics
- Mathematics
- Medieval and Early Modern Studies
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sociology
- Spanish and Portuguese
- Speech, Language and Hearing

Sciences

- Theatre & Dance
- Western American Studies
- Western Civilization Studies
- Women and Gender Studies

- **Writing and Rhetoric, Program for**

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- Integrative Physiology
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- Peace and Conflict Studies
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- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sewall RAP
- Sociology
- Sustainability and Social Innovation RAP
- Spanish and Portuguese
- Speech, Language and Hearing Sciences
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- Farrand RAP
- Film Studies
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- Geological Sciences
- Germanic and Slavic Languages and Literatures
- Global Studies RAP
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## Faculty: Anthropology

| Name                  | Working Title                | Description   |
|-----------------------|------------------------------|---|
| BAMFORTH, Douglas B.  | department chair; professor  | BA, University of Pennsylvania; MA, PhD, University of California, Santa Barbara  |
| BERNSTEIN, Robin M.   | associate professor          | BA, Rutgers University; MA, Boston College; PhD, University of Illinois, Champaign-Urbana   |
| CAMERON, Catherine M. | professor                    | BA, University of California, Berkeley; MA, University of New Mexico; PhD, University of Arizona                                  |
| COOL, Alison C.       | assistant professor          | BA, Columbia University; MA, PhD, New York University   |
| COVERT, Herbert H.    | professor                    | BA, University of Massachusetts; MA, Arizona State University; PhD, Duke University   |
| DUFOUR, Darna L.      | professor                    | BS, Northeastern University; MA, PhD, State University of New York, Binghamton  |
| EDDY, Frank W.        | associate professor emeritus |   |
| GOLDFARB, Kathryn E.  | assistant professor          | BA, Rice University; MA, PhD University of Chicago  |
| GOLDSTEIN, Donna M.   | associate professor          | BS, Cornell University; EdM, Harvard Graduate School of Education; PhD, University of California, Berkeley                        |
| GREENE, David Lee     | professor emeritus           |   |
| GUTIÉRREZ, Gerardo    | assistant professor          | BA, The National School of Anthropology and History, Mexico; MA, El Colegio de México, Mexico; PhD, Pennsylvania State University |

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- English
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|                          |  |   |
|--------------------------|--|---|
| HALL, Kira               | associate professor of linguistics; associate professor attendant rank | BA, Auburn University; MA, PhD, University of California, Berkeley                                    |
| HAMMONS, Christian S.    | instructor   | BA, University of Colorado; MA, New York University; MFA, PhD, University of Southern California      |
| JACKA, Jerry K.          | assistant professor  | BA, University of Washington; MA, University of Alaska; PhD, University of Oregon                     |
| JONES, Carla             | associate professor  | BA, MA, University of California, Berkeley; PhD, University of North Carolina at Chapel Hill          |
| JOYCE, Arthur A.         | professor  | BA, University of Delaware; MA, PhD, Rutgers University   |
| KASCHUBE, Dorothea V.    | professor emerita  |   |
| KELSO, Alec J.           | professor emeritus   |   |
| LAMBERT, Joanna E.       | professor  | BSc, MA, Northern Illinois University; PhD, University of Illinois, Urbana-Champaign                  |
| LEIGH, Steven R.         | dean of college; professor   | BA, Northwestern University; MA, University of Tennessee, Knoxville; PhD, Northwestern University     |
| LEKSON, Steven H.        | professor; curator of museum studies                                   | BA, Case Western Reserve University; MA, Eastern New Mexico University; PhD, University of New Mexico |
| McCABE, J. Terrence      | professor  | BA, University of Notre Dame; MA, PhD, State University of New York at Binghamton.                    |
| McGILVRAY, Dennis B.     | professor emeritus   |   |
| McGOODWIN, James Russell | professor emeritus   |   |
| McGRANAHAN, Carole M.    | associate professor  | BA, Colgate University; MA, PhD, University of Michigan   |
| ORTMAN, Scott C.         | assistant professor  | BA, Stanford University; MA, PhD, Arizona State University  |

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- Germanic and Slavic Languages and Literatures
- Global Studies RAP
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- Honors RAP
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- INVST Community
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- Religious Studies
- Sewall RAP
- Sustainability and Social Innovation RAP
- Sociology
- Spanish and Portuguese
- Speech, Language

|                       |                          |  |
|-----------------------|--------------------------|--|
| ROLAND, L. Kaifa      | associate professor      | BA, Oberlin College; MA, Howard University; PhD, Duke University                       |
| SAUTHER, Michelle L.  | professor                | BA, Montana State University; MA, Arizona State University; PhD, Washington University |
| SHANKMAN, Paul        | professor emeritus       | BA, University of California, Santa Barbara; PhD, Harvard University                   |
| SHANNON, Jennifer     | assistant professor      | BA, Bowdoin College; MA, University of Chicago; PhD, Cornell University                |
| SHEETS, Payson D.     | professor of distinction | BA, MA, University of Colorado; PhD, University of Pennsylvania                        |
| SPONHEIMER, Matt      | professor                | BA, Bucknell University; MA, PhD, Rutgers University                                   |
| VAN GERVEN, Dennis P. | professor emeritus       |  |
| WALKER JR., Deward E. | professor emeritus       |  |

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## Faculty: Applied Mathematics

| Name              | Title                              | Education   |
|-------------------|------------------------------------|---|
| ABLOWITZ, Mark J. | College Professor of Distinction   | BS, University of Rochester; PhD, Massachusetts Institute of Technology                               |
| BEBERNES, Jerrold | professor emeritus                 |   |
| BECKER, Stephen   | assistant professor                | BS, Wesleyan University; PhD, California Institute of Technology                                      |
| BEYLKIN, Gregory  | professor                          | BS, MS, University of Leningrad; PhD, Courant Institute of Mathematical Sciences, New York University |
| BHAT, Y. Sujeet   | instructor                         | BS, PhD, University of Florida; MS University of Texas at Dallas                                      |
| BORTZ, David      | associate professor                | BA, Rice University; MS, PhD, North Carolina State University   |
| CORCORAN, Jem     | associate professor                | BS, Colorado State University; MS, Purdue University; PhD, Colorado State University                  |
| COX, Murray       | instructor                         | BS, Union College; MS, University of California, Riverside; PhD, Texas A&M University                 |
| CURRY, James H.   | professor                          | BA, MA, PhD, University of California, Berkeley   |
| DOUGHERTY, Anne   | associate chair; senior instructor | BS, Texas Christian University; MS, Oregon State University; PhD, University of Wisconsin             |
| DUKIC, Vanja M.   | professor                          | BS, Bryant University; MS, PhD, Brown University  |

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- Atmospheric and Oceanic Sciences
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- Communication
- Communication and Society RAP
- Comparative Literature
- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies

|                        |                             |  |
|------------------------|-----------------------------|--|
| EASTON, Robert         | professor emeritus          |  |
| FORNBERG, Bengt        | professor                   | BS, PhD, Uppsala University  |
| FRY, Brendan           | instructor                  | BS, MS, PhD, University of Arizona   |
| GROOMS, Ian            | assistant professor         | BS, College of William and Mary; PhD, University of Colorado Boulder   |
| HOEFER, Mark           | assistant professor         | BS, University of California, Los Angeles; MS, Harvard University; PhD, University of Colorado Boulder   |
| JULIEN, Keith          | department chair; professor | BS, Kings College, University of London; PhD, Churchill College, Cambridge University  |
| KETELSEN, Christian    | instructor                  | BS, MS, Washington State University; PhD, University of Colorado Boulder   |
| KILPATRICK, Zachary    | assistant professor         | BA, Rice University; MS, PhD, University of Utah   |
| KLEIBER, Will          | assistant professor         | BS, University of Iowa; PhD, University of Washington at Seattle   |
| LI, Congming           | professor                   | BS, University of Science and Technology of China; MS, Institute of System Sciences; PhD, Courant Institute of Mathematical Science, New York University |
| LLADSER, Manuel E.     | associate professor         | BS, Universidad de Chile; MS, University of Wisconsin; PhD, Ohio State University  |
| MANTEUFFEL, Thomas     | professor                   | BS, University of Wisconsin; MS, PhD, University of Illinois   |
| MARTINSSON, Per-Gunnar | graduate chair; professor   | Diploma and Licentiate degree, Chalmers University of Technology in Gothenburg; PhD, University of Texas at Austin                                       |
| MCCORMICK, Steven      | professor emeritus          |  |
| MEISS, James D.        | professor                   | BS, University of Washington; MA, PhD, University of California, Berkeley  |
| NORRIS II, J. Adam     | senior instructor           | BS, University of Colorado; MS, Massachusetts Institute of Technology; PhD, University of Colorado   |

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|                  |                     |   |
|------------------|---------------------|---|
| RESTREPO, Juan   | assistant professor | BS, MS, Universidad de los Andes; PhD, University of Maryland                             |
| SEGUR, Harvey    | professor           | BS, Michigan State University; MS, PhD, University of California, Berkeley                |
| ZAHARATOS, Brian | instructor          | BS, SUNY Stony Brook; MA, University of South Carolina; MS, PhD, Colorado School of Mines |

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## Faculty: Art and Art History

| Name                 | Title               | Education  |
|----------------------|---------------------|--|
| ALHADEFF, Albert     | associate professor | AB, Columbia University; MA, PhD, New York University  |
| AMBROSE, Kirk        | chair; professor    | BA, Oberlin College; MA, PhD, University of Michigan, Ann Arbor                                  |
| AMERIKA, Mark        | director; professor | BA, University of Florida; MFA, Brown University   |
| BEITZ, Michael       | assistant professor | BFA, Alfred University; MFA, University at Buffalo   |
| BROWN, Marilyn       | professor           | BA, Birmingham-Southern College; MA, PhD, Yale University  |
| CHAMBERLIN, H. Scott | professor           | BA, San Francisco State University; MFA, New York State College of Ceramics at Alfred University |
| CHONG, Albert        | professor           | BFA, School of Visual Arts, New York; MFA, University of California, San Diego                   |
| CLINE, Clinton C.    | professor emeritus  |  |
| CÓRDOVA, James       | associate professor | BA, New Mexico State University; MA, PhD, Tulane University                                      |
| DAY, Robert E.       | professor emeritus  |  |
| de STECHER, Annette  | assistant professor | BA, McGill University; MA, PhD, Carleton University  |
| DICKEY, Kim          | professor           | BFA, Rhode Island School of Design; MFA, New York State College of Ceramics at Alfred University |
| DURESSÉ,             | associate           | BFA, BA, Wayne State University; MFA, Temple University  |

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- Atmospheric and Oceanic Sciences
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|                     |                              |   |
|---------------------|------------------------------|---|
| Françoise           | professor                    |   |
| EADES, Luis E.      | professor emeritus           |   |
| ECKER, Robert R.    | professor emeritus           |   |
| FARAGO, Claire J.   | professor                    | BA, Wellesley College; MA, Brown University; PhD, University of Virginia  |
| FORSMAN, Charles S. | professor emeritus           |   |
| FOSTER, Suzanne R.  | assistant professor emerita  |   |
| GECK, Francis J.    | professor emeritus           |   |
| GREGORIO, Alvin     | associate professor          | BFA, California Sate University, Fullerton; MFA, Claremont Graduate University                                  |
| HAYNES, Deborah J.  | professor emerita            |   |
| IWAMASA, Ken        | associate professor emeritus |   |
| KUNKEL, Jerry W.    | professor emeritus           |   |
| LIL, Kira Van       | assistant professor          | BA, MA, PhD, Ludwig-Maximillans-Universität, Munich   |
| MILLER, Kay         | professor emerita            |   |
| MINOR, Vernon H.    | professor emeritus           |   |
| NAUMAN, Robert      | senior instructor            | BME, Central Missouri State University; MMus, MA, University of Colorado Boulder; PhD, University of New Mexico |
| POTTER, Thomas J.   | professor emeritus           |   |
| QUALLEY, Charles A. | professor emeritus           |   |
| QUINN, Jeanne       | associate professor          | BA, Oberlin College; MFA, University of Washington  |
| RIVERA,             | professor                    | BA, MA, University of Houston; PhD, State University of   |

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- Sewall RAP
- Sustainability and Social Innovation RAP
- Sociology
- Spanish and Portuguese

|                        |                     |   |
|------------------------|---------------------|---|
| George                 |                     | New York  |
| ROTH, Yumi Janairo     | associate professor | BA, Tufts University; BFA, School of Musuem of Fine Arts, Boston; MFA, State University of New York |
| SAMPSON, John Franklin | professor emeritus  |   |
| SAXTON, Richard        | associate professor | BFA, University of Nebraska; MFA, Indiana University  |
| STEVENS, C. Maxx       | associate professor | AA, Haskell Indian Junior College; BFA, Wichita State University; MFA, Indiana University           |
| SWEETMAN, Alex J.      | associate professor | New York University; MFA, State University of New York at Buffalo                                   |
| VALDOVINO, Luis        | professor           | BFA, Ohio University; MFA, University of Illinois   |
| VANDERSALL, Amy L.     | professor emerita   |   |
| WALKER, Melanie        | associate professor | BA, San Francisco State University; MFA, Florida State University, Tallahassee                      |
| WILSON, John B.        | professor emeritus  |   |
| WOLFE, Lynn Robert     | professor emeritus  |   |
| WOMACK, Michael        | assistant professor | BFA, University of Georgia; MFA, Pratt Institute  |
| WOODMAN, Elizabeth A.  | professor emerita   |   |
| WOODMAN, George E.     | professor emeritus  |   |
| YAZZIE, Melanie        | professor           | BA, Arizona State University, Tempe; MFA, University of Colorado Boulder                            |

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  - Western American Studies
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## Faculty: Asian Languages and Civilizations

| Name              | Title                           | Education   |
|-------------------|---------------------------------|---|
| ADIL, Sabahat     | assistant professor of Arabic   | BA, MA, PhD, University of Chicago  |
| ARIMA, Yoshie     | instructor of Japanese          | MA, University of Colorado Boulder  |
| ATHERTON, David   | assistant professor of Japanese | BA, Harvard University; MA, University of Wisconsin-Madison; MA, PhD, Columbia University                     |
| BAHOORA, Haytham  | assistant professor of Arabic   | BA, University of Michigan; MA, PhD, New York University  |
| BROWN, Janice     | professor of Japanese           | BA, MA, PhD, University of British Columbia   |
| CASS, Victoria B. | associate professor emerita     |   |
| CHEN, Jin         | instructor of Chinese           | BA, Yunnan Normal University; MA, University of Colorado Boulder  |
| FAROKHFAL, Reza   | instructor of Farsi             | BA, Pahlavi University, Iran; MA, Concordia University  |
| FARRAG, Mona      | instructor of Arabic            | BA, Ain Shams University, Egypt; MA, The American University in Cairo, Egypt                                  |
| HSU, Chun-ling    | instructor of Chinese           | BA, Soochow University, Taiwan; MEd, University of Wisconsin–River Falls                                      |
| KANEYASU, Michiko | instructor of Japanese          | BA, MA, PhD, University of California, Los Angeles  |
| KIM, Sangbok      | instructor of Korean            | BA, Korea University; MA, California State University, Long Beach; PhD, University of California, Los Angeles |

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  - Economics
  - English
  - Environmental Studies
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|                                |  |   |
|--------------------------------|--|---|
| KIMBROUGH,<br>Randle Keller    | associate professor of<br>Japanese                     | BA, Colorado College; MA, Columbia University;<br>MA, PhD, Yale University                                      |
| KLEEMAN,<br>Faye Yuan          | professor of<br>Japanese                               | BA, Soochow University, Taiwan; MA, Ochanomizu<br>University, Japan; PhD, University of California,<br>Berkeley |
| KLEEMAN,<br>Terry F.           | professor of Chinese                                   | BA, University of Miami; MA, University of British<br>Columbia; PhD, University of California, Berkeley         |
| KROLL, Paul<br>W.              | professor of Chinese                                   | BA, MA, PhD, University of Michigan   |
| MATSUNAGA,<br>Yumiko           | senior instructor of<br>Japanese                       | BA, Kagawa University; MA, PhD University of<br>Wisconsin, Madison  |
| MUHAMMED,<br>Randa             | instructor of Arabic                                   | BA, South Valley University, Egypt; MA, The<br>American University in Cairo, Egypt                              |
| PARSON,<br>Rahul               | assistant professor of<br>Hindi                        | BA, University of California, Los Angeles; MA,<br>PhD, University of California, Berkeley                       |
| RICHTER,<br>Antje              | associate professor of<br>Chinese                      | PhD, Munich University  |
| RICHTER,<br>Matthias           | department chair;<br>associate professor of<br>Chinese | PhD, Hamburg University   |
| RODD, Laurel<br>Rasplica       | professor of<br>Japanese                               | BA, DePauw University; MA, PhD, University of<br>Michigan   |
| STUCKEY, G.<br>Andrew          | assistant professor of<br>Chinese                      | BA, Colgate University; MA, PhD, University of<br>California, Los Angeles                                       |
| TAKAHARA,<br>Kumiko            | associate professor<br>emerita                         | BA, MA, University of the Sacred Heart; MA,<br>University of Edinburgh; PhD, University of London               |
| WILLIS,<br>Donald<br>Sigurdson | professor emeritus                                     |   |

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## Faculty: Asian Studies

| Name              | Title   | Education   |
|-------------------|---|---|
| BERRY, Colleen J. | associate faculty director; instructor, Asian Studies program | BA, Whitworth University; MA, University of Washington; PhD, Indiana University |
| OAKES, Timothy S. | director; professor of geography                              | BA, Colby College; MA, PhD, University of Washington                            |

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## Faculty: Astrophysical and Planetary Sciences

| Name                  | Title               | Education  |
|-----------------------|---------------------|--|
| ARMITAGE, Philip      | professor           | BA, MA, PhD, University of Cambridge   |
| AYRES, Thomas R.      | research professor  | AB, Harvard College; PhD, University of Colorado                                     |
| BAGENAL, Frances      | professor           | BSc, University of Lancaster, England; PhD, Massachusetts Institute of Technology    |
| BAKER, Daniel         | professor           | BA, MS, PhD, University of Iowa  |
| BALLY, John           | professor           | BS, University of California, Berkeley; MS, PhD, University of Massachusetts Amherst |
| BARTH, Charles A.     | professor emeritus  |  |
| BEGELMAN, Mitchell C. | professor           | AB, AM, Harvard University; PhD, Cambridge University                                |
| BRAIN, David          | assistant professor | BA, Rice University; MS, PhD, University of Colorado Boulder                         |
| BRANDENBURG, Axel     | visiting professor  | Dipl Phys., University of Hamburg; Lic.Phil., Dr. Phil, University of Helsinki       |
| BROWN, Benjamin       | assistant professor | BS, Harvey Mudd College; MS, PhD, University of Colorado Boulder                     |
| CASH, Webster C.      | professor           | BS, Massachusetts Institute of Technology; PhD, University of California, Berkeley   |
| COMERFORD, Julia M.   | assistant professor | AB, Princeton University; MA, PhD, University of California, Berkely                 |

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|------------------------|-------------------------------|---|
|                        |                               |   |
| CONTI, Peter S.        | professor emeritus            |   |
| CRANMER, Steven R.     | associate professor           | BS, Drexel University; MS, Ohio State University; PhD, University of Delaware   |
| DARLING, Jeremiah K.   | assistant professor           | BS, California Institute of Technology; PhD, Cornell University   |
| DULK, George A.        | professor emeritus            |   |
| DUNCAN, Douglas K.     | senior instructor             | BS, California Institute of Technology; PhD, University of California, Santa Cruz   |
| ELLINGSON, Erica       | associate professor           | BS, Massachusetts Institute of Technology; PhD, University of Arizona   |
| ERGUN, Robert          | professor                     | BS, MS, Cornell University; PhD, University of California, Berkeley   |
| ESPOSITO, Larry W.     | professor                     | BS, Massachusetts Institute of Technology; PhD, University of Massachusetts   |
| FRANCE, Kevin C.       | assistant professor           | BA, Boston University; PhD, Johns Hopkins University  |
| GLENN, Jason           | professor                     | BS, University of New Mexico; PhD, University of Arizona  |
| GREEN, James           | professor                     | BS, Stanford University; MA, PhD, University of California, Berkeley  |
| HALVERSON, Nils        | associate professor           | BS, Stanford University; MS, PhD, California Institute of Technology  |
| HAMILTON, Andrew J. S. | departmental chair; professor | BA, St. Catherine's College, Oxford; MSc, Liverpool University and Queen Mary College, London University; PhD, University of Virginia |
| HINDMAN, Bradley W.    | assistant research professor  | BA, University of Puget Sound; PhD, University of Colorado Boulder  |
| HORNSTEIN, Seth        | senior instructor             | BA, Virginia Polytechnic Institute; State University; MS, PhD, University of California, Los Angeles                                  |
| LINSKY, Jeffrey        | research                      |   |

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- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sewall RAP
- Sustainability and Social Innovation RAP
- Sociology
- Spanish and Portuguese

|                        |                                  |  |
|------------------------|----------------------------------|--|
|                        | professor emeritus               |  |
| MALVILLE, J. McKim     | professor emeritus               |  |
| McCRAY, Richard A.     | distinguished professor emeritus |  |
| RAST, Mark P.          | associate professor              | BA, University of California, Davis; BA, University of California, Santa Cruz; PhD, University of Colorado |
| SCHNEIDER, Nicholas    | associate professor              | BS, Dartmouth College; PhD, University of Arizona  |
| SHULL, J. Michael      | professor                        | BS, California Institute of Technology; MA, PhD, Princeton University                                      |
| SNOW, Jr., Theodore P. | professor emeritus               |  |
| SPEISER, Theodore W.   | professor emeritus               |  |
| STOCKE, John T.        | professor                        | AB, Princeton University; PhD, University of Arizona   |
| THOMAS, Gary E.        | professor emeritus               |  |
| TOOMRE, Juri           | professor                        | BS, MS, MSc, Massachusetts Institute of Technology; PhD, Trinity College, Cambridge University             |

- Speech, Language and Hearing Sciences
  - Theater and Dance
  - Western American Studies
  - Women and Gender Studies
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## Faculty: Atmospheric and Oceanic Sciences

| Name                  | Title                                | Education   |
|-----------------------|--------------------------------------|---|
| ALEXANDER, Joan       | professor adjoint                    | BS, Purdue University; MS, PhD, University of Colorado Boulder  |
| BROWN, Derek          | instructor                           | BA, MS, PhD University of Colorado Boulder  |
| CANTRELL, Christopher | senior research associate            | BA, Kansas Wesleyan; MS, PhD, University of Michigan  |
| CASSANO, John         | associate chair; associate professor | BS, Montana State University; MS, University of Wisconsin–Madison; PhD, University of Wyoming                   |
| EVANS, K. Franklin    | senior research associate            | BS, MS, California Institute of Technology; MS, PhD, Colorado State University                                  |
| FORREST, Betsy        | instructor                           | BS, Metropolitan State College of Denver; BA, University of North Carolina; PhD, University of Colorado Boulder |
| FRIEDRICH, Katja      | associate professor                  | Abitur, Thomas-Gymnasium, Leipzig; MS, Leipzig University; PhD, Ludwig-Maximilians University, Munich           |
| HAN, Weiqing          | associate professor                  | BS, Nanjing Institute of Meteorology; MS, Chinese Academy of Meteorological Sciences; PhD, Nova SE University   |
| HART, John E.         | professor emeritus                   |   |
| JAHN, Alexandra       | assistant professor                  | BS, MS, Free University of Germany; PhD, McGill University  |

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  - Asian Studies
  - Astrophysical and Planetary Sciences

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- Classics
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- Communication and Society RAP
- Comparative Literature
- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Studies
- Ethnic Studies

|                        |   |  |
|------------------------|---|--|
| KARNAUSKAS, Kristopher | assistant professor                     | BS, University of Wisconsin; PhD, University of Maryland   |
| KAY, Jennifer E.       | assistant professor                     | BA, Brown University; MS, PhD, University of Washington  |
| KEEN, Richard A.       | instructor emeritus                     |  |
| LOVENDUSKI, Nicole     | assistant professor                     | BS, Washington University in St. Louis; MS, PhD, University of California, Los Angeles               |
| LUNDQUIST, Julie       | assistant professor                     | BS, Trinity University; MS, PhD, University of Colorado Boulder                                      |
| MAULDIN, Roy Leon      | senior research associate               | BS, Georgia Institute of Technology; PhD, University of Colorado Boulder                             |
| NIGRO, Melissa         | instructor                              | BS, Cornell University; MS, PhD, University of Colorado Boulder                                      |
| PIELKE SR., Roger A.   | senior research associate               | BA, Towson State College; MS, PhD, Pennsylvania State University                                     |
| PILEWSKIE, Peter       | professor                               | BS, Pennsylvania State University; MS, PhD, University of Arizona                                    |
| RANDALL, Cora E.       | chair; professor                        | BA, State University of New York, College at Purchase; MS, PhD, University of California, Santa Cruz |
| SCHMIDT, K. Sebastian  | associate professor                     | BS, MS, PhD, Leipzig University  |
| TOOHEY, Darin W.       | director, Global Studies RAP; professor | BA, BS, California State University, Fullerton; MS, PhD, Harvard University                          |
| TOON, Owen Brian       | professor                               | AB, University of California, Berkeley; PhD, Cornell University                                      |
| WEISS, Jeffrey B.      | associate professor                     | BS, University of Illinois; MA., PhD, University of California, Berkeley                             |

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## Faculty: Baker RAP

| Name                 | Title                                   | Education  |
|----------------------|---|--|
| BARLOW, Lisa         | senior instructor                       | BA Smith College, MA, PhD University of Colorado                                     |
| BREED, Michael       | director, Baker RAP;<br>professor, EBIO | BA, Grinnell College; MA, PhD, Kansas University                                     |
| DIDOMENICO, Randolph | senior instructor                       | BA, PhD, University of Colorado  |
| KEARNS, Carol        | senior instructor                       | BS, Southampton College; MS University of New Hampshire; PhD, University of Maryland |
| OLIVERAS, Diana      | instructor                              | BA, Dickinson College, MA, PhD University of New Mexico                              |
| SNYDER, Douglas      | faculty-in-residence;<br>instructor     | BA, University of Michigan; MA, Wayne State University; PhD, University of Colorado  |
| SOUDER, Heidi        | instructor                              | BA, Ohio Dominican University; MA, PhD, University of South Florida                  |

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## Faculty: Chemistry and Biochemistry

| Name                    | Title                            | Education   |
|-------------------------|----------------------------------|---|
| AHN, Natalie            | college professor of distinction | BS, University of Washington; PhD, University of California, Berkeley                       |
| ASIRVATHAM, Margaret R. | senior instructor                | BSc, MSc, University of Madras, India; PhD, Kansas State University                         |
| BATEY, Robert T.        | professor                        | BS, University of California, Irvine; PhD, Massachusetts Institute of Technology            |
| BIERBAUM, Veronica M.   | professor                        | BA, Catholic University of America; PhD University of Pittsburgh                            |
| BIRKS, John W.          | professor emeritus               |   |
| BROWN, Steven           | professor adjoint                | BA, Dartmouth College; PhD, University of Wisconsin, Madison                                |
| BROWNE, Eleanor         | assistant professor              | BS, The College of William and Mary; PhD University of California, Berkeley                 |
| CAMERON, Jeffrey        | assistant professor              | BS, Montana State University; PhD Washington University in St. Louis, Missouri              |
| CARLON, Nabilah         | instructor                       | BS, Indiana University, Purdue University Indianapolis; PhD, University of Colorado Boulder |
| CARUTHERS, Marvin H.    | distinguished professor          | BS, Iowa State University; PhD, Northwestern University                                     |
| CECH, Thomas R.         | distinguished professor          | BA, Grinnell College; PhD, University of California, Berkeley                               |
|                         |                                  |   |

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|--------------------|-----------------------------|--|
| DAMRAUER, Niels    | associate professor         | BS, University of Pennsylvania; PhD, University of California, Berkeley  |
| DE GOWN, Joost     | professor adjoint           | BS, PhD, University of Utrecht, the Netherlands  |
| DUKOVIC, Gordana   | assistant professor         | BA, Rutgers University; PhD, Columbia University   |
| EAVES, Joel        | assistant professor         | BS, University of Wisconsin–Madison; PhD, Massachusetts Institute of Technology                                  |
| ELLISON, G. Barney | professor emeritus          | BS, Trinity College; PhD, Yale University  |
| FALKE, Joseph J.   | professor                   | BA, Earlham College; PhD, California Institute of Technology   |
| FELDHEIM, Daniel   | professor                   | BA, San Jose State University; PhD, Colorado State University.   |
| GEORGE, Steven M.  | professor                   | BS, Yale University; PhD, University of California, Berkeley   |
| GIN, Douglas L.    | professor                   | BSc, University of British Columbia; PhD, California Institute of Technology                                     |
| GOODRICH, James A. | professor                   | BS, University of Scranton; PhD, Carnegie Mellon University  |
| GOUGH, Raina       | instructor                  | BS, Montana State University; PhD, University of Colorado  |
| HENDRICKSON, Susan | senior instructor           | BA, Bates College; PhD, Colorado State University  |
| HYNES, James T.    | distinguished professor     | BA, Catholic University of America; PhD, Princeton University  |
| JIMENEZ, Jose Luis | professor                   | BS, Universite de Technologie Compiegne; MS, Universidad de Zaragoza; PhD, Massachusetts Institute of Technology |
| JIMENEZ, Ralph     | associate professor adjoint | BA, Cornell University; PhD University of Chicago  |
| JONAS, David       | professor                   | BS, University of California, Berkeley; PhD,   |

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|                     |  |   |
|---------------------|--|---|
| M.                  |  | Massachusetts Institute of Technology   |
| KOCH, Tad H.        | professor emeritus                                 | BS, Ohio State University; PhD, Iowa State University   |
| KOVAL, Carl Anthony | chair; professor                                   | BS, Juniata College; PhD, California Institute of Technology  |
| KUCHTA, Robert      | professor  | BA, Cornell University; PhD, Brandeis University  |
| KUGEL, Jennifer     | associate research professor                       | BA, St. Olaf College; PhD, University of Colorado   |
| LINEBERGER, W. Carl | distinguished professor                            | BEE, MSEE, PhD, Georgia Institute of Technology   |
| LIU, Xuedong        | professor  | BS, Shandong University, Jinan; MS, Chinese Academy of Sciences; PhD, University of Wisconsin–Madison |
| LUGER, Karolin      | professor and Jennie Smoly Caruthers Endowed Chair | BS, University of Innsbruck, Austria; PhD, Swiss Federal Institute of Technology, Switzerland         |
| MARSHAK, Michael    | assistant professor                                | BA, Cornell University; PhD Massachusetts Institute of Technology                                     |
| McHENRY, Charles    | professor emeritus                                 | BS, Purdue University; PhD, University of California, Santa Barbara                                   |
| McKAY, David        | research professor                                 | BS, California Institute of Technology; PhD, University of Chicago                                    |
| MICHL, Josef        | professor  | MS, Charles University; PhD, Czechoslovak Academy of Sciences   |
| MIYAKE, Garret      | assistant professor                                | BS, Pacific University; PhD, Colorado State University  |
| NESBITT, David J.   | professor adjoint                                  | BA, Harvard College; PhD, University of Colorado  |
| NOZIK, Arthur       | research professor                                 | BChE, Cornell University; MS, PhD, Yale University  |
| PALMER, Amy         | associate professor                                | BA, Dartmouth College; MA, PhD, Stanford University   |

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|                        |  |   |
|------------------------|--|---|
| PARDI, Arthur          | professor                                  | AB, University of California, San Diego; PhD, University of California, Berkeley      |
| PARKER, Roy            | professor and Cech-Leinwand Endowed Chair  | BS, Carnegie Mellon University; PhD University of California at San Francisco         |
| PARSON, Robert P.      | professor                                  | ScB, Brown University; MS, PhD, University of Michigan                                |
| PETERS, Kevin          | professor emeritus                         |   |
| PIERPONT, Cortlandt G. | professor emeritus                         | BS, Columbia University; PhD, Brown University  |
| RUMBLES, Garry         | professor adjoint                          | BSc, University of Southampton; PhD, University of London                             |
| SAMMAKIA, Tarek        | professor                                  | BS, University of North Carolina; PhD, Yale University                                |
| SHOEMAKER, Richard     | research professor                         | BA, Midland Lutheran College, Fremont, Nebraska; PhD, University of Nebraska, Lincoln |
| SIEVERS, Robert E.     | director, environmental program; professor | BChem, University of Tulsa; MS, PhD, University of Illinois                           |
| SKODJE, Rex T.         | professor                                  | BA, Harvard University; PhD, University of Minnesota                                  |
| SOUSA, Marcelo C.      | associate professor                        | PharmD, PhD, University of Buenos Aires   |
| SPENCER, Sabrina       | assistant professor                        | BS, George Washington University; MS, University of Michigan                          |
| STEPHEN, Ricardo       | instructor                                 | BS, University of Waterloo, Canada; PhD, University of Colorado Boulder               |
| TAATJES, Dylan J.      | associate professor                        | BS, Calvin College; PhD, University of Colorado Boulder                               |
| TAN, Zhongping         | assistant professor                        | BS, Peking University; PhD, Columbia University                                       |
| TOLBERT, Bert Mills    | professor emeritus                         |   |
| TOLBERT,               | distinguished                              | AB, Grinnell College; MS, University of   |

|                    |                     |   |
|--------------------|---------------------|---|
| Margaret           | professor           | California, Berkeley; PhD, California Institute of Technology                   |
| VAIDA, Veronica    | professor           | BS, Brown University; PhD, Yale University                                      |
| VOLKAMER, Rainer   | associate professor | BSc, PhD, Ruprecht-Karis University   |
| WALBA, David M.    | professor           | BS, University of California, Berkeley; PhD, California Institute of Technology |
| WANG, Xiang        | assistant professor | BS, University of Science and Technology of China; PhD, Boston University       |
| WEBER, Mathias     | associate professor | Diploma, PhD, University Kaiserslautern   |
| WUTTKE, Deborah S. | professor           | BS, University of Rochester; PhD, California Institute of Technology            |
| YIN, Hang          | associate professor | BS, Peking University; PhD, Yale University                                     |
| ZHANG, Wei         | associate professor | BS, Peking University; PhD, University of Illinois                              |

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## Faculty: Classics

| Name                      | Title                       | Education  |
|---------------------------|-----------------------------|--|
| CAIN, Andrew J.           | associate professor         | BA, University of South Carolina; MA, PhD, Cornell University                        |
| CONLIN, Diane A.          | associate professor         | BA, State University of New York at Stony Brook; MA, PhD, University of Michigan     |
| DUSINBERRE, Elspeth R. M. | professor                   | AB, Harvard University; PhD, University of Michigan                                  |
| ELLIOTT, Jacqueline M.    | associate professor         | BA, University College, Oxford; MA, MPhil, PhD, Columbia University                  |
| EVJEN, Harold D.          | professor emeritus          |  |
| FREDRICKSMEYER, Ernst A.  | professor emeritus          |  |
| GIBERT, John C.           | associate professor         | BA, Yale University; PhD, Harvard University   |
| HUNT, Peter               | professor                   | BA, Swarthmore College; MA, University of Colorado Boulder; PhD, Stanford University |
| JAMES, Sarah              | assistant professor         | BA, MA, University of Toronto; PhD, University of Texas, Austin                      |
| KING, Joy K.              | associate professor emerita |  |
| LANSFORD, Tyler           | instructor                  | BA, University of Colorado Boulder; MA, PhD, University of Washington, Seattle       |
| NEWLANDS, Carole          | professor                   | PhD, University of California, Berkeley  |

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|-----------------------------------|------------------------|--|
| REITZAMMER,<br>Laurialan B.       | assistant<br>professor | BA, Brown University; MA, PhD, University of<br>California, Berkeley |
| SCHÜTRUMPF,<br>Eckart E. W.       | professor<br>emeritus  |  |
| TZAVELLA-EVJEN,<br>Terpsichori H. | professor<br>emerita   |  |

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## Faculty: Communication

| Name                     | Title  | Education  |
|--------------------------|--|--|
| ASHCRAFT, Karen L.       | director, Communication and Society RAP; professor | BA, California State University, Hayward; PhD, University of Colorado Boulder  |
| BANNING, Marla Elizabeth | assistant professor                                | BS, MS, PhD, University of Utah  |
| BOROMISZA-HABASHI, David | assistant professor                                | MA, Pazmany Peter Catholic University of Hungary; MA, State University of New York, Albany; PhD, University of Massachusetts |
| BOWERS, John Waite       | professor emeritus                                 |  |
| BURGESS, Guy             | instructor   | BA, PhD, University of Colorado  |
| CAIN, Melinda            | instructor   | BA, Mills College, Oakland; MA, American University, Washington, DC; MA, PhD, University of Denver                           |
| CAMPBELL, Kathleen G.    | senior instructor emerita                          |  |
| CRAIG, Robert T.         | professor emeritus                                 | BA, University of Wisconsin; MA, PhD, Michigan State University  |
| DARNELL, Donald K.       | professor emeritus                                 |  |
| DEETZ, Stanley A.        | professor emeritus                                 | BS, Manchester College; MA, PhD, Ohio University   |
| FLORES, Lisa A.          | associate professor                                | BA, Berry College; MA, Northern Illinois University; PhD, University of Georgia  |

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|-----------------------|--|---|
| FREY, Lawrence R.     | associate chair of graduate studies; professor               | BS, Northwestern University; MA, PhD, University of Kansas  |
| HAUSER, Gerard A.     | professor emeritus   |   |
| JAHN, Jody            | assistant professor  | BS, University of Idaho; MA, PhD, University of California, Santa Barbara                             |
| KOSCHMANN, Matthew A. | assistant professor  | BA, University of Wisconsin-Madison; MA, University of New Mexico; PhD, University of Texas at Austin |
| KUHN, Timothy R.      | associate professor  | BA, MA, University of Minnesota; PhD, Arizona State University  |
| SIMONSON, Peter       | associate professor  | AB, AM, Stanford University; PhD, University of Iowa  |
| SKERSKI, Jamie        | senior instructor  | BA, Eastern Illinois University; MA, Colorado State University; PhD, Indiana University               |
| SPRAIN, Leah          | assistant professor  | BA, Pacific Lutheran University; MA, PhD, University of Washington                                    |
| TAYLOR, Bryan C.      | professor  | BA, University of Massachusetts Amherst; MS, PhD, University of Utah                                  |
| TOMPKINS, Elaine V.   | senior instructor emerita                                    |   |
| TOMPKINS, Phillip K.  | professor emeritus   |   |
| TRACY, Karen          | department chair; professor                                  | BS, Pennsylvania State University; MA, Bowling Green State University; PhD, University of Wisconsin   |
| WHITE, Cindy H.       | associate dean of undergraduate studies; associate professor | BA, MA, Texas Tech University; PhD, University of Arizona   |

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## Faculty: Communication and Society RAP

| Name            | Title                                | Education  |
|-----------------|--------------------------------------|--|
| ASHCRAFT, Karen | director; professor of communication | BA, California State University; PhD, University of Colorado                     |
| BABICZ, Martin  | instructor                           | BA, University of Connecticut; MA, Brown University; PhD, University of Colorado |
| GALE, Kendra    | instructor                           | BA, St. Olaf College; MA, PhD, University of Minnesota                           |
| JAMIESON, Sara  | instructor                           | BA, San Diego State University; MA, PhD, University of New Mexico                |

### □ Arts & Sciences

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  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Baker RAP
  - Chemistry and Biochemistry
  - Classics
  - Communication
  - **Communication and Society RAP**
  - Comparative Literature
  - Ecology and Evolutionary Biology
  - Economics
  - English
  - Environmental Studies
  - Ethnic Studies

- Farrand RAP
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- Global Studies RAP
- History
- Honors
- Honors RAP
- Humanities
- INVST Community
- Integrative Physiology
- International Affairs
- Jewish Studies
- Libby RAP
- Linguistics
- Mathematics
- Miramontes Arts and Sciences Program (MASP)
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sewall RAP
- Sustainability and Social Innovation RAP
- Sociology
- Spanish and Portuguese
- Speech, Language

and Hearing  
Sciences

- Theater and Dance
- Western American Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for

Business

Education

Engineering &  
Applied Science

Environmental Design

Law

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Communication and  
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Music

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## Faculty: Comparative Literature

| Name                     | Title                                      | Education   |
|--------------------------|--|---|
| ACEVEDO-MUÑOZ, Ernesto   | professor of film studies                  | BA, University of Puerto Rico; MA, PhD, University of Iowa                                      |
| BRAIDER, Christopher     | professor of French                        | BA, PhD, Trinity College, Dublin  |
| FERME, Valerio           | professor of Italian, director, humanities | BA, Brown University; MA, Indiana University; PhD, University of California, Berkeley           |
| FERRIS, David            | professor of humanities                    | BA, University of Leeds, England; PhD, State University of New York at Buffalo                  |
| GÓMEZ, Leila G.          | associate professor of Spanish             | Licenciature, Universidad Nacional de Tucumán, Argentina; MA, PhD, Johns Hopkins University     |
| GORDON, Paul             | professor of humanities                    | BA, State University of New York at Buffalo; PhD, Yale University                               |
| GREANEY, Patrick         | associate professor of German              | BA, Yale College; MA, PhD, Johns Hopkins University   |
| HEYDT-STEVENSON, Jillian | associate professor of English             | BA, University of Colorado Boulder; MA, University of Iowa; PhD, University of Colorado Boulder |
| JACOBS, Karen            | associate professor of English             | BA, Washington University; PhD, University of California, Berkeley                              |
| KRAUEL, Javier           | assistant professor of Spanish             | MA, University of North Carolina at Chapel Hill; PhD, Duke University                           |
| KROLL, Paul              | professor of Chinese                       | BA, MA, PhD, University of Michigan   |
| LANDEIRA,                | professor of                               | BA, MA, Arizona State University; PhD, Indiana  |

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  - Atmospheric and Oceanic Sciences
  - Baker RAP
  - Chemistry and Biochemistry
  - Classics
  - Communication
  - Communication and Society RAP
- **Comparative Literature**
  - Ecology and Evolutionary Biology
  - Economics
  - English
  - Environmental Studies
  - Ethnic Studies

|                                       |  |  |
|---------------------------------------|--|--|
| Ricardo                               | Spanish                                    | University   |
| LEIDERMAN<br>(LIPOVETSKY),<br>Mark N. | professor                                  | BA, MA, PhD, Ural State University   |
| RIVERS, Jr., J.<br>E.                 | professor of<br>English                    | AB, Davidson College; MA, PhD, University of<br>Oregon   |
| SIMONSON,<br>Peter                    | associate<br>professor of<br>communication | AB, AM, Stanford University; PhD, University of Iowa   |
| STIMILLI,<br>Davide                   | associate<br>professor of<br>German        | BA, Laurea, University of Pisa; MA, PhD, Yale<br>University  |
| WEBER, Beverly                        | associate<br>professor of<br>German        | BA, Gustavus Adolphus College; MA, Pennsylvania<br>State University; PhD, University of Massachusetts<br>Amherst |
| WHITE, Eric                           | associate<br>professor of<br>English       | BA, Columbia University; MA, Cambridge University;<br>MA, PhD, University of California, Berkeley                |
| ZEMKA, Sue                            | professor of<br>English                    | BA, Saint Louis University; PhD, Stanford University   |

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- Geological Sciences
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Slavic Languages  
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- Global Studies RAP
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- Honors RAP
- Humanities
- INVST Community
- Integrative  
Physiology
- International Affairs
- Jewish Studies
- Libby RAP
- Linguistics
- Mathematics
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- Museum and Field  
Studies
- Peace and Conflict  
Studies
- Philosophy
- Physics
- Political Science
- Psychology and  
Neuroscience
- Religious Studies
- Sewall RAP
- Sustainability and  
Social Innovation  
RAP
- Sociology
- Spanish and  
Portuguese
- Speech, Language

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- Western American Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for

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## Faculty: Ecology and Evolutionary Biology

| Name                | Title                       | Education   |
|---------------------|-----------------------------|---|
| ADAMS III, William  | professor                   | BA, MA, University of Kansas; PhD, Australian National University                                       |
| ARMSTRONG, David M. | professor emeritus          |   |
| BARGER, Nichole     | associate professor         | BS, The Evergreen State College; MS, University of California, Berkeley; PhD, Colorado State University |
| BASEY, John M.      | senior instructor           | BA, California State University, Stanislaus; MS, PhD, University of Nevada                              |
| BEKOFF, Marc        | professor emeritus          |   |
| BOCK, Carl L E.     | professor emeritus          |   |
| BOCK, Jane H.       | professor emerita           |   |
| BONDE, Erik K.      | professor emeritus          |   |
| BOWERS, M. Deane    | professor; department chair | BA, Smith College; PhD, University of Massachusetts   |
| BOWMAN, William     | professor                   | BA, University of Colorado; MS, San Diego State University; PhD, Duke University                        |
| BREED, Michael D.   | professor                   | BA, Grinnell College; MA, PhD, University of Kansas   |
| CARPENTER, Harrison | senior instructor           | BS, Ferris State University; MS, PhD, Michigan Technological University                                 |
| CRUMPACKER,         | professor emeritus          |   |

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  - Baker RAP
  - Chemistry and Biochemistry
  - Classics
  - Communication
  - Communication and Society RAP
  - Comparative Literature
  - **Ecology and Evolutionary Biology**
  - Economics
  - English
  - Environmental Studies

|                              |  |   |
|------------------------------|--|---|
| David W.                     |  |   |
| CRUZ,<br>Alexander           | professor  | BS, City College of New York; PhD,<br>University of Florida   |
| CUNDIFF,<br>Milford F.       | associate professor  | BA, PhD, University of Colorado   |
| DAVIES, Kendi                | associate professor  | BSc, PhD, Australian National University  |
| DEMMIG-<br>ADAMS,<br>Barbara | professor  | BA, PhD, Dr. rer. nat. habil., Universität<br>Würzburg, Germany   |
| FIERER, Noah                 | associate professor  | BA, Oberlin College; PhD, University of<br>California, Santa Barbara                                      |
| FLAXMAN,<br>Samuel M.        | assistant professor  | BS, PhD, Cornell University   |
| GRANT,<br>Michael C.         | associate vice chancellor for<br>undergraduate education;<br>director, Norlin Scholars<br>Program; professor | BA, MA, Texas Tech University; PhD,<br>Duke University  |
| GURALNICK,<br>Robert         | associate professor  | BA, PhD, University of California,<br>Berkeley  |
| JOHNSON,<br>Pieter T. J.     | associate professor  | BS, Stanford University; PhD, University<br>of Wisconsin  |
| KANE, Nolan                  | assistant professor  | ScB, Brown University; PhD, Indiana<br>University, Bloomington  |
| KEARNS, Carol                | senior instructor  | BS, Southampton College; MS<br>University of New Hampshire; PhD,<br>University of Maryland                |
| KOCIOLEK, J.<br>Patrick      | director, Museum of Natural<br>History; professor  | BS, St. Mary's College of Maryland; MS,<br>Bowling Green State University; PhD,<br>University of Michigan |
| LEWIS, Jr.,<br>William M.    | director, Center for Limnology<br>(CIRES); professor   | BS, University of North Carolina; PhD,<br>Indiana University  |
| LI, Jingchun                 | assistant professor  | PhD, University of Michigan   |
| LINHART, Yan<br>B.           | professor emeritus   |   |
|                              |  |   |

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Neuroscience
- Religious Studies
- Sewall RAP
- Sustainability and  
Social Innovation  
RAP
- Sociology
- Spanish and  
Portuguese

|                      |                     |   |
|----------------------|---------------------|---|
| LYNCH, Carol B.      | professor emerita   |   |
| MARTIN, Andrew       | professor           | BS, University of Arizona; MS, PhD, University of Hawaii  |
| MAYER, Stephanie S.  | senior instructor   | BS, Stanford University; MS, University of California, Davis; PhD, University of California, Berkeley                           |
| McCAIN, Christy      | associate professor | BS, Humboldt State University; PhD, University of Kansas  |
| McKENZIE, Valerie    | assistant professor | BS, MS, University of Connecticut; PhD, University of California, Santa Barbara   |
| MEDEIROS, Daniel     | associate professor | BS, University of Hawaii; PhD, California Institute of Technology   |
| MELBOURNE, Brett A.  | assistant professor | BSc, PhD, Australian National University  |
| MITTON, Jeffry B.    | professor           | BA, University of Connecticut; PhD, State University of New York at Stony Brook   |
| MONSON, Russell K.   | professor emeritus  |   |
| NICHOLS, Harvey      | professor emeritus  |   |
| SAFRAN, Rebecca      | associate professor | BS, University of Michigan; MS, Humboldt State University; PhD, Cornell University  |
| SCHMIDT, Steven K.   | professor           | BS, Boise State University; MS, Colorado State University; PhD, Cornell University  |
| SEASTEDT, Timothy R. | professor           | BA, University of Montana; MS, University of Alaska; PhD, University of Georgia   |
| SMITH, Stacey D.     | assistant professor | BA, BS, Virginia Polytechnic Institute; MPhil, Universities of Reading and Birmingham, UK; PhD, University of Wisconsin-Madison |
| STOCK, David         | associate professor | PhD, University of Illinois   |

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Music

Graduate School

Other Academic Programs

|                      |                     |   |
|----------------------|---------------------|---|
| SUDING,<br>Katharine | professor           | PhD, University of Michigan   |
| TOWNSEND,<br>Alan    | professor           | BA, Amherst College; PhD, Stanford University                           |
| TRIPP, Erin A.       | assistant professor | BA, University of North Carolina; PhD, Duke University                  |
| WESSMAN,<br>Carol A. | professor           | BS, Colorado State University; MS, PhD, University of Wisconsin–Madison |
| WINDELL, John<br>T.  | professor emeritus  |   |
| WINSTON, Paul<br>W.  | professor emeritus  |   |

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## Faculty: Economics

| Name               | Title   | Education  |
|--------------------|---|--|
| ANTMAN, Francisca  | assistant professor   | BA, Harvard University; MA, PhD, Stanford University   |
| BARANOV, Oleg      | assistant professor   | BS, Moscow State University; MS, Moscow State University; MA, New Economic School, Moscow; PhD, University of Maryland     |
| BARHAM, Tania      | associate professor   | BA, McGill University; MA, University of British Columbia; PhD, University of California, Berkeley                         |
| BOILEAU, Martin    | associate chair for graduate studies; professor                                 | BS, MS, Université du Québec à Montréal; PhD, Queen's University at Kingston   |
| BURR, Chrystie     | assistant professor   | BA, MA, PhD, University of Arizona   |
| CADENA, Brian      | assistant professor   | BA, Northwestern University; MA, PhD, University of Michigan   |
| CARBALLO, Jeronimo | assistant professor   | BS, National University of Cordoba, Argentina; MA, National University of La Plata, Argentina; PhD, University of Maryland |
| CARLOS, Ann M.     | associate dean for the social sciences, College of Arts and Sciences; professor | BA, MA, University College Dublin; PhD, University of Western Ontario  |
| CHEN, Yongmin      | professor   | BS, Zhejiang Institute of Technology; MA, People's University of China; PhD, Boston University                             |

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- **Economics**
  - English
  - Environmental Studies
  - Ethnic Studies

|                       |   |   |
|-----------------------|---|---|
| de BARTOLOMÉ, Charles | professor   | BA, Cambridge University; MBA, Wharton Graduate School, University of Pennsylvania; PhD, University of Pennsylvania |
| FLORES, Nicholas E.   | department chair; professor   | BA, University of Texas at Austin; MA, MS, PhD, University of California, San Diego                                 |
| GLAHE, Fred R.        | professor emeritus  |   |
| GRAVES, Philip E.     | professor   | BA, Indiana University; MA, PhD, Northwestern University  |
| GREENWOOD, Michael J. | professor emeritus  |   |
| HOWE, Charles W.      | professor emeritus  |   |
| HSIAO, Frank S. T.    | professor emeritus  |   |
| HUGHES, Jonathan      | assistant professor   | BS, Duke University; MS, Cornell University; PhD, University of California, Davis                                   |
| IYIGUN, Murat F.      | professor   | BS, Hacettepe University, Turkey; MBA, Boston University; MA, PhD, Brown University                                 |
| KAEMPFER, William H.  | senior vice provost and associate vice chancellor for academic affairs, budget, and planning; professor | BA, College of Wooster; MA, PhD, Duke University  |
| KAFFINE, Daniel       | associate professor   | BA, BS, University of St. Thomas; MA, PhD, University of California, Santa Barbara                                  |
| KAPLAN, Jules         | senior instructor   | BS, University of Maryland; MA, PhD, University of Colorado Boulder.  |
| KELLER, Wolfgang      | professor   | Diploma in Economics, University of Freiburg, Germany; PhD, Yale University   |
| KIM, Jin-Hyuk         | assistant professor   | BA, Yonsei University; MA, Cornell University; PhD, Cornell University  |

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- Integrative Physiology
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- Libby RAP
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- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sewall RAP
- Sustainability and Social Innovation RAP
- Sociology
- Spanish and Portuguese
- Speech, Language

|                       |   |   |
|-----------------------|---|---|
| LILLYDAHL, Jane       | professor emerita                           |   |
| LIU, Xiaodong         | associate professor                         | Fudan University; MA, PhD, Ohio State University  |
| MARKUSEN, James R.    | university distinguished professor          | BA, PhD, Boston College   |
| MARTINS-FILHO, Carlos | professor                                   | BS, Federal University of Cear, Brazil; MA, PhD, University of Tennessee                 |
| MASKUS, Keith E.      | college professor of distinction; professor | BA, Knox College; MA, PhD, University of Michigan   |
| McKINNISH, Terra G.   | professor                                   | BA, University of Richmond; MS, PhD, Carnegie Mellon University                           |
| McNOWN, Robert F.     | professor                                   | BA, University of California, Los Angeles; PhD, University of California, San Diego       |
| MERTENS, William      | instructor                                  | BA, University of Michigan; MA, PhD, University of Colorado Boulder                       |
| MOREY, Edward R.      | professor                                   | BA, University of Denver; MA, University of Arizona; PhD, University of British Columbia  |
| OWEN, Wyn F.          | professor emeritus                          |   |
| POULSON, Barry        | professor emeritus                          |   |
| RONDINA, Giacomo      | assistant professor                         | BA, MA, PhD, University of Wisconsin, Madison   |
| ROPER, Don E.         | professor emeritus                          |   |
| SAVAGE, Scott         | associate professor                         | BB, PhD, Curtin University of Technology, Australia; MEc, University of Western Australia |
| SHIUE, Carol          | associate professor                         | BS, Massachusetts Institute of Technology; PhD, Yale University                           |
| SINGELL, Larry D.     | professor emeritus                          |   |

and Hearing Sciences

- Theater and Dance
- Western American Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for

 Business Education Engineering & Applied Science Environmental Design Law Media, Communication and Information Music Graduate School Other Academic Programs

|                       |  |   |
|-----------------------|--|---|
| UDIS, Bernard         | professor emeritus   |   |
| WALDMAN,<br>Donald M. | professor  | BA, Cornell University; MA, PhD,<br>University of Wisconsin   |
| ZAX, Jeffrey S.       | associate chair for<br>undergraduate studies;<br>professor | BA, PhD, Harvard University   |
| ZHANG,<br>Shuang      | assistant professor  | BA, Shanghai University of Finance and<br>Economics; MA, Fudan University; PhD,<br>Cornell University |

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## Faculty: English

| Name                   | Title  | Education  |
|------------------------|--|--|
| BAKER,<br>Donald C.    | professor emeritus   |  |
| BASSOFF,<br>Bruce      | professor emeritus   |  |
| BEECHY,<br>Tiffany     | assistant professor  | AB, Harvard University; MFA, Columbia University; PhD, University of Oregon            |
| BELL, Michael          | professor emeritus   |  |
| BICKMAN,<br>Martin E.  | professor  | BA, Amherst College; MAT, Harvard University; MA, PhD, University of Pennsylvania      |
| BILLINGSLEY,<br>Ronald | associate professor emeritus   |  |
| BOARDMAN,<br>Arthur M. | professor emeritus   |  |
| BRADLEY,<br>Adam       | associate professor  | BA, Lewis and Clark College; AM, PhD, Harvard University                               |
| BRYLOWE,<br>Thora      | associate professor  | BA, SUNY Purchase; MA, Trinity College; PhD, Carnegie Mellon University                |
| BURGER,<br>Douglas A.  | associate professor emeritus   |  |
| CARR, Julie            | associate professor  | BA, Barnard College; MFA, New York University, PhD, University of California, Berkeley |
| COX, Jeffrey           | associate vice chancellor for faculty affairs; professor (joint with Department of | BA, Wesleyan University; PhD, University of Virginia                                   |

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  - Ecology and Evolutionary Biology
  - Economics
- **English**
  - Environmental Studies
  - Ethnic Studies

|                   | Humanities)   |  |
|-------------------|---|--|
| DEAGMAN, Rachael  | instructor  | BA, University of Virginia; MA, University of Colorado; PhD, Duke University   |
| DESHELL, Jeffrey  | professor   | BA, MA, University of Colorado Boulder; PhD, State University of New York at Buffalo   |
| DOUGLAS, Marcia   | associate professor                                   | BA, Oakwood College; MFA, Ohio State University; PhD, State University of New York at Binghamton                                     |
| EGGERT, Katherine | associate professor                                   | BA, Rice University; MA, PhD, University of California, Berkeley   |
| EMERSON, Lori     | assistant professor                                   | BA, University of Alberta, Edmonton; MA, University of Victoria, British Columbia; MA, PhD, State University of New York at Buffalo. |
| GARRITY, Jane     | associate professor                                   | BA, MA, PhD, University of California, Berkeley; MA, Queen Mary College, University of London  |
| GLADSTONE, Jason  | instructor  | BA, Williams College; MA, PhD, Johns Hopkins University  |
| GLIMP, David      | departmental chair (Spring 2017); associate professor | BS, Texas A&M University; PhD, University of Colorado; MA, PhD, Johns Hopkins University   |
| GOLDFARB, Sidney  | professor emeritus                                    |  |
| GOODMAN, Nan      | professor   | BA, Princeton University; MA, University of California, Berkeley; JD, Stanford University; PhD, Harvard University                   |
| GORDON, Noah Eli  | assistant professor                                   | BA, MFA, University of Massachusetts, Amherst  |
| GREEN, Jeremy F.  | associate professor                                   | BA, Oxford University; PhD, Cambridge University   |
| HARRINGTON, Emily | assistant professor                                   | BA, Wesleyan University; PhD, University of Michigan-Ann Arbor   |

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- Religious Studies
- Sewall RAP
- Sustainability and Social Innovation RAP
- Sociology
- Spanish and Portuguese
- Speech, Language

|                          |                     |   |
|--------------------------|---------------------|---|
| HASAN, Raza Ali          | instructor          | BA, MA, University of Texas at Austin; MFA, Syracuse University                         |
| HEYDT-STEVENSON, Jillian | associate professor | BA, University of Colorado; MA, University of Iowa; Ph.D., University of Colorado       |
| HIGASHIDA, Cheryl        | associate professor | BA, University of California, Berkeley; MA, PhD, Cornell University                     |
| HO, Janice Chiew Ling    | assistant professor | BA, University of Queensland, Australia; MA, PhD, Cornell University                    |
| HOGAN, Linda             | professor emerita   |   |
| HURLEY, Kelly K.         | associate professor | BA, Reed College; PhD, Stanford University  |
| JACOBS, Karen            | associate professor | BA, Washington University; PhD, University of California, Berkeley                      |
| JONES, Stephen Graham    | professor           | BA, Texas Tech University; MA, University of North Texas; PhD, Florida State University |
| JUHASZ, Suzanne H.       | professor emerita   |   |
| KATZ, Steven             | professor emeritus  |   |
| KAWIN, Bruce F.          | professor emeritus  |   |
| KELSEY, Penelope         | associate professor | BA, Manchester College; PhD, University of Minnesota                                    |
| KINNEAVY, Gerald B.      | professor emeritus  |   |
| KLAGES, Mary             | associate professor | AB, Dartmouth College; MA, PhD, Stanford University                                     |
| KOCHER, Ruth Ellen       | professor           | BA, Pennsylvania State University; MFA, PhD, Arizona State University.                  |
| KRAUTH, Philip L.        | professor emeritus  |   |
| KRYSL, Marilyn D.        | professor emerita   |   |
| KUSKIN,                  | professor           | BA, Vassar College; MA, PhD, University of  |

|  |
|--|
| and Hearing Sciences   |
| <ul style="list-style-type: none"> <li>• Theater and Dance</li> <li>• Western American Studies</li> <li>• Women and Gender Studies</li> <li>• Writing and Rhetoric, Program for</li> </ul> |
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| <input type="checkbox"/> Other Academic Programs   |

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|-------------------------|---|--|
| William                 |   | Wisconsin–Madison  |
| LABIO,<br>Catherine     | associate professor   | Candidature, Facultés Universitaires Saint-Louis, Brussels; Licence, Université Libre de Bruxelles; MPhil, PhD, New York University          |
| LAMOS,<br>Steven J.     | associate professor (joint with Program for Writing and Rhetoric) | BA, MEd, PhD, University of Illinois   |
| LEVITT, Paul M.         | professor emeritus  |  |
| LITTLE,<br>Katherine C. | associate professor   | BA, University of California, Berkeley; PhD, Duke University   |
| LYONS,<br>Thomas        | senior instructor emeritus  |  |
| MATTAR,<br>Karim        | assistant professor   | BA, University College, London; MA, University of Warwick; MA, University of Sussex; MA, University of Virginia, DPhil, University of Oxford |
| MICHELSON,<br>Peter F.  | professor emeritus  |  |



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## Faculty: Environmental Studies

| Name                  | Title                                  | Education  |
|-----------------------|--|--|
| BHATTACHARYA, Atreyee | instructor                             | BS, Calcutta University; MS, Indian Institute of Technology-Kharagpur; PhD, Harvard University |
| BOYKOFF, Maxwell      | associate professor (joint with CIRES) | BS, The Ohio State University; PhD, University of California, Santa Cruz                       |
| CARRICO, Amanda       | assistant professor                    | BA, Transylvania University; MA, PhD, Vanderbilt University                                    |
| CIPLET, David         | assistant professor                    | BA, Connecticut College; MA, School for International Training; PhD, Brown University          |
| COLLINGE, Sharon K.   | professor                              | BA, Kansas State University; MS, University of Nebraska at Lincoln; PhD, Harvard University    |
| CROW, Deserai         | assistant professor                    | BS, University of Colorado, Boulder; MPA, University of Colorado, Denver; PhD, Duke University |
| DILLING, Lisa         | associate professor                    | BA, Harvard University; PhD, University of California, Santa Barbara                           |
| DOAK, Danel           | professor                              | BA, Swarthmore College; PhD, University of   |

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  - Chemistry and Biochemistry
  - Classics
  - Communication
  - Communication and Society RAP
  - Comparative Literature
  - Ecology and Evolutionary Biology
  - Economics
  - English
  - **Environmental Studies**
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|                    |  |   |
|--------------------|--|---|
|                    |  | Washington  |
| HALE, Benjamin     | associate professor  | BS, Kalamazoo College;<br>MPA, University of Arizona;<br>PhD, State University of New York at Stony Brook |
| HARTTER, Joel      | associate professor  | BS, BSE, University of Michigan;<br>MS, Oregon State University;<br>PhD, University of Florida            |
| LITT, Jill         | associate professor (joint with Department of Preventative Medicine and Biometrics, University of Colorado Health Sciences Center) | BA, Johns Hopkins University;<br>PhD, Johns Hopkins School of Public Health                               |
| MILLER, Dale       | senior instructor  | BA, MA, University of Colorado Denver   |
| NEFF, Jason        | professor  | BA, University of Colorado Boulder;<br>PhD, Stanford University   |
| NEWTON, Peter      | assistant professor  | BA, University of Cambridge,<br>MSc, PhD, University of East Anglia                                       |
| PIELKE JR., Roger  | professor (joint with CIRES)   | BA, MA, PhD, University of Colorado Boulder   |
| WESSMAN, Carol     | director, professor  | BS, Colorado State University;<br>MS, PhD, University of Wisconsin, Madison                               |
| WHITE, James W. C. | professor of geological sciences (joint with Environmental Studies)  | BS, Florida State University;<br>MA, MPhil, PhD, Columbia University                                      |

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## Faculty: Ethnic Studies

| Name                      | Title                                   | Education  |
|---------------------------|---|--|
| ALDAMA, Arturo J.         | associate chair;<br>associate professor | BA, Evergreen State College; MA, PhD, University of California, Berkeley                                       |
| BELKNAP, Joanne           | professor                               | BA, University of Colorado; MA, PhD, Michigan State University   |
| CARROLL, Clint            | assistant professor                     | BA, University of Arizona, Tucson; PhD, University of California, Berkeley                                     |
| HOLMES, Kwame             | assistant professor                     | BA, Florida A&M University; PhD, University of Illinois, Champaign-Urbana                                      |
| KING, William M.          | professor emeritus                      |  |
| LAWSON, Angelica          | assistant professor                     | BA, MA, University of Wyoming; PhD, University of Arizona  |
| MAEDA, Daryl              | department chair, associate professor   | BS, Harvey Mudd College; MA, San Francisco University; MA, University of Michigan; PhD, University of Michigan |
| MEDAK-SALTZMAN, Danika F. | assistant professor                     | BA, University of Massachusetts, Amherst; MA, PhD, University of California, Berkeley                          |
| PEREZ, Emma               | professor                               | BA, MA, PhD, University of California, Los Angeles   |
| POTTER, Hillary           | associate professor                     | BA, PhD, University of Colorado Boulder; MA, John Jay College of Criminal Justice, City University of New York |
| RABAKA, Reiland           | professor                               | BFA, University of the Arts; MA, PhD, Temple University  |

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|                        |                     |  |
|------------------------|---------------------|--|
| SOHI, Seema            | assistant professor | BA, University of California, Santa Cruz; MA, University of Vermont; PhD, University of Washington |
| WALKER, Deward         | professor emeritus  |  |
| WILLIAMS, Bianca       | assistant professor | BA, MA, PhD, Duke University   |
| WITHYCOMBE, Jenny Lind | instructor          | BA, MA, Willamette University; PhD, University of Tennessee, Knoxville                             |

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## Faculty: Farrand RAP

| Name                | Title   | Education  |
|---------------------|---|--|
| ANDERMAN, Elizabeth | instructor  | AB, Princeton; PhD, University of Colorado Boulder                             |
| CHAN, Steve         | director; college professor of distinction of political science | BA, Tulane University; PhD, University of Minnesota                            |
| COMSTOCK, Cathy     | senior instructor   | BA, Miami University; PhD, University of Colorado Boulder                      |
| GILLETT, Bernard    | senior instructor   | BS, University of Wisconsin, Madison; MA, University of Colorado Boulder       |
| McGUIRE, Vincent    | senior instructor   | PhD, University of Colorado Boulder  |
| SIMPSON, Michele D. | instructor  | BA, Virginia State University, Petersburg; JD, Indiana University, Bloomington |

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## Faculty: Film Studies

| Name                   | Title                  | Education  |
|------------------------|------------------------|--|
| ACEVEDO-MUÑOZ, Ernesto | director;<br>professor | BA, University of Puerto Rico; MA, PhD, University of Iowa   |
| BARLOW, Melinda        | associate<br>professor | BA, University of Toronto; PhD, New York University  |
| ESPELIE, Erin          | assistant<br>professor | BA, Cornell University; MFA, Duke University   |
| GANGULY, Suranjan      | associate<br>professor | BA, University of Calcutta; MA, Jadavpur University; PhD, Purdue University                                |
| GATTEN, David          | professor              | BA, University of North Carolina, Greensboro; MFA, School of the Art Institute of Chicago                  |
| LAWSON, Angelica       | assistant<br>professor | BA, University of Wyoming, Laramie; MA, University of Wyoming, Laramie; PhD, University of Arizona, Tucson |
| LIOTTA, Jeanne         | associate<br>professor | BFA, New York University   |
| MARSLETT, Geoff        | assistant<br>professor | BA, St. John's College; MFA, University of Texas, Austin   |
| OSBORN, Christopher    | instructor             | BFA, Emerson College; MFA, University of Colorado, Boulder   |
| PALMER, James          | professor<br>emeritus  |  |
| PETERSON, Jennifer     | associate<br>professor | BA, University of California, Berkeley; MA, PhD, University of Chicago                                     |
| SEARS, Kelly           | assistant<br>professor | BA, Hampshire College; MFA, University of California, San Diego  |
|                        |                        |  |

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|                      |                      |   |
|----------------------|----------------------|---|
| SOLOMON,<br>Phillip  | professor            | BA, State University of New York at Binghamton; MFA, Massachusetts College of Art |
| YANNACITO,<br>Donald | senior<br>instructor | BA, University of Colorado Boulder; MA, University of Colorado Denver             |

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## Faculty: French and Italian

| Name                          | Title                                 | Education   |
|-------------------------------|---------------------------------------|---|
| ARDIZZONI, Michela            | assistant professor                   | BA, MA, University of Cagliari; MA, University of Iowa; PhD, Indiana University                                   |
| ARNOULD-BLOOMFIELD, Elisabeth | associate professor                   | License ès Lettres, Maîtrise ès Lettres, University of Paris (Sorbonne); PhD, University of California, San Diego |
| BARCHILON, Jacques            | professor emeritus                    |   |
| BRAIDER, Christopher          | professor                             | BA, PhD, Trinity College, Dublin  |
| FERME, Valerio                | professor                             | BA, Brown University; MA, Indiana University; PhD, University of California, Berkeley                             |
| FREY, Julia B.                | professor emerita                     |   |
| LAZARINO, Graziana            | professor emerita                     |   |
| MAGNANINI, Suzanne            | department chair; associate professor | BA, Washington University; MA, PhD, University of Chicago   |
| MAYER, Edgar N.               | professor emeritus                    |   |
| MORTIMER, Mildred             | professor emerita                     |   |
| MOTTE, Warren                 | professor                             | BA, MA, PhD, University of Pennsylvania   |
| MURPHY, Kiernan               | assistant professor                   | BA, University of Minnesota; MA, PhD, University of California, Santa Barbara                                     |
| QUINN, Brian                  | assistant                             | BA, Fordham University; MA, Columbia University;  |

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|                   |                     |  |
|-------------------|---------------------|--|
|                   | professor           | PhD, University of California, Los Angeles   |
| SENO, Cosetta     | associate professor | Laurea, University of Macerata, Italy; MA, University of Virginia; PhD, University of California, Berkeley |
| YAMASHITA, Masano | assistant professor | BA, Kings College; MA, PhD, New York University  |

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## Faculty: Geography

| Name                    | Title                         | Education  |
|-------------------------|-------------------------------|--|
| ABDALATI, Waleed        | director, CIRES;<br>professor | BS, Syracuse University; MS, PhD, University of Colorado Boulder                                     |
| ANDERSON, Suzanne P.    | professor                     | BS, University of Puget Sound; MS, University of Washington; PhD, University of California, Berkeley |
| BALCH, Jennifer         | assistant professor           | AB with honors, Princeton University; MSc, PhD, Yale University                                      |
| BARNARD, Holly          | assistant professor           | BS, University of Washington; MS, Colorado State University; PhD, Oregon State University            |
| BARRY, Roger G.         | professor emeritus            |  |
| BLANKEN, Peter          | professor                     | BSc, MSc, McMaster University; PhD, University of British Columbia                                   |
| BRYAN, Joseph H.        | associate professor           | BA, University of California, Santa Cruz; MA, PhD, University of California, Berkeley                |
| BUTTENFIELD, Barbara P. | professor                     | BA, Clark University; MA, University of Kansas; PhD, University of Washington                        |
| CAINE, T. Nelson        | professor emeritus            |  |
| ERICKSON, Kenneth A.    | professor emeritus            |  |
| FARMER, Carson          | assistant professor           | BSc, MSc, University of Victoria; PhD, National University of Ireland                                |
| FLURI, Jennifer         | associate professor           | BFA, Rosemont College; MS, PhD,  |

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|                        |   |   |
|------------------------|---|---|
|                        |   | Pennsylvania State College  |
| FOOTE,<br>Kenneth E.   | professor emeritus  |   |
| GOLDMAN,<br>Mara       | associate professor                                       | BA, Clark University; MA, University of California, Los Angeles; MS, PhD, University of Wisconsin–Madison |
| JAN, Najeeb            | assistant professor                                       | BA, Rhodes College; MA, PhD, University of Michigan   |
| LEYK, Stefan           | associate professor                                       | BS, MS, Technical University of Dresden; PhD; University of Zurich  |
| MOLOTCH,<br>Noah P.    | associate professor                                       | BA, University of Colorado; MS, University of California, Santa Barbara; PhD, University of Arizona       |
| OAKES,<br>Timothy S.   | director, Center for Asian Studies;<br>professor          | BA, Colby College; MA, PhD, University of Washington  |
| O'LOUGHLIN,<br>John V. | professor   | BA, National University of Ireland; MS, PhD, Pennsylvania State University                                |
| PITLICK, John          | professor   | BSc, University of Washington; MSc, PhD, Colorado State University  |
| RIOSMENA,<br>Fernando  | associate professor                                       | Licenciado en Mercadotecnica, ITESM; MA, PhD, University of Pennsylvania                                  |
| ROGERS,<br>Andrei      | professor emeritus  |   |
| SERREZE,<br>Mark C.    | director, National Snow and Ice Data Center;<br>professor | BA, MS, University of Massachusetts; PhD, University of Colorado  |
| SPIELMAN,<br>Seth E.   | associate professor                                       | BA, Macalester College; MA, Columbia University; PhD, State University of New York at Buffalo             |
| STEFFEN,<br>Konrad     | professor emeritus  |   |
| TRAVIS,<br>William E.  | associate professor                                       | BS, Florida State University; MS, University of Utah; PhD, Clark University                               |
| VEBLEN,                | professor   | AB, MA, PhD, University of California, Berkeley   |

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|-------------------|-----------------------------|--|
| Thomas T.         |                             |  |
| WILLIAMS, Mark W. | professor                   | BA, PhD, University of California, Santa Barbara                                       |
| YEH, Emily        | department chair; professor | BS, MS, Massachusetts Institute of Technology; PhD, University of California, Berkeley |

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## Faculty: Geological Sciences

| Name                     | Title                        | Education  |
|--------------------------|------------------------------|--|
| ABBOTT, Lon              | senior instructor            | BS, University of Utah; PhD, University of California, Santa Cruz  |
| ANDERSON, Robert S.      | professor                    | BS, Williams College; MS, Stanford University; PhD, University of Washington                             |
| ANDREWS, John T.         | professor emeritus           |  |
| ATKINSON Jr., William W. | associate professor emeritus |  |
| BILHAM, Roger G.         | professor emeritus           |  |
| BIRKELAND, Peter W.      | professor emeritus           |  |
| BRADLEY, William C.      | professor emeritus           |  |
| BUDD, David A.           | professor                    | BS, College of Wooster; MS, Duke University; PhD, University of Texas at Austin                          |
| CHIN, Karen              | associate professor          | BA, University of California; MS, Montana State University; PhD, University of California, Santa Barbara |
| EBERLE, Jaelyn           | associate professor          | BS, University of Saskatchewan; PhD, University of Wyoming   |
| EICHER, Don L.           | professor emeritus           |  |
| FARMER, G. Lang          | professor                    | BA, University of California, San Diego; PhD, University of California, Los Angeles                      |
|                          |                              |  |

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  - Ecology and Evolutionary Biology
  - Economics
  - English
  - Environmental Studies
  - Ethnic Studies

|                          |  |  |
|--------------------------|--|--|
| FLOWERS, Rebecca M.      | associate professor                                | BS, College of William and Mary; MS, University of Utah; PhD, Massachusetts Institute of Technology                              |
| GE, Shemin               | department chair; professor                        | BSc, Wuhan University of Technology, China; MAsc., The University of British Columbia, Canada; MA, PhD, Johns Hopkins University |
| GOETZ, F. H. Alexander   | professor emeritus                                 |  |
| HYNEK, Brian M.          | associate professor                                | BA, University of Northern Iowa; PhD, Washington University  |
| JAKOSKY, Bruce M.        | professor  | BS, University of California, Los Angeles; MS, PhD, California Institute of Technology   |
| JONES, Craig             | professor  | BS, California Institute of Technology; PhD, Massachusetts Institute of Technology   |
| KRAUS, Mary J.           | associate dean for the natural sciences; professor | BS, Yale University; MS, University of Wyoming; PhD, University of Colorado  |
| LARSON, Edwin E.         | professor emeritus                                 |  |
| MAHAN, Kevin             | assistant professor                                | BSc, Auburn University; MSc, University of Utah; PhD, University of Massachusetts Amherst  |
| MARCHITTO Jr., Thomas M. | associate professor                                | BS, Yale University; PhD, Massachusetts Institute of Technology/Woods Hole Oceanographic Institute Joint Program                 |
| MILLER, Gifford H.       | professor  | BA, PhD, University of Colorado  |
| MOJZSIS, Stephen J.      | professor  | BA, MA, Boston University; PhD, Scripps Institute of Oceanography  |
| MOLNAR, Peter            | professor  | BA, Oberlin College; PhD, Columbia University  |
| MUELLER, Karl J.         | professor  | BS, MS, San Diego State University; PhD, University of Wyoming   |
| MUNOZ, James L.          | professor emeritus                                 |  |
| ROBINSON, Peter          | professor emeritus                                 |  |

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|                         |  |  |
|-------------------------|--|--|
| RUNNELLS, Don           | professor emeritus   |  |
| SEPULVEDA, Julio A.     | assistant professor  | BS, University of Concepción; PhD, University of Bremen                                    |
| SHEEHAN, Anne           | professor  | BS, University of Kansas; PhD, Massachusetts Institute of Technology                       |
| SMITH, Dena M.          | associate professor  | BA, University of California, Santa Cruz; PhD, University of Arizona                       |
| SMYTH, Joseph R.        | professor  | BS, Virginia Polytechnic Institute; MS, PhD, University of Chicago                         |
| SNELL, Kathryn E.       | assistant professor  | BS, The Colorado College; PhD, University of California, Santa Cruz                        |
| SPETZLER, Hartmut A. W. | professor emeritus   |  |
| STEMPIEN, Jennifer A.   | instructor   | BS, SUNY Binghamton; PhD, Virginia Polytechnic Institute                                   |
| STERN, Charles R.       | professor  | BS, MS, PhD, University of Chicago   |
| SYVITSKI, James P. M.   | professor  | BSc, HBS, Lakehead University; PhD, University of British Columbia                         |
| TEMPLETON, Alexis S.    | associate professor  | BA, MS, Dartmouth College; PhD, Stanford University  |
| TIAMPO, Kristy F.       | associate professor  |  |
| TILTON, Eric            | professor  | BA, Williams College; PhD, University of California at Santa Cruz                          |
| TUCKER, Gregory E.      | professor  | BA, Brown University; PhD, Pennsylvania State University                                   |
| WALKER, Theodore R.     | professor emeritus   |  |
| WEIMER, Paul            | director of EMARC;<br>Bruce D. Benson<br>professor of petroleum<br>geology | BA, Pomona College; MS, University of Colorado Boulder; PhD, University of Texas at Austin |

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WHITE,  
James W. C.

professor

BS, Florida State University; MA, MPhil, PhD,  
Columbia University

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## Faculty: Germanic and Slavic Languages and Literatures

| Name                            | Title                        | Education  |
|---------------------------------|------------------------------|--|
| FIRESTONE, Robert               | assistant professor emeritus |  |
| GERWIG, Inger-Johanne           | senior instructor emerita    |  |
| GREANEY, Patrick                | associate professor          | BA, Yale College; MA, PhD, Johns Hopkins University  |
| GROVE, Vicki                    | senior instructor            | BA, Lake Forest College; MA, PhD, University of Colorado Boulder                                 |
| HINTZ, Saskia B.                | senior instructor            | Erstes Staatsexamen (MA equivalent) Pädagogische Hochschule, Flensburg; PhD, New York University |
| HOECKER, Arne                   | assistant professor          | MA, Humboldt University; PhD, Johns Hopkins University   |
| JANY, Berit                     | instructor                   | MA, Technical University, Dresden; MA, PhD, Ohio State University                                |
| KOSTOGLODOVA, Elena Y.          | senior instructor            | BA, Uppsala College; MA, PhD, University of Colorado   |
| LEE, C. Nicholas                | professor emeritus           |  |
| LEIDERMAN (LIPOVETSKY), Mark N. | professor                    | BA, MA, PhD, Ural State University   |
| MIKHAILOVA, Tatiana             | senior instructor            | BA, MA, Ural State University  |
| MULLER-                         | director, Center for         | BA equiv., University of Düsseldorf; MA, Free  |

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|------------------------|--|--|
| SIEVERS, Helmut        | Humanities and the Arts; professor                       | University of Berlin; PhD, Stanford University   |
| NORDVIG, Mathias       | visiting assistant professor                             | BA, MA, PhD, Aarhus University   |
| OSTERMAN, Laura Olson  | associate professor                                      | BA, State University of New York at Purchase; MA, Indiana University; PhD, Yale University                     |
| PLANK, D. L.           | professor emeritus                                       |  |
| ROBERTS, Thomas        | visiting assistant professor                             | BA, Middlebury College; MA, PhD, Stanford University   |
| ROMANOV, Artemi        | professor  | BA, MA, PhD, Leningrad University  |
| SALYS, Rimgaila        | professor emerita  |  |
| SAMPSON, Earl D.       | associate professor emeritus                             |  |
| SCHINDLER, Patricia A. | senior instructor emerita                                |  |
| SCHMIESING, Ann C.     | professor  | BA, Willamette University; MA, University of Washington; PhD, Cambridge University                             |
| SENDEROVICH, Sasha     | assistant professor                                      | BA, University of Massachusetts Amherst; PhD, Harvard University   |
| STIMILLI, Davide       | associate professor                                      | BA, Laurea, University of Pisa; MA, PhD, Yale University   |
| TEITELBAUM, Benjamin   | instructor   | BM, Bethany College; MA, PhD, Brown University   |
| WEBER, Beverly M.      | associate professor                                      | BA, Gustavus Adolphus College; MA, Pennsylvania State University; PhD, University of Massachusetts Amherst     |
| WEBER, Beverly         | associate professor of German Studies and Jewish Studies | BA, Gustavus Adolphus College; MA, The Pennsylvania State University; PhD, University of Massachusetts Amherst |

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## Faculty: Global Studies RAP

| Name             | Title   | Education   |
|------------------|---|---|
| CONZELMAN, Carol | associate director; instructor                                | BA, BS Miami University; MA, PhD, University of Colorado Boulder            |
| MARTIN, Jessica  | instructor  | BA, Northwestern University; MA, PhD, University of Colorado Boulder        |
| TOOHEY, Darin W. | director, Sustainability and Social Innovation RAP; professor | BA, BS, California State University, Fullerton; MS, PhD, Harvard University |

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## Faculty: History

| Name                  | Title                                       | Education  |
|-----------------------|---|--|
| ANDERSON, Fred W.     | College Professor of Distinction; professor | BA, Colorado State University; AM, PhD, Harvard University   |
| ANDERSON, Virginia D. | professor                                   | BA, University of Connecticut; MA, University of East Anglia; AM, PhD, Harvard University                  |
| ANDREWS, Thomas G.    | associate professor                         | BA, Yale University; MA, PhD, University of Wisconsin-Madison  |
| BRUCE, Scott G.       | associate professor                         | BA, York University; MA, PhD, Princeton University   |
| CHAMBERS, Lee V.      | associate professor                         | BA, Wellesley College; MA, PhD, University of Michigan   |
| CHESTER, Lucy         | associate professor                         | BA, MA, PhD, Yale University   |
| CHRISTENSEN, Carl C.  | professor emeritus                          |  |
| CIARLO, David         | associate professor                         | BA, Oberlin College; MA, University of Cincinnati; PhD, University of Wisconsin-Madison                    |
| DAUVERD, Celine       | assistant professor                         | BA, Hawaii Pacific University; MA, University of Hawaii, Manoa; PhD, University of California, Los Angeles |
| ENGEL, Barbara A.     | distinguished professor emerita             |  |
| FENN, Elizabeth A.    | professor; department chair                 | BA, Duke University; MA, PhD, Yale University  |

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|                      |   |   |
|----------------------|---|---|
| FERRY, Robert J.     | associate professor                         | BA, University of Colorado; MA, PhD, University of Minnesota  |
| GAUTAM, Sanjay Kumar | associate professor                         | BA, Ramjaf College of Delhi University; MA, Jawaharlal Nehru University; PhD, University of Chicago |
| GERBER, Matthew D.   | associate professor                         | BA, Yale University; MA, PhD, University of California, Berkeley                                    |
| GONZALEZ, Fredy      | assistant professor                         | BA, University of California, Berkeley; MA, PhD, Yale University                                    |
| GROSS, David L.      | professor                                   | BA, St. Ambrose College; MA, PhD, University of Wisconsin   |
| GUTMANN, Myron P.    | professor                                   | BA, Columbia University; MA, PhD, Princeton University  |
| HALPERIN, Liora      | assistant professor                         | BA, Harvard; MA, PhD, University of California, Los Angeles   |
| HAMMER, Paul E. J.   | professor                                   | BA, University of Auckland; PhD, Selwyn College, University of Cambridge, UK                        |
| HANNA, Martha        | professor                                   | BA, University of Winnipeg; MA, University of Toronto; PhD, Georgetown University                   |
| HILL JR., Boyd H.    | professor emeritus                          |   |
| HOHLFELDER, Robert   | professor emeritus                          |   |
| HULDEN, Vilja        | instructor                                  | BA, St. Cloud University; MA, University of Helsinki; PhD, University of Arizona                    |
| JANKOWSKI, James P.  | professor emeritus                          |   |
| KENT, Susan K.       | professor, college professor of distinction | BS, Suffolk University; MA, PhD, Brandeis University  |
| KIM, Kwangmin        | assistant professor                         | BA, MA, Sogang University, South Korea; PhD, University of California, Berkeley                     |
| KINGSBERG, Miriam    | assistant professor                         | BA, MA, Brandeis University. PhD, University of California, Berkeley                                |

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|                           |  |   |
|---------------------------|--|---|
| LEBRA, Joyce Chapman      | professor emerita                                    |   |
| LESTER, Anne E.           | associate professor                                  | BA, Brown University; MA, PhD, Princeton University   |
| LIM, Sungyun              | assistant professor                                  | BA, Seoul National University; MA, Seoul National University; MA, PhD, University of California, Berkeley |
| LIMERICK, Patricia Nelson | director, Center for the American West; professor    | BA, University of California, Santa Cruz; MA, M.Phil., PhD, Yale University                               |
| MAIN, Gloria L.           | professor emerita                                    |   |
| MANN, Ralph               | associate professor emeritus                         |   |
| McINTOSH, Marjorie K.     | distinguished professor emerita                      |   |
| MUKHERJEE, Mithi          | associate professor                                  | BA, Presidency College, Calcutta; MA, Jawaharlal Nehru University; PhD, University of Chicago             |
| OSBORNE, Myles            | associate professor                                  | BA, Columbia University; MA, PhD, Harvard University  |
| PARADIS, David H.         | instructor   | BA, University of Virginia; MA, PhD, Emory University   |
| PHILLIPS, George H.       | professor emeritus                                   |   |
| PITTENGER, Mark A.        | professor  | BA, Denison University; MA, PhD, University of Michigan   |
| RUESTOW, Edward G.        | associate professor emeritus                         |   |
| SCAMEHORN, Howard Lee     | professor emeritus                                   |   |
| SCHULZINGER, Robert D.    | College Professor of Distinction; professor emeritus |   |
| SHNEER, David             | professor  | BA, MA, PhD, University of California, Berkeley   |

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|                  |                            |   |
|------------------|----------------------------|---|
| SPIRES, David N. | senior instructor emeritus |   |
| SUTTER, Paul S.  | associate professor        | BA, Hamilton College. PhD, University of Kansas                                   |
| TALLY, Patrick   | senior instructor, advisor | BA, Ohio Wesleyan University; MA, PhD, University of Wisconsin-Madison            |
| WEI, William     | professor                  | BA, Marquette University; MA, PhD, University of Michigan                         |
| WESTON, Timothy  | associate professor        | BA, University of Wisconsin–Madison; MA, PhD, University of California, Berkeley  |
| WILLIS, John     | associate professor        | BA, University of Louisville; MA, Georgetown University; PhD, New York University |
| WOOD, Peter H.   | professor adjunct          | BA, Harvard College; MA, Oxford University; PhD, Harvard University               |

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## Faculty: Honors

| Name                | Title   | Education   |
|---------------------|---|---|
| BUCHWALD, Robert    | assistant director of Honors RAP; instructor                                    | BS, University of Texas at Austin; PhD, University of Colorado Boulder  |
| DIKE, Steven        | instructor  | BA, University of Colorado Boulder; MA, University of Virginia; PhD, University of Colorado Boulder           |
| HICKCOX, Abby       | associate director of honors; instructor  | BA, Eartham College; MS, University of Wisconsin-Madison; PhD, University of Colorado                         |
| JACOBS, Janet       | director of Honors Program; professor of Sociology and Women and Gender Studies | BA, MS, PhD, University of Colorado   |
| JONES, Daniel C. L. | senior instructor   | BA, Sonoma State University; MM, PhD, University of Colorado  |
| KOPFF, E. Christian | associate professor   | BA, Haverford College; PhD, University of North Carolina  |
| STROM, Paul         | senior instructor   | BA, University of Colorado Boulder; MDiv, Austin Presbyterian Theological Seminary; PhD, University of Denver |

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## Honors RAP

| Name                | Title  | Education   |
|---------------------|--|---|
| BUCHWALD, Robert    | assistant director of Honors RAP; instructor   | BS, University of Texas at Austin; PhD, University of Colorado Boulder                                |
| DIKE, Steven        | instructor   | BA, University of Colorado Boulder; MA, University of Virginia; PhD, University of Colorado Boulder   |
| GERLAND, Oliver     | faculty director, Honors RAP; associate professor of theatre and dance; faculty-in-residence, Honors RAP | BA, Swarthmore College; PhD, Stanford University  |
| HICKCOX, Abby       | associate director of honors; instructor   | BA, Eartham College; MS, University of Wisconsin-Madison; PhD, University of Colorado                 |
| JACOBS, Janet       | director of Honors Program; professor of Sociology and Women and Gender Studies                          | BA, MS, PhD, University of Colorado   |
| JONES, Daniel C. L. | senior instructor  | BA, Sonoma State University; MM, PhD, University of Colorado  |
| MILLER, Olivia      | instructor   | BA, University of California, Santa Barbara; MA, University of Colorado Boulder; PhD, SUNY-Binghamton |
| STROM, Paul         | senior instructor  | BA, University of Colorado; MDiv, Austin Presbyterian Theological Seminary; PhD, University of Denver |

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## Faculty: Humanities

| Name               | Title  | Education  |
|--------------------|--|--|
| BERNARDINI, Giulia | instructor of humanities and Libby RAP                                 | BA, Mount Holyoke College; Post-graduate diploma, Courtauld Institute, London; MA, University of Colorado Boulder                |
| CARNAHAN, Shirley  | senior instructor  | BA, University of California, Santa Barbara; MA, California State University, Santa Barbara; PhD, University of Colorado Boulder |
| CATLOS, Brian      | professor of Spanish and religious studies                             | BA, MA, PhD, University of Toronto   |
| FERRIS, David      | professor of humanities  | BA, University of Leeds, England; PhD, State University of New York at Buffalo   |
| GANGULY, Suranjan  | professor of film  | BA, St. Xavier College, India; MA, Jadavpur University, India; PhD, Purdue University  |
| GERLAND, Oliver    | associate professor of theatre and dance                               | BA, Swarthmore College; PhD, Stanford University   |
| GORDON, Paul       | professor of humanities  | BA, State University of New York at Buffalo; PhD, Yale University  |
| GREANEY, Patrick   | associate professor of Germanic and Slavic languages and civilizations | BA, Yale College; MA, PhD, Johns Hopkins University  |
| ODDIE, Graham      | professor of Philosophy  | BA, University of Otago; PhD, London   |
| RABAKA, Reiland    | professor of ethnic studies  | BFA, University of the Arts; MA, PhD, Temple University  |
| ZEMKA, Sue         | professor of English   | BA, St. Louis University; PhD, Stanford University   |

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## Faculty: Integrative Physiology

| Name                    | Title               | Education  |
|-------------------------|---------------------|--|
| AHMED, Alaa             | associate professor | BS, American University, Cairo; PhD, University of Michigan                                |
| BEKOFF, Anne C.         | professor           | BA, Smith College; PhD, Washington University  |
| BUSTAMANTE, Heidi M.    | instructor          | BA, MS, University of Colorado, Boulder  |
| BYRNES, William C.      | associate professor | BS, Manhattan College; MA, Appalachian State University; PhD, University of Wisconsin      |
| CAREY, Cynthia          | professor emeritus  |  |
| CASAGRAND, Janet L.     | senior instructor   | BA, Drew University; PhD, Case Western Reserve University                                  |
| DeSOUZA, Christopher A. | professor           | BPHE, University of Toronto; MA, George Washington University; PhD, University of Maryland |
| DICKINSON, Arthur L.    | professor emeritus  |  |
| EATON, Robert           | professor emeritus  |  |
| EHRINGER, Marissa       | associate professor | BS, BA, Indiana University; PhD, University of Colorado Denver                             |
| ENOKA, Roger M.         | professor           | Diploma PE, University of Otago, New Zealand; MS, PhD, University of Washington            |
| FLESHNER, Monika R.     | professor           | BS, Iowa State University; MA, PhD, University of Colorado Boulder                         |
|                         |                     |  |

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|                         |   |   |
|-------------------------|---|---|
| FOLEY, Teresa E.        | instructor                                  | BA, MS, PhD, University of Colorado, Boulder  |
| FOWLER, John S.         | associate professor emeritus                |   |
| GLEESON, Todd T.        | director, Health Professions RAP; professor | BS, University of California, Riverside; PhD, University of California, Irvine  |
| GRABOWSKI, Alena M.     | assistant professor                         | BA, PhD, University of Colorado, Boulder  |
| HEISLER, Ruth E.        | senior instructor                           | BS, University of Minnesota; MA, University of Colorado   |
| HOBBS, Steven L.        | instructor                                  | BS, University of California, San Diego; PhD, University of Colorado Boulder  |
| HOEFFER, Charles        | assistant professor                         | BS, PhD, University of Arizona, Tucson  |
| JOHNSON, Thomas E.      | professor                                   | BSc, Massachusetts Institute of Technology; PhD, University of Washington   |
| KRAM, Rodger            | associate professor                         | BA, Northwestern University; MS, Penn State University; PhD, Harvard University   |
| LAROCCA, Thomas         | instructor                                  | BA, Williams College; MS, PhD, University of Colorado, Boulder  |
| LEBOURGEOIS, Monique K. | assistant professor                         | BS, MS, MA, PhD, University of Southern Mississippi   |
| LINK, Christopher D.    | associate professor                         | BS, Brooklyn College; PhD, University of Massachusetts  |
| LOWRY, Christopher A.   | associate professor                         | BA, University of Wyoming; PhD, Oregon State University   |
| LYNCH, G. Robert        | professor emeritus                          |   |
| MAZZEO, Robert S.       | graduate coordinator; associate professor   | BS, North Carolina State University; MA, Wake Forest University; PhD, University of California, Berkeley                        |
| MCQUEEN, Matthew B.     | associate professor                         | BA, University of Colorado, Boulder; MS, University of Washington School of Public Health; ScD, Harvard School of Public Health |

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|                        |  |  |
|------------------------|--|--|
| MOOD, Dale P.          | professor emeritus                             |  |
| MOORE, Russell L.      | provost; professor                             | BS, University of California, Davis; MS, PhD, Washington State University              |
| NELSON, Suzanne L.     | instructor                                     | BS, MS, University of Illinois at Champaign; MA, PhD, University of Colorado Boulder   |
| NORRIS, David O.       | professor emeritus                             |  |
| ROBICHAUX, Waldean     | professor emerita                              |  |
| SAUL, Leif J.          | senior instructor                              | BS, University of Texas at Austin; PhD, University of California, Berkeley             |
| SEALS, Douglas R.      | college professor of distinction               | BS, William Jewell College; MS, PhD, University of Wisconsin–Madison                   |
| SHERWOOD, David E.     | undergraduate coordinator; associate professor | AB, MA, San Diego State University; PhD, University of Southern California             |
| SHI, Jia               | instructor                                     | MA, Brandeis University; PhD, Boston University; MD, Guangxi Medical University, China |
| STITZEL, Jerry A.      | associate professor                            | BA, University of Colorado Boulder; PhD, Johns Hopkins University                      |
| TSAI, Pei-San          | department chair; professor                    | BS, Texas A&M University; MA, PhD, University of California, Berkeley                  |
| WRIGHT Jr., Kenneth P. | professor                                      | BS, University of Arizona; MA, PhD, Bowling Green State University                     |

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## Faculty: International Affairs

| Name                | Title   | Education   |
|---------------------|---|---|
| BEARCE, David       | professor (joint with Department of Political Science)                  | BA, Davidson College; PhD, Ohio State University  |
| CHESTER, Lucy       | associate professor (joint with Department of History)                  | BA, MPhil, PhD, Yale University   |
| HUNTER, Victoria A. | senior instructor   | BA, Mount Holyoke College; PhD, University of Colorado Boulder                                  |
| MARTIN, Jessica     | instructor (joint with Global Studies Residential Academic Program)     | BA, Northwestern University; PhD, University of Colorado Boulder                                |
| WYROD, Robert       | assistant professor (joint with Department of Women and Gender Studies) | BA, University of Michigan; MA, PhD, University of Chicago                                      |
| YOUNG, Gregory      | instructor (joint with the Department of Political Science)             | BS, Oregon State University; MS, Naval Postgraduate School; PhD, University of Colorado Boulder |
| ZEILER, Thomas      | program director; professor of history                                  | BA, Emory University; MA, PhD, University of Massachusetts                                      |
| ZHANG, Shuang       | assistant professor (joint with Department of Economics)                | BA, Shanghai University; MA, Fudan University; PhD, Cornell University                          |

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## Faculty: INVST Community

| Name             | Title   | Education  |
|------------------|---|--|
| KUHN, Timothy    | faculty director, INVST; associate professor, Department of Communication | BS, MA, University of Minnesota–Twin Cities; PhD, Arizona State University             |
| MEENS, David     | instructor  | BA, University of Colorado Boulder; MA, University of Colorado Anschutz Medical Campus |
| SIDERIS, Sabrina | program director, instructor  | BA, University of Colorado Boulder; MA, University for Peace, Costa Rica               |

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## Faculty: Jewish Studies

| Name               | Title  | Education  |
|--------------------|--|--|
| CATLOS, Brian A.   | professor of Religious Studies   | BA, University of Toronto; MA, PhD, Centre for Medieval Studies  |
| GOODMAN, Zilla     | senior lecturer, director of undergraduate studies for Jewish Studies                                      | BA, MA, PhD, University of Cape Town   |
| GOODMAN, Nan       | director of Jewish Studies; professor of English   | BA, Princeton University; MA, University of California, Berkeley; JD, Stanford Law School; PhD, Harvard University |
| HALPERIN, Liora    | assistant professor of History and Jewish Studies  | BA, Harvard University; MA, PhD, UCLA  |
| MALIN, Yonatan     | associate professor of Music Theory and Jewish Studies   | BA, Harvard University; PhD, University of Chicago   |
| RIVLIN, Eyal       | instructor in Hebrew   | BA, Tel Aviv University; MA, Naropa University   |
| SACKS, Elias       | assistant professor of Religious Studies and Jewish Studies; director, graduate studies for Jewish Studies | BA, Harvard University; MA, Columbia University; PhD, Princeton University   |
| SENDEROVICH, Sasha | assistant professor of Germanic and Slavic Languages and Literatures and Jewish Studies                    | BA, University of Massachusetts Amherst; MA, PhD, Harvard University   |
| SHNEER, David      | professor of History, Religious Studies and Jewish Studies   | BA, MA, PhD, University of California, Berkeley  |
| STIMILLI, Davide   | associate professor  | BA, Laurea, University of Pisa; MA, PhD, Yale University   |

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|                |  |  |
| WEBER, Beverly | associate professor of German Studies and Jewish Studies | BA, Gustavus Adolphus College; MA, The Pennsylvania State University; PhD, University of Massachusetts Amherst |
| ZEMKA, Sue     | professor of English                                     | BA, St. Louis University; PhD, Stanford University   |

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## Faculty: Libby RAP

| Name               | Title             | Education  |
|--------------------|-------------------|--|
| ALPERN, Tyler      | senior instructor | BA, Occidental College; MFA, University of Colorado Boulder  |
| AUVINEN, Karen     | instructor        | BA, MA, University of Colorado Boulder; PhD, University of Wisconsin-Milwaukee                                     |
| BERNARDINI, Giulia | instructor        | BA, Mount Holyoke College; Diploma, Courtauld Institute, England; MA, University of Colorado Boulder               |
| BROERSMA, Leslee   | senior instructor | BA, University of California, Irvine; MFA, University of Colorado Boulder  |
| LOUIE, Donna       | instructor        | BS, New Mexico State University; PhD, University of Health Science Center at San Antonio                           |
| LUNDY, Tiel        | instructor        | BA, MA, University of Colorado Denver; PhD, University of Denver   |
| ROBINSON, Janet S. | senior instructor | BA, University of Colorado Boulder; MA, University of Colorado Denver  |
| SHARMA, Vijaya     | instructor        | BE, University of Roorkee, India; ME, Asian Institute of Technology, Thailand; PhD, University of Colorado Boulder |

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## Faculty: Linguistics

| Name                         | Title                        | Education  |
|------------------------------|------------------------------|--|
| BELL, Alan                   | associate professor emeritus |  |
| COWELL, Andrew               | department chair; professor  | BA, Harvard University; PhD, University of California, Berkeley                      |
| FOX, Barbara A.              | professor                    | BA, MA, PhD, University of California, Los Angeles                                   |
| FRAJZYNGIER, Zygmunt         | professor                    | MA, PhD, University of Warsaw; MA, University of Ghana                               |
| HALL, Kira                   | associate professor          | BA, Auburn University; MA, PhD, University of California, Berkeley                   |
| HULDEN, Mans                 | assistant professor          | BA, St. Cloud University; MA, Abo Akademi University; MA, PhD, University of Arizona |
| MENN, Lise                   | professor emerita            |  |
| MICHAELIS-CUMMINGS, Laura A. | professor                    | BA, MA, PhD, University of California, Berkeley                                      |
| NARASIMHAN, Bhuvana          | associate professor          | BA, University of Delhi, India; PhD, Boston University                               |
| PALMER, Martha               | professor                    | BA, MA, University of Texas; PhD, University of Edinburgh                            |
| ROOD, David S.               | professor                    | AB, Cornell University; MA, PhD, University of California, Berkeley                  |

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|                      |                     |   |
|----------------------|---------------------|---|
| SCARBOROUGH, Rebecca | associate professor | BA, Stanford University; MA, PhD, University of California, Los Angeles |
| TAYLOR, Allan R.     | professor emeritus  |   |
| THOMAS-RUZIC, Maria  | senior instructor   | BA, MA, PhD, University of Colorado                                     |

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## Faculty: Mathematics

| Name                        | Title  | Education  |
|-----------------------------|--|--|
| BAGGETT, Lawrence W.        | professor emeritus                                   |  |
| BROWN, Gordon E.            | associate professor emeritus                         |  |
| BULIN, Jakub                | Burnett Meyer Postdoctoral Fellow                    | PhD, Charles University in Prague, Czech Republic                                  |
| CASALAINA-MARTIN, Sebastian | associate professor                                  | PhD, Columbia University   |
| CLELLAND, Jeanne            | associate chair for undergraduate studies; professor | BS, MA, PhD, Duke University   |
| CLEMENTS, George F.         | professor emeritus                                   |  |
| ELLIOTT, Peter D. T. A.     | professor  | BS, University of Bristol; PhD, University of Cambridge                            |
| ELLIS, Homer G.             | associate professor emeritus                         |  |
| ENGLANDER, Janos            | associate professor                                  | DSc, Technion-ITT  |
| FARSI, Carla                | professor  | Laurea, University of Florence; PhD, University of Maryland                        |
| FOX, Jeffrey S.             | professor  | BA, Massachusetts Institute of Technology; PhD, University of California, Berkeley |
| GASSERT, Alden              | Burnett Meyer  | PhD, University of Massachusetts, Amherst  |

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|------------------------|---|---|
|                        | Postdoctoral Fellow                             |   |
| GILLASPY, Elizabeth    | Burnett Meyer Postdoctoral Fellow               | PhD, Dartmouth College  |
| GOODRICH, Robert K.    | professor emeritus                              |   |
| GOROKHOVSKY, Alexander | associate chair for graduate studies; professor | PhD, Ohio State University  |
| GRANT, David R.        | department chair; professor                     | AB, Princeton University; PhD, Massachusetts Institute of Technology  |
| GREEN, Richard M.      | professor                                       | MA, Oxford University; MSc, PhD, University of Warwick  |
| GUSTAFSON, Karl E.     | professor                                       | BS, BS, University of Colorado; PhD, University of Maryland   |
| HERMES, Henry G.       | professor emeritus                              |   |
| HOLLEY, Richard A.     | professor emeritus                              |   |
| IH, Su-Ion             | associate professor                             | PhD, Brown University   |
| JONES, William B.      | professor emeritus                              |   |
| KEARNES, Keith A.      | professor                                       | BS, MS, University of California, Riverside; PhD, University of California, Berkeley  |
| KUZNETSOV, Sergei      | associate professor                             | Diploma, Moscow State University; PhD, Institute of Mathematics of Ukrainian Academy of Sciences, Kiev, Mathematics and Physics; Doctor of Physics and Mathematics, Vilnius State University, Lithuania |
| LIU, Faan Tone         | instructor                                      | BS, California Institute of Technology; MA, PhD, University of Colorado Boulder   |
| LUNDELL, Albert T.     | professor emeritus                              |   |
| MACRAE, Robert Eugene  | professor emeritus                              |   |

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  - Sewall RAP
  - Sustainability and Social Innovation RAP
  - Sociology
  - Spanish and Portuguese
  - Speech, Language

|                      |                                   |  |
|----------------------|-----------------------------------|--|
| MALITZ, Jerome I.    | professor emeritus                |  |
| MANLEY, Kevin        | instructor                        | PhD, University of Colorado Boulder                                    |
| MAYR, Peter          | assistant professor               | PhD, Johannes Kepler University, Linz                                  |
| MOLCHO, Samouil      | Burnett Meyer Postdoctoral Fellow | PhD, Brown University  |
| MONK, James Donald   | professor emeritus                |  |
| MYCIELSKI, Jan       | professor emeritus                |  |
| O'ROURKE, Sean       | assistant professor               | PhD, University of California, Davis                                   |
| PACKER, Judith A.    | professor                         | BA, MA, Wesleyan University; PhD, Harvard University                   |
| PFLAUM, Markus       | professor                         | PhD, Universität München   |
| RAMSAY, Arlan        | professor emeritus                |  |
| REARICK, David F.    | professor emeritus                |  |
| ROTH, Richard L.     | professor emeritus                |  |
| SATHER, Duane P.     | professor emeritus                |  |
| SCHMIDT, Wolfgang    | distinguished professor emeritus  |  |
| SPINA, Alejandro     | senior instructor                 | PhD, La Plata National University; PhD, University of Colorado Boulder |
| STANGE, Katherine    | assistant professor               | PhD, Brown University  |
| STRUJK, Ruth Rebekka | professor emerita                 |  |
| SZENDREI, Agnes      | professor                         | MSc, University of Szeged; PhD, Hungarian Academy of Sciences          |
| THIEM, Nathaniel     | associate professor               | PhD, University of Wisconsin–Madison                                   |

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|-------------------|-----------------------------------|--|
| TUBBS, Robert     | associate professor               | BA, University of South Florida; MA, Columbia University; PhD, Pennsylvania State University |
| VERNEREY, Divya   | instructor                        | BS, North Central College, Naperville, Illinois; MS, PhD, Northwestern University            |
| WALTER, Martin E. | professor                         | BS, University of Redlands; MA, PhD, University of California, Irvine                        |
| WATTS, Jordan     | Burnett Meyer Postdoctoral Fellow | PhD, University of Toronto   |



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## Faculty: Miramontes Arts and Sciences Program (MASP)

| Name             | Title  | Education  |
|------------------|--|--|
| RAMIREZ, Karen   | assistant director                           | BA, Swarthmore College; MA, PhD, University of Illinois at Champaign-Urbana                  |
| SANCHEZ, Leticia | assistant director; instructor               | BS, San Diego State University; PhD, University of Colorado Boulder                          |
| TUBBS, Robert    | director; associate professor of mathematics | BA, University of South Florida; MA, Columbia University; PhD, Pennsylvania State University |

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## Faculty: Molecular, Cellular, and Developmental Biology

| Name                   | Title   | Education   |
|------------------------|---|---|
| ABBOTT, Lois A.        | senior instructor emerita   |   |
| BLUMENTHAL, Tom        | professor   | BA, Antioch College; PhD, Johns Hopkins University                                |
| BOSWELL, Robert E.     | vice chancellor for diversity, equity, and community engagement; professor                | BA, Marietta College; PhD, University of Colorado                                 |
| CECH, Thomas R.        | distinguished professor (joint appointment with Department of Chemistry and Biochemistry) | BA, Grinnell College; PhD, University of California, Berkeley                     |
| CHEN, Zhe              | assistant research professor  | BS, Peking University; PhD, University of Colorado Boulder                        |
| COPLEY, Shelley D.     | professor   | AB, Radcliffe College; PhD, Harvard University                                    |
| DETWEILER, Corrella S. | associate professor   | AB, Bowdoin College; PhD, University of California, San Francisco                 |
| DOWELL-DEEN, Robin     | assistant professor   | BS, Texas A&M, College Station; DSc, Washington University, St. Louis             |
| DUBIN, Mark W.         | professor emeritus  |   |
| FILLMAN, Christy L.    | instructor  | BS, Colorado State University; PhD, University of Colorado                        |
| FOTINO, Mircea         | professor attendant rank  | Licence-es-Sciences, University of Paris; PhD, University of California, Berkeley |

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|                        |                          |  |
|------------------------|--------------------------|--|
| GARCEA, Robert         | professor                | BA, Harvard; MD, University of California, San Francisco   |
| GOLD, Lawrence         | professor                | BS, Yale University; PhD, University of Connecticut  |
| GUILD, Nancy A.        | professor attendant rank | BA, Colorado College; PhD, University of Colorado  |
| HAN, Min               | professor                | BS, Peking University; PhD, University of California, Los Angeles                                |
| HOENGER, Andreas       | associate professor      | Diploma in Biology II, PhD, University of Basel, Switzerland                                     |
| JONES, Kevin R.        | associate professor      | BS, University of Illinois, Urbana; PhD, University of California, Berkeley                      |
| JUNGE, Harald          | assistant professor      | BS, MS, Philipps University, Germany; PhD, Max Planck Institute and Philipps University, Germany |
| KLYMKOWSKY, Michael W. | professor                | BS, Pennsylvania State University; PhD, California Institute of Technology                       |
| KNIGHT, Jennifer K.    | associate professor      | BA, Cornell University; PhD, University of Michigan  |
| KRALJ, Joel            | assistant professor      | BS, Santa Clara University; PhD, Boston University   |
| KRAUTER, Kenneth S.    | professor                | BS, State University of New York at Stony Brook; PhD, Albert Einstein College of Medicine        |
| KUEMPEL, Peter L.      | professor emeritus       |  |
| LEINWAND, Leslie A.    | professor                | BS, Cornell University; PhD, Yale University   |
| MARTIN, Jennifer M.    | senior instructor        | BA, University of California, Davis; PhD, University of Washington                               |

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|                       |  |  |
|-----------------------|--|--|
| MASTRONARDE, David N. | professor attendant rank                 | BA, Amherst College; PhD, University of Colorado                             |
| McCONKEY, Edwin H.    | professor emeritus                       |  |
| McINTOSH, J. Richard  | distinguished professor emeritus         |  |
| ODORIZZI, Greg        | associate professor                      | BS, Texas Tech University; PhD, University of California, San Diego          |
| OLD, William          | assistant professor                      | BS, University of Texas Austin; PhD, University of Colorado Boulder          |
| OLWIN, Bradley B.     | professor                                | BA, University of California, San Diego; PhD, University of Washington       |
| ORTH, James           | assistant research professor             | BS, University of Wisconsin-Eau Claire; PhD, Mayo Clinic College of Medicine |
| PACE, Norman R.       | distinguished professor emeritus         |  |
| PARK, Soyeon          | assistant professor                      | BS, Seoul National University; PhD, Mayo Clinic College of Medicine          |
| PERKINS, Thomas T.    | associate professor adjoint, JILA Fellow | AB, Harvard University; PhD, Stanford University                             |
| POYTON, Robert O.     | professor emeritus                       | AB, Brown University; PhD, University of California, Berkeley                |
| RUNNER, Meredith      | professor emeritus                       |  |
| SAWYER, Sara          | associate professor                      | BS, University of Kansas; PhD, Cornell University                            |
| SHEN, Jingshi         | associate professor                      | BS, Tsinghua University; PhD, Columbia University                            |
| SINGH, Ravinder       | associate professor                      | BSc HAU, Hisar, India; PhD, Baylor College of Medicine                       |
| STAEHELIN, L. Andrew  | professor emeritus                       |  |

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|-----------------------|----------------------------------|---|
| STEIN, Gretchen H.    | lecturer                         | AB, Brown University; PhD, Stanford University                              |
| STOWELL, Michael      | associate professor              | BA, Reed College; PhD, California Institute of Technology                   |
| SU, Tin Tlin          | professor; associate chair       | BA, Mount Holyoke College; PhD, Carnegie Mellon University                  |
| SUEOKA, Noboru        | professor emeritus               |   |
| VAN BLERKOM, Jonathan | research professor               | BS, City College of New York; PhD, University of Colorado                   |
| VOELTZ, Gia           | associate professor              | BA, University of California, Santa Cruz; PhD, Yale University              |
| WINEY, Mark           | department chair; professor      | BS, Syracuse University; PhD, University of Wisconsin-Madison               |
| WOOD, III, William B. | distinguished professor emeritus |   |
| XUE, Ding             | professor                        | BS, University of Science and Technology of China; PhD, Columbia University |

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## Faculty: Museum and Field Studies

| Name                 | Title  | Education   |
|----------------------|--|---|
| BOWERS, M. Deane     | curator of entomology; professor of ecology and evolutionary biology   | BA, Smith College; PhD, University of Massachusetts   |
| CAIN, Christina M.   | collections manager of anthropology  | MS, University of Colorado  |
| CHIN, Karen          | curator of vertebrate paleontology; associate professor of geological sciences                                   | BA, University of California, San Diego; MS, Montana State University; PhD, University of California, Santa Barbara |
| COUNTER, Charles     | exhibits coordinator; senior instructor adjoint  | MA, Otis/Parsons School of Design   |
| CULVER, Toni         | collections manager of paleontology  | MS, South Dakota School of Mines & Technology   |
| EBERLE, Jaelyn J.    | director, MFS program, University Museum; curator of fossil vertebrates; associate professor geological sciences | BSc, University of Saskatchewan; PhD, University of Wyoming   |
| HAKALA, James        | senior educator of the University Museum; senior instructor  | BS, Western Michigan University; MAT, George Washington University  |
| HARRIS, Judith A.    | professor emerita  |   |
| KARIM, Talia         | collections manager of invertebrate paleontology   | PhD, University of Iowa   |
| KOCIOLEK, J. Patrick | director, University Museum; professor of ecology and evolutionary biology; curator of diatoms                   | BS, St. Mary's College, Maryland; MS, Bowling Green State University; PhD, University of Michigan                   |
| LEKSON, Steve        | curator of anthropology; professor of anthropology   | BA, Case Western Reserve; MA, Eastern New Mexico University; PhD, University of New Mexico                          |

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|-------------------|--|--|
|                   |  |  |
| MARKHAM, Nancy    | professor emerita  |  |
| McCAIN, Christy   | curator of vertebrates, associate professor of ecology and evolutionary biology                | BS, Humboldt State University, California; PhD, University of Kansas |
| REGAN, Cathy      | education coordinator  | PhD, University of Colorado Boulder                                  |
| ROBINSON, Peter   | professor emeritus   |  |
| ROHNER, John R.   | professor emeritus   |  |
| SHANNON, Jennifer | curator of anthropology; assistant professor of anthropology                                   | BA, University of California, Santa Cruz; PhD, Cornell University    |
| SMITH, Dena       | curator of invertebrate paleontology; associate professor of geological sciences               | PhD, University of Arizona   |
| TINIANOW, Sharon  | assistant director, University Museum  | BS, Kent State University; MS, Lesley University                     |
| TRIPP, Erin       | curator of botany, Colorado Herbarium; assistant professor of ecology and evolutionary biology | PhD, Duke University   |
| WEBER, William A. | professor emeritus   |  |
| WU, Shi-Kuei      | professor emeritus   |  |

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## Faculty: Peace and Conflict Studies

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## Faculty: Philosophy

| Name                   | Title   | Education  |
|------------------------|---|--|
| BAILEY, Dominic        | associate professor   | BA, MA, PhD, Trinity College, Cambridge, United Kingdom  |
| BOONIN, David          | professor; department chair                                 | BA, Yale University; PhD, University of Pittsburgh   |
| BOONIN, Leonard        | professor emeritus  |  |
| CLELAND, Carol         | professor   | BA, University of California, Santa Barbara; PhD, Brown University                                     |
| FILEVA, Iskra          | assistant professor   | MA, Saint Louis University; PhD, Boston University   |
| FISHER, John           | professor emeritus  |  |
| FORBES, Graeme         | professor   | MA, University of Glasgow; PhD, New College, Oxford University   |
| HEATHWOOD, Christopher | associate professor   | BA, University of California, San Diego; PhD, University of Massachusetts Amherst                      |
| HOSEIN, Adam           | assistant professor   | BA, University of Oxford; PhD, Massachusetts Institute of Technology                                   |
| HUEMER, Michael        | professor   | BA, University of California, Berkeley; PhD, Rutgers University  |
| JAGGAR, Alison         | professor (joint appointment with women and gender studies) | BA, University of London; MLitt, University of Edinburgh; PhD, State University of New York at Buffalo |
| KAUFMAN,               | associate professor   | BA, University of Connecticut; PhD,  |

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|------------------------|---------------------|---|
| Dan                    |                     | University of Massachusetts Amherst   |
| LEE, Mi-Kyoung (Mitzi) | associate professor | BA, Columbia University; PhD, Harvard University                                |
| MILLER, Ed             | professor emeritus  |   |
| MILLS, Claudia         | professor emerita   |   |
| MORRISTON, Wes         | professor emeritus  |   |
| NORCROSS, Alastair     | associate professor | BA, Christ Church College, Oxford University; PhD, Syracuse University          |
| ODDIE, Graham          | professor           | BA, University of Otago, New Zealand; PhD, University of London                 |
| PASNAU, Robert         | professor           | BA, University of Pennsylvania; PhD, Cornell University                         |
| POTTER, Jason          | instructor          | BA, MA, PhD, University of Colorado Boulder                                     |
| RUPERT, Robert         | professor           | BA, University of Washington, Seattle; MA, PhD, University of Illinois, Chicago |
| SAUCEDO, Raul          | assistant professor | BA, National Autonomous University of Mexico; PhD, Cornell University           |
| STURGIS, Daniel        | senior instructor   | BA, Northwestern University; PhD, University of Colorado Boulder                |
| TOOLEY, Michael        | professor           | BA, University of Toronto; PhD, Princeton University                            |
| WINGO, Ajume           | associate professor | BA, University of California, Berkeley; PhD, University of Wisconsin–Madison    |
| YOUKEY, David          | instructor          | BA, University of Arizona; PhD, University of Colorado Boulder                  |
| ZIMMERMAN, Michael     | professor emeritus  | BA, Louisiana State University; MA, PhD, Tulane University                      |

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## Faculty: Physics

| Name                | Title                       | Education   |
|---------------------|-----------------------------|---|
| ANDERSON, Dana Z.   | professor                   | BSEE, Cornell University; PhD, University of Arizona                              |
| ASHBY, Neil         | professor emeritus          |   |
| BARTLETT, David     | professor emeritus          |   |
| BEALE, Paul         | department chair; professor | BS, University of North Carolina; PhD, Cornell University                         |
| BECKER, Andreas     | associate professor         | Dr. rer. Nat., University of Bielefeld, Germany                                   |
| BETTERTON, Meredith | associate professor         | BA, Princeton University; MA, PhD, Harvard University                             |
| BIASCA, Debra       | instructor                  | PhD, University of Colorado Boulder   |
| BOHN, John L.       | research professor          | BS, PhD, University of Chicago  |
| BOLTON, Daniel R.   | instructor                  | BS, Colorado School of Mines; MS, PhD, University of Washington, Seattle          |
| CALKINS, Michael    | assistant professor         | PhD, University of California, Los Angeles  |
| CAO, Gang           | professor                   | PhD, Temple University  |
| CARY, John R.       | professor                   | BA, University of California, Irvine; MA, PhD, University of California, Berkeley |
| CLARK, Noel A.      | professor                   | BS, MS, John Carroll University; PhD, Massachusetts Institute of Technology       |

### [□](#) Arts & Sciences

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  - Applied Mathematics
  - Art and Art History
  - Asian Languages and Civilizations
  - Asian Studies
  - Astrophysical and Planetary Sciences
  - Atmospheric and Oceanic Sciences
  - Baker RAP
  - Chemistry and Biochemistry
  - Classics
  - Communication
  - Communication and Society RAP
  - Comparative Literature
  - Ecology and Evolutionary Biology
  - Economics
  - English
  - Environmental Studies
  - Ethnic Studies

|                    |   |   |
|--------------------|---|---|
| COOPER, John       | professor emeritus  |   |
| CORNELL, Eric A.   | professor adjunct   | BSc, Stanford; PhD, Massachusetts Institute of Technology   |
| CUMALAT, John P.   | professor   | BA, MA, PhD, University of California, Santa Barbara  |
| CUNDIFF, Steven T. | lecturer  | BA, Rutgers University; MS, PhD, University of Michigan   |
| DE ALWIS, Senarath | professor   | BSc, University of London; PhD, University of Cambridge   |
| DEGRAND, Thomas A. | professor   | BS, University of Tennessee; PhD, Massachusetts Institute of Technology                             |
| DESSAU, Daniel     | professor   | BS, Rice University; PhD, Stanford University   |
| DeWOLFE, Oliver    | associate professor   | BA, Wesleyan University; PhD, Massachusetts Institute of Technology                                 |
| DIDDAMS, Scott     | professor adjunct   | BA, Bethel College; PhD, University of New Mexico   |
| DREITLEIN, Joseph  | professor emeritus  |   |
| DUBSON, Michael    | associate chair of undergraduate studies; senior instructor | BS, University of Illinois, Urbana; PhD, Cornell University   |
| FALLER, James      | professor adjunct   | AB, Indiana University; MA, PhD, Princeton University   |
| FINKELSTEIN, Noah  | professor   | BA, Yale University; PhD, Princeton University  |
| FORD, William T.   | professor emeritus  |   |
| FRANKLIN, Allan D. | professor emeritus  |   |
| GLASER, Matthew A. | professor attendant rank                                    | BSc, Michigan State University; MS, University of Nevada, Reno; PhD, University of Colorado Boulder |
| GOLDMAN, Martin V. | professor   | BA, Princeton University; MS, PhD, Harvard University   |

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- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy

- **Physics**

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- Psychology and Neuroscience
- Religious Studies
- Sewall RAP
- Sustainability and Social Innovation RAP
- Sociology
- Spanish and Portuguese
- Speech, Language

|                            |                              |  |
|----------------------------|------------------------------|--|
|                            |                              |  |
| GURARIE, Victor            | professor                    | BA, Moscow Institute of Physics and Technology; MA, PhD, Princeton University                |
| HALL, John                 | professor adjoint            | PhD, Carnegie Institute of Technology  |
| HASENFRATZ, Anna           | professor                    | MS, PhD, L. Eotvos University, Budapest  |
| HERMANN, Allen M.          | professor emeritus           |  |
| HERMELE, Michael           | associate professor          | AB, Harvard University; MS; PhD, University of California, Santa Barbara                     |
| HOLLAND, Murray J.         | professor                    | BSc, MSc, Auckland University; PhD, Oxford University  |
| HORANYI, Mihaly            | professor                    | MS, PhD, Leland Eötvös University, Budapest  |
| HOUGH, Loren               | assistant professor          | BA, Howard University; PhD, University of Colorado Boulder                                   |
| JARON-BECKER, Agnieszka A. | associate research professor | PhD, Warsaw University Institute of Theoretical Physics                                      |
| JIN, Deborah S.            | professor adjoint            | AB, Princeton University; PhD, University of Chicago   |
| KAPTEYN, Henry             | professor                    | BS, Harvey Mudd; MA, Princeton University; PhD, University of California, Berkeley           |
| KEMPF, Sascha              | assistant professor          | PhD, Friedrich Schiller University, Jena, Germany  |
| KINNEY, Edward R.          | professor                    | SB, PhD, Massachusetts Institute of Technology   |
| KNILL, Emanuel             | lecturer                     | BS, MS, University of Massachusetts at Boston; PhD, University of Colorado                   |
| KUNZ, P. Dale              | professor emeritus           |  |
| LEE, Minhyea               | assistant professor          | BS, MS, Pohang University of Science and Technology, South Korea; PhD, University of Chicago |

and Hearing Sciences

- Theater and Dance
- Western American Studies
- Women and Gender Studies
- Writing and Rhetoric, Program for

 Business Education Engineering & Applied Science Environmental Design Law Media, Communication and Information Music Graduate School Other Academic Programs

|                         |   |   |
|-------------------------|---|---|
| LEHNERT,<br>Konrad      | professor adjoint   | BS, Harvey Mudd College; PhD, University of California, Santa Barbara |
| LEVINE, Judah           | professor adjoint   | AB, Yeshiva College; MS, PhD, New York University                     |
| LEWANDOWSKI,<br>Heather | associate chair,<br>engineering physics;<br>associate professor | BS, Michigan Tech; MS, PhD, University of Colorado                    |
| MACLENNAN,<br>Joseph E. | professor attendant rank  | BS, Rhodes University; MS, PhD, University of Colorado Boulder        |



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## Faculty: Political Science

| Name                  | Title  | Education  |
|-----------------------|--|--|
| ADLER, E. Scott       | professor  | BA, University of Michigan; MA, MPhil., PhD, Columbia University                                   |
| ANDERSSON, Krister P. | professor  | BA, Point Loma Nazarene University; MA, Schiller International University; PhD, Indiana University |
| AYDIN, Aysegul        | associate professor  | BA, Istanbul University; MA, Bogazici University, Istanbul; MA, PhD, Binghamton University         |
| BAIRD, Vanessa        | associate professor  | BA, PhD, University of Houston   |
| BAKER, Andy           | associate professor  | BA, Valparaiso University; MA, PhD, University of Wisconsin–Madison                                |
| BEARCE, David H.      | professor (joint appointment with the International Affairs Program) | BA, Davidson College; PhD, Ohio State University   |
| BEER, Francis A.      | professor emeritus   |  |
| BICKERS, Kenneth      | professor  | BA, Texas Christian University; MA, PhD, University of Wisconsin–Madison                           |
| BOULDING, Carew       | associate professor  | BA, University of Washington, Seattle; MA, PhD, University of California, San Diego                |
| BROWN, David S.       | department chair; professor  | BA, Doane College; MA, PhD University of California, Los Angeles                                   |
| BROWN, Hank           | professor and president emeritus                                     |  |

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  - Ecology and Evolutionary Biology
  - Economics
  - English
  - Environmental Studies
  - Ethnic Studies

|                       |                              |   |
|-----------------------|------------------------------|---|
| BRUNNER, Ronald D.    | professor emeritus           |   |
| CHAN, Steve           | professor                    | BA, Tulane University; MA, PhD, University of Minnesota   |
| CLARKE, Susan E.      | professor emerita            |   |
| COSTAIN, Anne N.      | professor emerita            |   |
| DONAVAN, Janet L.     | senior instructor            | BA, Kent State University; MA, PhD, University of Wisconsin–Madison   |
| ECKART, Dennis R.     | associate professor emeritus |   |
| FERGUSON, Michaele L. | associate professor          | BA, Bryn Mawr College; PhD, Harvard University  |
| FITCH, J. Samuel      | professor emeritus           |   |
| FITZGERALD, Jennifer  | associate professor          | BA, Indiana University; MA, University of Chicago; PhD, Brown University  |
| GREENBERG, Edward S.  | professor emeritus           |   |
| GRIFFIN, John D.      | associate professor          | BA, Boston College; JD, University of Colorado Law School; MA, PhD, Duke University   |
| HARDEN, Jeffrey J.    | assistant professor          | BA, University of Illinois, Urbana-Champaign; MA, PhD, University of North Carolina at Chapel Hill                              |
| JUPILLE, Joseph       | associate professor          | BA, University of California, Santa Barbara; MA, Monterey Institute of International Studies; MA, PhD, University of Washington |
| KIM, Moonhawk         | assistant professor          | BA, University of California, Berkeley; MA, PhD, Stanford University  |
| MAPEL, David R.       | associate professor          | BA, Colorado College; MSc, London School of Economics; MA, PhD, Johns Hopkins University  |
| McIVER, John P.       | associate professor emeritus |   |

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- Religious Studies
- Sewall RAP
- Sustainability and Social Innovation RAP
- Sociology
- Spanish and Portuguese
- Speech, Language

|                         |                              |   |
|-------------------------|------------------------------|---|
| McNOWN, Lauri           | senior instructor            | BA, MA, PhD, University of Colorado Boulder   |
| MEWES, Horst            | associate professor          | BA, Beloit College; MA, PhD, University of Chicago  |
| PARINANDI, Srinivas     | assistant professor          | BA, University of Virginia; MSc, London School of Economics; PhD, University of Michigan        |
| SAFRAN, William         | professor emeritus           |   |
| SCARRITT, James R.      | professor emeritus           |   |
| SHANNON, Megan L.       | assistant professor          | BA, University of South Dakota; MA, PhD, University of Iowa                                     |
| SLOAN Jr., Royal Daniel | associate professor emeritus |   |
| SOKHEY, Anand Edward    | associate professor          | BA, Denison University; PhD, Ohio State University  |
| SOKHEY, Sarah           | assistant professor          | BA, The Catholic University of America; MA, PhD, Ohio State University                          |
| STEINMO, Sven H.        | professor                    | BA, University of California, Santa Cruz; MA, MPH, PhD, University of California, Berkeley      |
| STRAYHORN, Joshua       | assistant professor          | BA, Texas A&M University; MA, University of Texas at Arlington; PhD, Emory University           |
| TIR, Jaroslav           | professor                    | BA, Bethel College, Kansas; MA, PhD, University of Illinois Urbana-Champaign                    |
| VANDERHEIDEN, Steven J. | associate professor          | BA, Willamette University; MA, University of Utah; PhD, University of Wisconsin-Madison         |
| WOLAK, Jennifer         | associate professor          | BS, East Michigan University; MA, PhD, University of North Carolina at Chapel Hill              |
| YOUNG, Gregory D.       | instructor                   | BS, Oregon State University; MS, Naval Postgraduate School; PhD, University of Colorado Boulder |

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## Faculty: Psychology and Neuroscience

| Name                | Title                                | Education   |
|---------------------|--------------------------------------|---|
| ALLEN, David L.     | senior instructor                    | BS, PhD, University of California, Los Angeles  |
| ALPERN, Herbert P.  | professor emeritus                   |   |
| ARCH, Joanna        | assistant professor                  | BA, Wellesley College; PhD, University of California, Los Angeles                                       |
| BACHTELL, Ryan K.   | assistant professor                  | BA, Bloomsberg University; MS, Central Washington University; PhD, Oregon Health and Science University |
| BANICH, Marie T.    | professor                            | BA, MA, Tufts University; PhD, University of Chicago  |
| BARRIENTOS, Ruth    | assistant research professor         | BS, George Mason University; PhD, George Washington University  |
| BARTH, Daniel S.    | professor                            | BA, Boston University; MA, PhD, University of California, Los Angeles                                   |
| BERTA, Joseph E.    | senior instructor                    | BA, MA, University of Toledo; PhD, University of Colorado   |
| BLAIR, Irene V.     | associate professor; associate chair | BA, Loma Linda University; MS, M.Phil., PhD, Yale University  |
| BLECHMAN, Elaine A. | professor emerita                    |   |
| BLOOM, Bernard L.   | professor emeritus                   |   |
| BOURNE JR., Lyle E. | professor emeritus                   |   |

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  - Ecology and Evolutionary Biology
  - Economics
  - English
  - Environmental Studies
  - Ethnic Studies

|                        |                              |   |
|------------------------|------------------------------|---|
| BRYAN, Angela          | professor                    | BA, University of California, Los Angeles, PhD, Arizona State University                                    |
| CAMPEAU, Serge         | associate professor          | BS, McGill University; MS, PhD, Yale University   |
| CAREY, Gregory         | associate professor          | BA, Duquesne University; MA, Graduate Faculty, New School for Social Research; PhD, University of Minnesota |
| CARTER, R. Mckell      | assistant professor          | BS, University of Utah; PhD, California Institute of Technology   |
| CARTWRIGHT, Desmond S. | professor emeritus           |   |
| COLLINS, Allan C.      | professor emeritus           |   |
| COLUNGA, Eliana        | associate professor          | BS, MS, Institute of Technology, Monterrey (ITESM); PhD, Indiana University                                 |
| CORRELL, Joshua        | associate professor          | BA, Stanford University; MA, University of Waterloo; PhD, University of Colorado                            |
| CURRAN, Tim            | professor                    | BA, MA, PhD, University of Oregon   |
| DAY, Heidi             | senior instructor            | BS, University of Bath, U.K.; M.Phil., University of Cambridge, U.K.; PhD, University of Cambridge, U.K.    |
| DeFRIES, John C.       | professor emeritus           |   |
| DIMIDJIAN, Sona A.     | associate professor          | BA, University of Chicago; MSW, University of Pittsburg; PhD, University of Washington                      |
| DONALDSON, Zoe         | assistant professor          | BS, University of California; PhD, Emory University   |
| FORWARD, John R.       | associate professor emeritus |   |
| FRIEDMAN, Naomi        | assistant professor          | BA, University of Texas at Austin; MA, PhD, University of Colorado Boulder                                  |
| GRUBER, June           | assistant professor          | BA, MA, PhD, University of California   |
| HARVEY, Jr., Lewis O.  | professor                    | BA, Williams College; MS, PhD, Pennsylvania State University  |

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- Sewall RAP
- Sustainability and Social Innovation RAP
- Sociology
- Spanish and Portuguese

|                       |                                  |   |
|-----------------------|----------------------------------|---|
| HEALY, Alice F.       | college professor of distinction | AB, Vassar College; PhD, Rockefeller University   |
| HERNÁNDEZ, Theresa D. | department chair, professor      | BA, PhD, University of Texas at Austin  |
| HEWITT, John K.       | professor                        | BSc, MSc, University of Birmingham, England; PhD, University of London                                      |
| HUTCHISON, Kent       | professor                        | BS, MS, PhD, Oklahoma State University  |
| ITO, Tiffany A.       | professor; associate chair       | BA, University of California, Los Angeles; PhD, University of Southern California                           |
| JESSOR, Richard       | professor emeritus               |   |
| JONES, Matthew C.     | associate professor              | BA, University of California, Santa Barbara; MA, PhD, University of Michigan                                |
| JUDD, Charles M.      | college professor of distinction | BA, Yale University; MDiv, Union Theological Seminary; MA, PhD, Columbia University                         |
| KELLER, Matthew C.    | assistant professor              | BA, University of Texas; MA, PhD, University of Michigan  |
| KIM, Albert E.        | associate professor              | BS, University of Illinois, Urbana-Champaign; MSc, University of Edinburgh; PhD, University of Pennsylvania |
| KING, D. Brett        | senior instructor                | BS, MS, PhD, Colorado State University  |
| KINTSCH, Walter       | professor emeritus               |   |
| LOERSCH, Chris        | assistant professor              | BS, Kansas State University; MA, PhD, Ohio State University   |
| MAIER, Steven F.      | distinguished professor          | BA, New York University; MA, PhD, University of Pennsylvania  |
| MARTICHUSKI, Diane K. | senior instructor                | BS, Lamar University; MS, PhD, Colorado State University  |
| McCLELLAND, Gary H.   | professor emeritus               |   |

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Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

|                      |                                  |   |
|----------------------|----------------------------------|---|
| MIYAKE, Akira        | professor                        | BA, Osaka University; MS, PhD, Carnegie Mellon University       |
| MUNAKATA, Yuko       | professor                        | BA/BS, Stanford University; MA, PhD, Carnegie Mellon University |
| OLSON, Richard K.    | college professor of distinction | BA, Macaf College; MA, PhD, University of Oregon                |
| O'REILLY, Randall C. | professor                        | BA, Harvard University; PhD, Carnegie Mellon University         |
| PARK, Bernadette M.  | professor                        | BS, University of Oregon; MA, PhD, Northwestern University      |



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## Faculty: Religious Studies

| Name                | Title   | Education  |
|---------------------|---|--|
| ALI, Aun            | assistant professor   | BA, Rutgers University; MA, PhD, McGill University   |
| BIERNACKI, Loriliai | associate professor   | BA, Princeton University; PhD, University of Pennsylvania  |
| BOYD, Samuel        | assistant professor   | BA, University of North Carolina at Chapel Hill; MA, PhD, University of Chicago                            |
| CATLOS, Brian       | professor   | BA, University of Toronto, University College; MA, PhD, University of Toronto, Centre for Medieval Studies |
| CHERNUS, Ira        | professor   | BA, Rutgers College; MA, PhD, Temple University  |
| DENNY, Frederick M. | professor emeritus  |  |
| ECHCHAIBI, Nabil    | associate professor of media, communication and information | BA, Mohammed V University, Rabat; MA, PhD, Indiana University, Bloomington                                 |
| GAYLEY, Holly       | assistant professor   | BA, Brown University; MA, Naropa University; PhD, Harvard University                                       |
| GILL, Sam D.        | professor   | BS, MS, Wichita State University; MA, PhD, University of Chicago   |
| HOOVER, Stewart     | professor of media, communication and information           | AB, McPherson College; MA, PhD, Annenberg School of Communications, University of Pennsylvania             |

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|                    |   |  |
|--------------------|---|--|
|                    |   |  |
| JOHNSON, Greg      | associate professor   | BA, University of Colorado; MA, PhD, Divinity School, University of Chicago                          |
| KLEEMAN, Terry     | professor   | BA, University of Miami; MA, University of British Columbia; PhD, University of California, Berkeley |
| ROSS-BRYANT, Lynn  | associate professor emerita   |  |
| SACKS, Elias       | assistant professor; associate director and director of graduate studies in the Program in Jewish Studies | AB, Harvard University; MA, Columbia University; PhD, Princeton University                           |
| SHNEER, David      | professor; Louis P. Singer Endowed Chair in Jewish History  | BA, MA, PhD, University of California, Berkeley  |
| TAYLOR, Rodney L.  | professor emeritus  |  |
| WHITEHEAD, Deborah | associate professor   | BA, MA, Florida State University; PhD, Harvard University, The Divinity School                       |

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## Faculty: Sewall RAP

| Name               | Title  | Education  |
|--------------------|--|--|
| AIKEN, Ellen       | instructor   | BA, MA, PhD, University of Colorado Boulder  |
| BABICZ, Martin     | instructor   | BA, University of Connecticut; MA, Brown University; PhD, University of Colorado Boulder |
| JOBIN, Nicole      | associate director; instructor                               | BA, Colorado College; MA, PhD, University of Colorado Boulder                            |
| LEWIS, Chris H.    | senior instructor  | BA, San Diego State University; MA, PhD, University of Minnesota                         |
| RAMIREZ, Karen     | senior instructor  | BA, Swarthmore College; MA, PhD, University of Illinois at Urbana-Champaign              |
| SCHMIESING, Ann C. | professor of Germanic and Slavic Languages; program director | BA, Willamette University; MA, University of Washington; PhD, Cambridge University       |

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## Faculty: Sociology

| Name                   | Title                            | Education   |
|------------------------|----------------------------------|---|
| ADLER,<br>Patricia A.  | professor emerita                | BA, Washington University; MA, PhD, University of California, San Diego                               |
| BAIR, Jennifer         | associate professor              | BA, Johns Hopkins University; MA, PhD, Duke University  |
| BARTOS,<br>Otomar J.   | professor emeritus               |   |
| BOARDMAN,<br>Jason     | associate professor              | BA, University of California, Berkeley; PhD, University of Texas at Austin                            |
| BROWN,<br>Matthew C.   | instructor                       | BA, Miami University, Oxford, Ohio; MA, University of Cincinnati; PhD, University of Colorado Boulder |
| DOWNEY,<br>Liam C.     | associate professor              | BA, Oberlin College; MA, PhD, University of Arizona   |
| DOWNTON,<br>James V.   | professor emeritus               |   |
| ELLIOTT,<br>Delbert S. | distinguished professor emeritus |   |
| GIMENEZ,<br>Martha E.  | professor emerita                |   |
| GRANT, Don             | professor; department chair      | BA, University of Cincinnati; MA, PhD, Ohio University  |
| HAFHEY, Mike           | instructor                       | BA, MA, University of Kentucky; PhD, University of Colorado   |
| HARRISON, Jill         | assistant professor              | BA, University of California at Berkeley; PhD, University of California at Santa Cruz                 |

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|--------------------------|------------------------------|--|
| HUBBARD, Eleanor         | senior instructor emerita    |  |
| HUNTER, Lori M.          | associate professor          | BA, University of Washington; MA, PhD, Brown University                                |
| IRVINE, Leslie           | associate professor          | BA, MA, Florida Atlantic University; PhD, State University of New York, Stony Brook    |
| JACOBS, Janet            | professor                    | BA, MS, PhD, University of Colorado  |
| KJOLSETH, J. Rolf        | associate professor emeritus |  |
| MASTERS, Ryan            | assistant professor          | BA/BS, Western Washington University; MA, PhD, University of Texas at Austin           |
| MAYER, Thomas            | professor emeritus           |  |
| MILETI, Dennis S.        | professor emeritus           |  |
| MOJOLA, Sanyu            | associate professor          | BA, University of Durham; PhD, University of Chicago                                   |
| MOLLBORN, Stefanie       | associate professor          | BA, Harvard University; MA, PhD, Stanford University                                   |
| NIELSEN, Joyce M.        | professor                    | BA, University of Colorado; MA, PhD, University of Washington                          |
| PAMPEL, Fred             | professor emeritus           |  |
| PEDERSEN-GALLEGOS, Liane | instructor                   | BA, Metropolitan State College of Denver; MA, PhD, University of Colorado Boulder      |
| PINTO, Leonard J.        | associate professor emeritus |  |
| PLATTER, Adele           | senior instructor emerita    |  |
| PYROOZ, David            | assistant professor          | BS, MS, California State University; PhD, Arizona State University                     |
| RADELET, Michael L.      | professor                    | BA, Michigan State University; MA, Eastern Michigan University; PhD, Purdue University |

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|                      |  |   |
|----------------------|--|---|
| REED, Isaac          | assistant professor                                    | BA, Swarthmore College; MPhil, PhD, Yale University                           |
| REGOLI, Robert M.    | professor emeritus                                     |   |
| RINALDI, Rachel      | assistant professor                                    | PhD, University of Chicago  |
| ROGERS, Richard G.   | director, Population Program, IBS; professor           | BA, University of New Mexico; MA, PhD, University of Texas at Austin          |
| STEEN, Sara          | associate professor                                    | BA, Oberlin College; MA, PhD, University of Washington                        |
| SUE, Christina A.    | associate professor                                    | ABA, University of Washington; MA, PhD, University of California, Los Angeles |
| TIERNEY, Kathleen J. | director, Natural Hazards Center, IBS; professor       | BA, Youngstown State University; MA, PhD, Ohio State University               |
| WADSWORTH, Tim       | director of undergraduate studies; associate professor | BA, University of California, Santa Cruz; MA, PhD, University of Washington   |
| WALDEN, Glenda       | instructor   | BSc, MA, Northern Arizona University; PhD, University of Colorado Boulder     |
| WANDERER, Jules J.   | professor emeritus                                     |   |
| WEHR, Paul E.        | associate professor emeritus                           |   |
| WILKINS, Amy C.      | associate professor                                    | BA, Mount Holyoke College; MA, PhD, University of Massachusetts Amherst       |

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## Faculty: Sustainability and Social Innovation RAP

| Name          | Title   | Education               |
|---------------|---|-------------------------|
| TOOHEY, Darin | program director; professor of Atmospheric and Oceanic Sciences | PhD, Harvard University |

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## Faculty: Spanish and Portuguese

| Name                    | Title                       | Education  |
|-------------------------|-----------------------------|--|
| BAENA, Julio            | professor                   | Licenciatura, Universidad Católica Andrés Bello; MS, PhD, Georgetown University  |
| BECHER, Anne H.         | senior instructor           | BA, Carleton College; MA, University of Colorado, Boulder  |
| BROWN, Esther L.        | associate professor         | MA, Pennsylvania State University; PhD, University of New Mexico   |
| DABOVE, Juan Pablo      | associate professor         | MA, PhD, University of Pittsburgh  |
| ELMORE, Peter           | department chair; professor | Licenciatura, Pontificia Universidad Católica del Perú; PhD, University of Texas, Austin                                   |
| ELMORE, Vivian          | instructor                  | BA, Pontificia Universidad Católica del Perú   |
| GÓMEZ, Leila G.         | associate professor         | Licenciatura, Universidad de Nacional de Tucumán, Argentina; MA, PhD, Johns Hopkins University                             |
| GREEN, Antonia          | instructor                  | BA, MA, University of Missouri   |
| HALLSTEAD, Susan R.     | senior instructor           | BAS, MA, PhD, University of Pittsburgh   |
| HERRERO-SENÉS, Juan     | assistant professor         | MA, PhD, Universitat Pompeu Fabra, Spain   |
| HORNO-DELGADO, Asunción | professor emerita           | Licenciatura, Universidad Complutense de Madrid; MA, University of New Hampshire; PhD, University of Massachusetts Amherst |
| KOPEN, Carmen           | instructor                  | BA, Grand Valley State University; MA, University of Colorado Boulder  |

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|------------------------------|--|--|
|                              |  |  |
| KRAUEL, Javier               | associate professor  | MA, University of North Carolina at Chapel Hill; PhD, Duke University  |
| LANDEIRA, Ricardo            | professor  | BA, MA, Arizona State University; PhD, Indiana University  |
| LONG, Mary K.                | senior instructor  | BA, Colorado State University; MA, PhD, Princeton University   |
| MALCOLM, Karen               | instructor   | BA, University of Arkansas; MA, University of Nebraska   |
| MARTUSCELLI, Tania A.        | assistant professor  | BA, MA, Universidade Estadual de Campinas-Unicamp; PhD, University of Massachusetts, Amherst                               |
| MOLINARO, Nina L.            | associate professor  | BA, Scripps College; MA, PhD, University of Kansas   |
| MORENO, Maria                | instructor   | BA, MA, Eastern Michigan University  |
| PÀMIES, Susanna Pérez        | instructor   | BA, Universitat Pompeu Fabra; MA, University of Barcelona, International University of Catalonia, Universitat Pompeu Fabra |
| PIRAS, Cristina              | instructor   | BA, Ricardo Palma University; MA, University of Colorado, Boulder  |
| PRIETO, Andrés I.            | associate chair for graduate studies; associate professor      | MA, PhD, University of Connecticut   |
| RIVAS-RODRÍGUEZ, José Javier | associate chair for undergraduate studies; associate professor | BA, MA, PhD, Universidade de Santiago de Compostela, Spain   |
| SCHINCARIOL, Marcelo T.      | instructor   | BA, MA, PhD, Universidade Estadual de Campinas   |
| SILLERAS-FERNÁNDEZ, Núria    | assistant professor  | MA, PhD, Universitat Autònoma de Barcelona   |
| TABLER, Alicia               | instructor   | BA, MA, University of Wyoming  |

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## Faculty: Speech, Language, and Hearing Sciences

| Name                   | Title                        | Education  |
|------------------------|------------------------------|--|
| ANDERSON, Melinda      | instructor                   | BA, University of Florida, Gainesville; MS, Vanderbilt University; PhD, University of Colorado Boulder |
| AREHART, Kathryn       | professor                    | BS, Stanford University; MS, PhD, University of Washington   |
| BOERGER, Karin         | scholar in residence         | BA, Kenyon College; MS, Rush University  |
| BRENNAN, Christine     | assistant professor          | BA, Southern Connecticut State University; MA, PhD, Northwestern University                            |
| BROOKE, Judith M.      | clinical assistant professor | BA, Pacific University; MS, Idaho State University   |
| FREDRICKSON, Tammy     | clinical assistant professor | BS, University of Wisconsin-Stevens Point; MS, PhD, University of Colorado Boulder                     |
| GABBARD, Sandra        | associate professor adjunct  | BS, Purdue University; MA, University of Northern Colorado, PhD, University of Colorado Boulder        |
| HARDIN, Kathryn        | clinical associate professor | BA, St. Olaf College; MA, University of Colorado Boulder   |
| HEDBERG, Natalie L.    | professor emerita            |  |
| HORII, Yoshiyuki       | professor emeritus           |  |
| JANCOSEK, Elizabeth G. | senior instructor emerita    |  |

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|-----------------------|---------------------------------------|--|
| KAN, Pui Fong         | associate professor                   | BA, National Taiwan Normal University; MA, University of Leeds and University of Minnesota; PhD, University of Minnesota |
| KATES, James          | scholar in residence                  | BS, MS, Massachusetts Institute of Technology  |
| LEWON, Jen            | clinical assistant professor          | BS, Colorado State University; MA, Northern Arizona University; MS, Arizona State University                             |
| MEYERS, Christina     | assistant professor                   | BS, MA, PhD, University of Arizona   |
| MOERS, Willard        | instructor                            | BA, MA, Gallaudet University   |
| MOORE, Susan M.       | clinical professor emerita            | BA, College of New Rochelle; MA, JD, University of Denver  |
| POLLARD, Ryan         | clinical assistant professor          | BA, University of Northern Colorado; PhD, University of Colorado Boulder   |
| RAMIG, Lorraine Olson | research professor                    | BS, University of Wisconsin–Oshkosh; MS, University of Wisconsin–Madison; PhD, Purdue University                         |
| RAMIG, Peter R.       | professor emeritus                    |  |
| RAMSBERGER, Gail      | department chair; associate professor | BS, MA, University of Colorado; ScD, Boston University   |
| SADAGOPAN, Neeraja    | assistant professor                   | BSc, All India Institute of Speech and Hearing; MS, PhD, Purdue University   |
| SCHICK, Brenda        | professor                             | BS, Purdue University; MS, Washington University; PhD, Purdue University   |
| SHARMA, Anu           | professor                             | BSc, University of Bombay; MA, PhD, Northwestern University  |
| SNYDER, Lynn          | professor emerita                     |  |
| SWEETMAN, Richard H.  | professor emeritus                    |  |
| TENNANT, Sherri       | scholar in residence                  | BS, MS, University of Wisconsin-Madison  |
| THRASHER, Amy         | clinical assistant                    | BA, Williams College; MA, University of Colorado Boulder   |

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|                            |                    |  |
|----------------------------|--------------------|--|
|                            | professor          |  |
| WEISS, Rita S.             | professor emerita  |  |
| WHITNEY, Anne              | clinical professor | BS, MS, Colorado State University; EdD, University of Northern Colorado  |
| YOSHINAGA-ITANO, Christine | research professor | BA, University of Southern California; MA., PhD, Northwestern University |

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## Faculty: Theater and Dance

| Name                       | Title                                | Education  |
|----------------------------|--------------------------------------|--|
| BANKS, Jason               | senior instructor                    | BFA, University of Florida; MFA, Ohio State University                                       |
| BERGNER, Bruce             | associate chair; associate professor | BA, University of Minnesota; MFA, University of Illinois                                     |
| COBIN, Martin T.           | professor emeritus                   |  |
| COLEMAN, Bud               | department chair; professor          | BFA, Texas Christian University; MFA, University of Utah; PhD, University of Texas at Austin |
| CRIFE, Kerry M.            | senior instructor                    | BFA, University of Evansville; MFA, Florida State University                                 |
| DEVIN, Richard             | professor emeritus                   |  |
| DIACHENKO, Nada            | professor                            | BS, University of Maryland; MA, New York University  |
| ELLSWORTH, Michelle        | associate professor                  | BA, New York University; MFA, University of Colorado Boulder                                 |
| GERLAND, Oliver            | associate professor                  | BA, Swarthmore College; PhD, Stanford University   |
| GHARTEY-TAGOE KOOTIN, Amma | assistant professor                  | AB, Harvard University; MA, PhD, New York University   |
| HAIG, Robin                | senior instructor emerita            |  |
| HANKIN, Toby R.            | professor emerita                    |  |

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|----------------------|-----------------------------|--|
| HARRIS, Lorenzo      | artist-in-residence         |  |
| HENRY, Markas        | associate professor         | BS, Ball State University; MFA, University of Connecticut  |
| IREY, Charlotte York | professor emerita           |  |
| LANE, Constance      | instructor                  | BA, Beloit College   |
| LESSLEY, Merrill J.  | professor emeritus          |  |
| MANNO, Jesse         | senior instructor           | BA, University of Colorado   |
| MASON, Gesel         | assistant professor         | BFA, University of Utah; MFA, University of Colorado Boulder   |
| MEJIA, Donna         | assistant professor         | BA, University of Colorado; MFA, Smith College   |
| MENEGHINI, Tamara    | assistant professor         | BA, St. Mary's College; MFA, Northern Illinois University  |
| NICHOLS, Lynn        | senior instructor           | BA, University of the South; MA, Emporia State College; PhD, University of Colorado Boulder                            |
| O'MALEY, Mark        | instructor                  | BA, University of Massachusetts Amherst; MFA, Goddard College  |
| OSNES, Beth          | assistant professor         | BA, Marquette University; MA, PhD, University of Colorado Boulder  |
| PANG, Cecilia J.     | associate professor         | BA, University of Guelph, Ontario, Canada; MA, San Francisco State University; PhD, University of California, Berkeley |
| PERSONS, Chip        | associate professor         | BFA, University of California, Santa Barbara; MFA, Columbia University   |
| POTTS, Margaret Lee  | associate professor emerita |  |
| RANDALL, Erika       | associate professor         | BA, University of Washington at Seattle; MFA, Ohio State University  |
| SHANNON,             | senior                      |  |

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|                      |                           |   |
|----------------------|---------------------------|---|
| Robert J.            | instructor emeritus       |   |
| SOWAH, Nii Armah     | senior instructor         | BA, University of Ghana; MA, Lesley College             |
| SPANIER, Nancy L.    | professor emerita         |   |
| STARK, Theodore      | senior instructor         | BA, College of William and Mary; MFA, Boston University |
| SYMONS, James M.     | professor emeritus        |   |
| WILLIAMS, Letitia S. | senior instructor emerita |   |
| YANG, Daniel         | professor emeritus        |   |

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| Name                      | Title   | Education   |
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| LIMERICK, Patricia Nelson | faculty director, Center of the American West | professor of history. BA, University of California, Santa Cruz; MA, MPhil, PhD, Yale University |

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## Faculty: Women and Gender Studies

| Name                     | Title  | Education  |
|--------------------------|--|--|
| BAYARD de VOLO, Lorraine | chair; associate professor   | BA, University of California, Santa Barbara; PhD, University of Michigan                               |
| BUFFINGTON, Robert       | professor  | BA, Colorado College; PhD, University of Arizona   |
| BULLINGTON, Sam          | instructor   | BA, University of California, Santa Cruz; MA, PhD, University of Minnesota                             |
| DAVID, Emmanuel          | assistant professor  | BA, Loyola University of New Orleans; PhD, University of Colorado Boulder                              |
| JACOBS, Janet            | professor  | BA, MS, PhD, University of Colorado  |
| JAGGAR, Alison M.        | professor of distinction (joint appointment with the Department of Philosophy) | BA, University of London; MLitt, University of Edinburgh; PhD, State University of New York at Buffalo |
| MISRI, Deepti            | associate professor  | BA, University of Mumbai; MA, PhD, University of Illinois at Urbana-Champaign                          |
| MONTOYA, Celeste         | associate professor  | BS, Bradley University; MA, PhD, Washington University, St. Louis                                      |
| POIS, Anne Marie         | senior instructor emerita  |  |

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  - Asian Studies
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  - Atmospheric and Oceanic Sciences
  - Baker RAP
  - Chemistry and Biochemistry
  - Classics
  - Communication
  - Communication and Society RAP
  - Comparative Literature
  - Ecology and Evolutionary Biology
  - Economics
  - English
  - Environmental Studies
  - Ethnic Studies

- Farrand RAP
- Film Studies
- French and Italian
- Geography
- Geological Sciences
- Germanic and Slavic Languages and Literatures
- Global Studies RAP
- History
- Honors
- Honors RAP
- Humanities
- INVST Community
- Integrative Physiology
- International Affairs
- Jewish Studies
- Libby RAP
- Linguistics
- Mathematics
- Miramontes Arts and Sciences Program (MASP)
- Molecular, Cellular and Developmental Biology
- Museum and Field Studies
- Peace and Conflict Studies
- Philosophy
- Physics
- Political Science
- Psychology and Neuroscience
- Religious Studies
- Sewall RAP
- Sustainability and Social Innovation RAP
- Sociology
- Spanish and Portuguese
- Speech, Language

and Hearing  
Sciences

- Theater and Dance
- Western American  
Studies

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## Faculty: Writing and Rhetoric, Program for

| Name                | Title   | Education  |
|---------------------|---|--|
| ACKERMAN, John      | associate director;<br>associate professor of communication | BA, MA, University of Missouri; PhD, Carnegie Mellon University  |
| ALBERT, Michelle    | senior instructor   | BA, Towson State University; MFA, Naropa University; MA, University of Colorado Denver                       |
| BLISS, Anne         | senior instructor emerita                                   |  |
| BURGER, Eric        | instructor  | BA, Colby College; MFA, University of Arizona; PhD, University of Utah                                       |
| BYRD, Sigman        | instructor  | BA, Sarah Lawrence College; MFA, University of Iowa, Iowa Writer's Workshop; PhD, University of Utah         |
| DEBELLA, Diane      | senior instructor   | BA, James Madison University; MA, California State, San Diego  |
| DICKSON, Rebecca J. | senior instructor   | BA, Colorado State University; MA, PhD, University of Colorado Boulder                                       |
| DOYLE, Damian       | senior instructor   | BA, Central Connecticut State University; MA, University College Dublin; PhD, University of Colorado Boulder |
| ELLIS, Jay          | senior instructor   | BA, Berklee College of Music; MA, University of Texas; PhD, New York University                              |
| FELDMAN, Andrea     | senior instructor   | BA, Cornell University; MA, PhD, University of Colorado Boulder  |
| FERRELL,            | senior instructor   | BA, College of William and Mary; MA, PhD,  |

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|                  |  |   |
|------------------|--|---|
| Tracy            |  | University of Colorado Boulder  |
| FOBES, Alexander | instructor                                 | BA, University of California, Berkeley; MA, University of New Hampshire; PhD, University of Colorado Boulder        |
| GOODLOE, Amy     | instructor                                 | BA, Agnes Scott College; MEd, University of Virginia; MA, Virginia Polytechnic Institute and State University       |
| GREEN, Sally     | senior instructor                          | BA, University of Illinois, Urbana-Champaign; MA, University of Colorado Boulder                                    |
| GRIES, Laurie    | assistant professor of Communication       | BA, MA, University of Montana; PhD, Syracuse University   |
| HERSH, Orly      | senior instructor                          | BA, Mount Holyoke College; MA, Northern Arizona University  |
| HINK, Gary       | instructor                                 | BA, Richard Stockton College of New Jersey; MA, State University of New York at Buffalo; PhD, University of Florida |
| HOUSE, Veronica  | associate director; senior instructor      | BA, Wellesley College; MFA University of Maryland at College Park; PhD, University of Texas at Austin               |
| KLINGER, Eric    | associate director; senior instructor      | BA, MA, New Mexico State University   |
| KLINGER, Eliza   | instructor                                 | BA, Richard Stockton College of New Jersey; MA, New Mexico State University   |
| KNOWLTON, Ginger | senior instructor                          | BA, Kenyon College; MA, University of Colorado Boulder; PhD, University of Denver                                   |
| KRATZKE, Peter   | senior instructor                          | BA, MA, University of Washington; PhD, University of Kentucky   |
| KUNCE, Catherine | senior instructor                          | BA, Colorado College; MA, PhD, University of Denver   |
| LAGMAN, Eileen   | assistant professor of English             | BA, MA, DePaul University; PhD, University of Illinois at Urbana-Champaign  |
| LAMOS, Steven    | associate director; associate professor of | BA, MA, PhD, University of Illinois   |

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- Religious Studies
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- Sustainability and Social Innovation RAP
- Sociology
- Spanish and Portuguese
- Speech, Language

|                      | English                                  |  |
|----------------------|--|--|
| LASSWELL, Catherine  | instructor                               | BA, Michigan State University, MEd, University of Vermont  |
| LONG, Daniel         | instructor                               | BA, BS, Southern Illinois University, Carbondale; MA, University of Colorado Boulder                           |
| LYONS, Tim           | instructor                               | BA, Occidental College; MA, Johns Hopkins University   |
| MACDONALD, Christine | senior instructor                        | BA, Pomona College; MA, PhD, University of Colorado Boulder  |
| MASSEY-WARREN, Sarah | instructor                               | BA, University of Michigan; MA, MLA, University of Massachusetts; MA, PhD, University of Colorado Boulder      |
| MILLER, Olivia       | instructor                               | BA, University of California, Santa Barbara; MA, University of Colorado Boulder; PhD, Binghamton University    |
| MIN, Young Kyung     | instructor                               | BA, Chonnam National University; MA, University of Birmingham; PhD, University of Illinois at Urbana-Champaign |
| MYERS, Seth          | instructor                               | BA, Cornell University; MA, University of Alaska, Fairbanks; PhD, New Mexico State University                  |
| NORGAARD, Rolf       | associate director; senior instructor    | BA, Wesleyan University; MA, PhD, Stanford University  |
| PEARCE, Lonni        | associate director; senior instructor    | BA, William Jewell College; MA, University of Missouri, Kansas City; PhD, University of Arizona                |
| PIELOW, Kathryn      | associate director; senior instructor    | BA, Augustana College; JD, University of South Dakota  |
| PIELOW, Nathan       | instructor                               | BA, Williams College; MEd, University of Oregon  |
| REILLY, Kerry        | senior instructor                        | BA, Providence College; MA, University of New Hampshire; MFA, University of Iowa                               |
| RIVERA, John-Michael | director; associate professor of English | BA, University of California, Berkeley; MA, University of Houston; PhD, University of Texas at Austin          |

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|                         |                      |   |
|-------------------------|----------------------|---|
| SCHABERG,<br>Petger     | senior instructor    | BA, DePaul University; MA, University of Colorado Boulder                           |
| SULLIVAN,<br>Patricia   | professor of English | BA, MA, University of Utah; PhD, Ohio State University                              |
| VON DER<br>NUELL, Tobin | instructor           | BA, San Diego State University; MA, University of Colorado Boulder                  |
| WALKER,<br>James        | instructor           | BA, University of California, Riverside; MA, PhD, University of Colorado Boulder    |
| WENGER,<br>Paula        | senior instructor    | BA, University of Northern Colorado; MA, University of Denver; MA, Miami University |
| WILKERSON,<br>Donald H. | senior instructor    | BA, MA, University of Colorado Boulder  |
| ZIGMOND,<br>Rosalyn     | instructor           | BA, University of Michigan; MA, PhD, University of Colorado Denver                  |

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## Leeds School of Business



**Interim, Bill Kaempfer, dean**

**419 UCB phone: 303-492-1809**

**School website: [www.colorado.edu/business](http://www.colorado.edu/business)**

The new innovation economy requires—and rewards—richer knowledge, sharper skills and a global mindset. Ultimately, the edge belongs to those who are principled leaders who bring inspiration and purpose to their work and in this way drive value for society.

Within this climate, the **Leeds School of Business** offers an innovative agenda designed to leverage our unique assets: the intellectual capital of Leeds faculty, our innovative and best-in-class curriculum, our focus on the “whole student” experience, our strong network of alumni and industry partners and our firm commitment to student support.

Accredited by the Association to Advance Collegiate Schools of Business (AACSB-International), Leeds awards four types of degrees: Bachelor of Science (BS), Master of Science (MS), Master of Business Administration (MBA) and Doctor of Philosophy (PhD). Students can specialize in accounting, finance, management and entrepreneurship and marketing. Leeds further offers certificates in a variety of areas to provide opportunities for students to explore additional areas of interest and distinction.

World-class faculty provide the foundation for breakthrough thinking—creating knowledge from research, disseminating knowledge through teaching and applying knowledge in collaboration with the business community. Faculty discoveries are frequently published in prestigious academic journals and discussed in media outlets such as the *Wall St. Journal*, the *New York Times*, CNBC and more. The cutting-edge research we produce enhances the school’s reputation for innovation.

From orientation to graduation, Leeds faculty and staff guide students to discover and optimize their potential. Through an array of targeted services, students create an individualized journey that maximizes the impact of their experience and leads to future opportunities. Ethics and social responsibility are hallmarks of a Leeds education, and the school’s commitment to

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professional development is unrivaled.

Leeds alumni and industry partners collaborate to offer a meaningful level of engagement with students and faculty. Alumni provide the support and resources that ensure graduates are poised for maximum impact. Corporate partners infuse relevance to Leeds' curriculum innovation, supporting new programs and providing the school access to professional talent. Both communities are the backbone of one of the largest mentoring programs in the world.

Leeds joins the University of Colorado and the Boulder community to generate extraordinary opportunities for students. Cross-campus collaborations with fields like engineering and science link Leeds faculty and students with more resources to put innovation into action. Our location in Boulder provides inspiration with its physical beauty as well as the intellectual energy of a thriving start-up community and high concentrations of advanced technology and socially responsible industries.

Together, these assets make Leeds uniquely qualified to deliver on our mission of educating principled, innovative leaders who drive value.

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## Facilities & Research Activities

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The Leeds School of Business houses resources for the specific needs of business students. The facilities include: the Burrige Center for Securities Analysis and Valuation, the Business Research Division, Career Development, the Center for Education on Social Responsibility, the Center for Research on Consumer Financial Decision Making, MAD Greens, the MBA Business Center, the Office of Diversity Affairs, the Real Estate Center, the Robert H. and Beverly A. Deming Center for Entrepreneurship, smart classrooms, student lounges, Trep Café, Undergraduate Student Services, William M. White Business Library and Information Commons and other amenities.

The William M. White Business Library ([ucblibraries.colorado.edu/business](http://ucblibraries.colorado.edu/business)) and Information Commons provides students with a wealth of information pertaining to the business world. Students have access to the business and other libraries via the university libraries online catalog. Many databases are accessible through the wireless network and off campus. These databases, both CD- and web-based, contain a myriad of full-text magazines and journals; business periodical indexes; corporate annual, 10-K and proxy reports of all the public companies in the United States; short profiles of both American and international companies; demographic and business statistics; industry and market information; and investment reports written by Wall Street analysts. Over 50 computers provide access to the databases and the Internet, and technology-outfitted team rooms are available for group study. Knowledgeable librarians are always available to help navigate the search for information. The Information Commons is open 24 hours, seven days per week and contains 30 of the 50 computers with a full suite of software. These are accessible to students, faculty and staff of the university. In addition, Leeds has 25 technology equipped team rooms. These rooms support group study and project work. They are available for reservation at [leeds-trs.colorado.edu](http://leeds-trs.colorado.edu).

The White Business Library is part of the University of Colorado library system, which includes more than two million volumes, more than five million microforms, and more than 24,000 periodicals and serials. The system is also a full depository for United States government, international and state documents.

All classrooms in the Leeds School of Business are equipped up to campus “smart” classroom technology standards. Technologies in a typical Leeds classroom include: a desktop computer

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loaded with Microsoft Office Suite applications, video projection system, ceiling speakers for audio, DVD/VCR, iClicker base station, campus cable and both wired and wireless Internet connections. All classrooms have the flexibility to support a personal laptop with connectivity in place to integrate with the video projection and sound system.

## Business Research Division

Established in 1915, the Business Research Division is one of the earliest organized state service-oriented bureaus in the country.

The Business Research Division conducts business, economic and market research that contributes to the efficient use of Colorado's resources and increases interest in and awareness of the Leeds School of Business. It also is the umbrella organization for the Rocky Mountain Trade Adjustment Assistance (TAA) Center (RMTAAC). Through its annual Colorado Business Economic Outlook Forum, held in December, the division has established a base of knowledge that adds value to its work in other areas. In addition to providing businesses, government and nonprofits with information to help them make better-informed business and policy decisions, the division specializes in economic and fiscal analysis, market research and custom research projects. It also prepares a Colorado leading economic indicator series, the *Leeds Business Confidence Index*. Research results are distributed through presentations and reports; a quarterly newsletter, the *Colorado Business Review*; and the division's website.

Funding for center activities comes from the Leeds School of Business, the university, state agencies, the federal government, state and local business firms and from the sale of research products and services.

RMTAAC is one of 11 centers across the nation funded by the U.S. Department of Commerce to manage the Trade Adjustment Assistance for Firms Program, which helps import-impacted U.S. firms develop and implement business recovery strategies to strengthen their competitiveness in the global marketplace. The TAA for Firms Program is a cost-sharing federal grant program that pays a portion of professional consultant expenses or industry-specific expert services for projects that improve a firm's competitiveness, thereby increasing sales and creating U.S. jobs. Benefits of the program include up to \$75,000 in grant funds and 50/50 cost sharing for strategic projects.

## Academic Centers

In addition to the Business Research Division, the school has five centers linking academic programs and the business community—the endowed Robert H. and Beverly A. Deming Center for Entrepreneurship, the Center for Real Estate, the Burrigge Center for Securities and Valuation, the Center for Education on Social Responsibility (CESR) and the Center for Business Integration.

### The Robert H. and Beverly A. Deming Center for Entrepreneurship

As part of the Leeds School of Business, the Deming Center for Entrepreneurship's mission is to inspire and empower students, community, alumni, faculty and staff through entrepreneurship education and partnership with the community. The Deming Center does this in part by educating, engaging and partnering and focusing on student experience.

**Cutting-edge Curriculum.** Our progressive curriculum and interdisciplinary programs include:

- courses in entrepreneurial finance, marketing and business planning
- interdisciplinary programs in engineering, business, law and environmental studies

- undergraduate business minor with a Certificate of Entrepreneurship for students across campus
- undergraduate Certificate of Entrepreneurship for Leeds students
- MBA concentration in entrepreneurship
- world renowned PhD program in entrepreneurship

The Deming Center supports the entrepreneurial curriculum and advances the Leeds School's leadership agenda through our collaborative initiatives across campus and in the business community in these key areas:

- **Education.** Our entrepreneurship students have access to a world class entrepreneurship faculty. The faculty are involved in collecting, curating and making available the latest research and thinking on entrepreneurship in the world. These faculty are inspiring and directing new research and thought leadership in entrepreneurship and constantly working with thought leaders to develop and stay ahead of the latest trends and tools for entrepreneurship education.
- **Real World Experience.** Our entrepreneurship students are challenged to turn accepted thinking on its head—in the classroom, in real-world industry projects, and by the business innovators serving as student mentors and advisors. The center helps connect students with projects, advisors and internships that challenge them to use their new skills creatively.
- **Student Experience.** Staff and faculty at Deming are focused on delivering an outstanding student experience. Deming promotes the development of entrepreneurial thinkers and doers. Entrepreneurial thinkers and doers are optimistic, resilient, resourceful, persistent, calculated risk-takers, efficient, creative problem solvers and effective workers. These are teachable skills any student is capable of learning.
- **The Community.** Boulder is consistently named one of the best places in the country to launch a startup. The center connects students to industry leaders via the Deming Network—an active group of world-class entrepreneurs and innovators who are accessible and hands-on. CU-Boulder is also a top research university. Across campus, the Deming Center helps students access opportunities in technology transfer and the engineering, law, biofrontiers and environmental science programs

## Real Estate Center

The Real Estate Center, founded in 1995, is supported by an industry council with the goal of advancing academic excellence in real estate education and scholarship. The center oversees the school's real estate teaching programs and advises the faculty in designing an integrated curriculum at both the graduate and undergraduate levels. Course work is drawn from the law school, the colleges of architecture and engineering, construction management and others.

The center creates real-world experiences for students by providing project course work and being a resource for securing internships, mentors and jobs. It also provides support for faculty teaching and research activities in real estate and, through the Real Estate Foundation, assists the university with its real estate portfolio.

## Burridge Center for Securities Analysis and Valuation

The Burridge Center for Securities Analysis and Valuation is dedicated to encouraging and supporting the creation and dissemination of new knowledge about the world financial markets with an emphasis on the U.S. financial markets by:

- facilitating the exchange of ideas and knowledge between professional investment managers, finance scholars, policy makers and the investing public;
- identifying critical research issues in the theory and practice of security analysis and

valuation; and

- encouraging and supporting rigorous qualitative and quantitative research on topics relevant and useful to money managers, valuation experts and finance academics.

## Center for Education on Social Responsibility (CESR)

CESR's goal is to help students become outstanding business leaders of tomorrow by preparing them to meet the ethical challenges posed by a highly competitive, globally-connected business world. Accordingly, CESR oversees the infusion of values and social responsibility discussions throughout the undergraduate and graduate curricula at the Leeds School of Business. As part of the central mission at Leeds, CESR creates pedagogies that are national models and plays a leadership role carrying out the school's commitment to developing leaders of conscience. Although the Center's primary focus is on excellence in curriculum development and delivery, CESR also undertakes a broad spectrum of initiatives including a certificate program, student organizations, conferences and other extracurricular offerings as well as providing funding and administrative support for faculty research.

### Courses

CESR is directly responsible for course development, staffing and coordination of the Business requisite introduction course World of Business, and collaborates on the design and delivery of the requisite 3000-level course Business Law, Ethics & Social Responsibility. CESR also offers leading edge electives such as CESR 4000 Leadership Challenges: Exercises in Moral Courage, CESR 4005 Business Solutions for the Developing World: Learning through Service, CESR/ACCT 4827 Integrated Reporting for Socially Responsible Strategies, CESR/MGMT 4828 Corporate Boards in Action and the Global Seminar *Social Entrepreneurship & Innovation* in Panama.

### Certificate and Portfolio

CESR offers specialized recognition for students at the undergraduate and graduate levels. Undergraduates wishing to focus on CESR-related topics may earn the Certificate in Socially Responsible Enterprise (SRE). At the MBA level, CESR has formalized a Sustainability Portfolio of courses, including the MBA requisite Socially Responsible Enterprise course, and electives such as MBAX 6845 Social Entrepreneurship in Emerging Markets and MBAX 6825 Topics in Sustainable Business.

### CESR Co-Curricular Activities

- **CESR Stampede at Leeds: A Week of Driving Values in Business.** This weeklong event showcases the values-driven and innovative curriculum developed by the CESR that is shaping tomorrow's business leaders. Through class visits, expert panels and lectures student competitions and showcases, attendees will explore their own values and network with like-minded professionals about applying positive values in a business setting. Stampede Week also includes the fourth annual Conscious Capitalism Conference, a CESR flagship event.

CESR routinely hosts events aimed at our students, our local business community and educators and industry leaders throughout the academic year. Guest speakers change each semester, but recurring events are included here:

- **CESR Business Ethics Case Competition (BECC).** The CESR BECC is an interactive way to deepen the Leeds undergraduate students' understanding of the importance of creating ethical as well as profitable business cultures. Teams are provided with a business case in the weeks leading up to the competition which they will have to analyze, create recommendations for course of action and present their solutions to a panel of professional judges. Cash prizes are awarded to the top three teams.

- **Conscious Capitalism Conference.** An annual conference hosted by CESR featuring innovative executives and entrepreneurs who have used the traditional tools of capitalism to serve social needs.
- **Student Center for Social Entrepreneurship.** CESR provides faculty sponsorship for SCSE, the student branch of Social Entrepreneurship for Equitable Development, an interdisciplinary, inter-generational campus group that is involved in researching, teaching and generating student involvement in the areas of social entrepreneurship and sustainable community development.
- **Net Impact Club.** CESR is home to a graduate chapter of Net Impact, an international non-profit organization whose mission is to use the power of business to create a more socially and environmentally sustainable world.
- **New Venture Challenge Social Impact Track.** CESR developed and continues to support the Social Impact Track of the **CU New Venture Challenge**, a campus-wide initiative connecting students and faculty with teammates in a broad range of disciplines and with mentors from the business community. The goal is to provide knowledge and experience making entrepreneurship accessible to anyone on the CU-Boulder campus with the enthusiasm and creativity required to start a new business.

## Career Opportunities

Leeds School of Business graduates are prepared for positions in the following fields:

- Accounting—public, private, nonprofit and governmental
- Banking and other financial institutions
- Consulting
- Corporate financial management
- Entrepreneurship and small business management
- Financial analysis
- Human resources management
- Information systems
- International business
- Investment management
- Management consulting and organization management
- Marketing and sales management
- Nonprofit management
- Operations management
- Real estate
- Retailing
- Taxation
- Technology management
- Transportation
- Venture capital

Other graduates hold positions in fields as diverse as business journalism, public relations, city planning, chamber of commerce and trade association management, college administration and

government. The entrepreneurial area of application prepares students to start their own business ventures to take positions in emerging growth companies and the venture capital industry.

## Professional Mentorship Program

The Professional Mentorship Program (PMP) is a unique program that offers one-on-one professional mentoring to current undergraduate students. The program's mission is to enhance business education at the Leeds School by offering hands-on learning, professional skills development, leadership opportunities and a sense of connection and community among current students, Leeds alumni and corporate partners. PMP mentors prepare and inspire our students to become the next generation of strong business leaders.

This two-year program matches students with executives or high-level business professionals who align by industry, geographic location or functional area. To ensure a quality experience for both students and mentors, the PMP provides workshops, training and additional support for participants throughout the program.

### Program Benefits

Through this program, students gain an additional level of advising and career counseling from a business professional. Through the mentoring relationships, students can explore choice of majors, potential for graduate school, work-life balance and effective networking and job search strategies.

Other potential benefits of being involved in the PMP include:

- Advice and assistance on academic questions, career options, life beyond college and more
- Access to the PMP network and networking opportunities and the opportunity to start building the student's own professional network
- Opportunities to practice and strengthen professional communication and presentation skills
- Help in defining personal and professional goals, and the strategies to achieve them
- Unique internship and job opportunities
- Development of a life-long friend and connection in the business world

### Contact Information

Website: [leedsmentoring.colorado.edu/about](https://leedsmentoring.colorado.edu/about)

Email: [leedspmp@colorado.edu](mailto:leedspmp@colorado.edu)

Office: Koelbel S220C

Phone: **303-492-5881**

## Study Abroad

Study abroad programs are available for students interested in international business or in cultural experiences abroad. The college-sponsored London Seminar in International Finance and Business is a five-week-long program held each summer in the financial district of London and is open to juniors, seniors and graduate students.

## Student Organizations

Listed below are undergraduate organizations that promote professional interests and provide recognition of scholastic attainment:

- Alpha Kappa Psi
- Athletic Business Club
- CU Fashion Club
- Beta Alpha Psi
- Collegiate DECA
- CU Energy Club
- CU Finance Club
- CU American Marketing Association
- CU Investment Club
- CU Society for Human Resources Management
- Delta Sigma Pi
- International Business Club
- Leeds Ambassadors
- Leeds Association of Information Systems
- Leeds Council (Undergraduate Student Government)
- Multicultural Business Student Alliance
- Music Industry Club
- Real Estate Club
- Women in Business Club

## Leeds School of Business Student Government

Leeds Council is the governing body of the Leeds School of Business that strives to serve, support and represent the student body. The council also works to make Leeds a better business school through social, academic and professional programming. The council is made up of five primary committees and an executive board that control a significant portion of the Leeds student fees.

Two members of Leeds Council also serve as representatives on University of Colorado Student Government (CUSG) to voice the interests of business students at the main campus.

## Graduation Recognition Ceremony

Every December and May, the Office of the Dean and the Leeds Business Student Government sponsor a recognition ceremony honoring the graduating class, in addition to the university-wide commencement. Graduates and their families are invited to attend.





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## Undergraduate Career Development

The Leeds Career Development Office is the hub for undergraduate professional development. We work with each student to create a four-year career development plan that will allow them to develop the professional competencies and business connections needed to pursue their personal and career goals. Leeds students have access to unique, business-focused resources including:

### Career Readiness Programs

All Leeds students are assigned a career advisor by their area of emphasis. Advisors work with each student to create a four-year career development plan that allows them to develop the professional competencies and business connections needed to pursue their goals. Key services that support career readiness include:

- One-on-One Career Coaching Sessions
- Skill Development Workshops
- Personal- and Career-Assessments
- Mock Interviews

### Employer Connections

The Leeds School has created strong partnerships with over 2,000 companies from diverse industries and locations. Our office connects students of all interests with the resources, organizations and people necessary to facilitate career success, including:

- On Campus Interviews
- Employer Panels by Industry or Topic
- Employer Information Session and Recruitment Days
- Leeds-Specific Career Fairs
- Leeds Signature Events: CoLab and Sophomore Professionalism Summit

### Industry Experiences

At Leeds, students are encouraged to explore career opportunities in business through hands-on learning via internships and Career Treks.

- **Internships:** Dedicated support includes an internship advisor, internship-focused workshops and networking events.
- **Career Treks:** Visits focused on an industry, functional area or location with in-depth opportunities for job search and connections. Previous visits have included Boulder, Denver,

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Chicago, Houston, Los Angeles, New York, Salt Lake City and San Francisco.

- **Professionalism Assignments:** The World of Business and Sophomore year provide all Leeds 1st and 2nd-year students with a strong foundation to pursue their career interests and goals.

## Mentoring

The integration of multiple mentoring programs throughout the four-year experience is a unique feature of the Leeds education, providing students with individual connections and personalized support. Over 1,500 undergraduates and more than 900 professional mentors participate in mentoring through these programs:

- **CoLab: Essentials of Collaboration and Innovation in Business:** Full-day outdoor orientation experience introducing first-year students to key business concepts and corporate mentors.
- **Peer2Peer:** Connects new Leeds students with trained student mentors to help students build a strong foundation and sense of belonging at Leeds.
- **Young Alumni Mentors Program:** Partners sophomores with recent Leeds graduates to provide major and career exploration, academic preparation and professional skills development.
- **Professional Mentorship Program:** Pairs juniors and seniors with experienced business professionals providing opportunities to develop and practice critical professional skills and build their professional network.

### Contact Information:

Website: [www.colorado.edu/business/career](http://www.colorado.edu/business/career)

Email: [leedscareer@colorado.edu](mailto:leedscareer@colorado.edu)

Office: KOBL S210

Phone: 303.492.1808

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# Undergraduate Academic Excellence

## Honors

In recognition of high scholastic achievement, upon recommendation of the faculty, the designation “With High Distinction” or “With Distinction” will be awarded at graduation. To qualify for the “With High Distinction” designation, the student’s cumulative University of Colorado GPA must be at least 3.90. For the “With Distinction” designation, the student’s cumulative GPA must be at least 3.75 but less than 3.90. In addition, for these designations, at least 60 semester hours must have been earned at CU-Boulder.

In addition to the distinction of honors, Leeds School of Business students also may participate in the Latin honors granted by the College of Arts and Sciences. Qualified students are encouraged to participate in this program, which coordinates the offering of a variety of honors seminars as well as the granting of Latin honors (cum laude, magna cum laude, summa cum laude) at graduation. Granting of these honors is determined by the Honors Council based on several criteria, including the quality of original scholarly work (generally reported in the form of a thesis). Latin honors are not conferred on a graduate entering in the summer of 1995 and thereafter simply by virtue of high grades. Interested students should consult the Honors Program listing in the College of Arts and Sciences section or contact the Honors Program in Norlin Library.

## Dean’s List

Students in the Leeds School of Business who have completed at least 12 semester hours of CU-Boulder course work for a letter grade in any single semester with a term GPA of 3.600 or better are included on the dean’s list and receive a notation on their transcript.

## Beta Gamma Sigma

Membership in Beta Gamma Sigma is an honor that must be earned through outstanding scholastic achievement. Such membership is the highest scholastic honor that a student in a school of business or management can attain.

To be eligible for Beta Gamma Sigma membership, students must rank in the top 10 percent of their junior class, the top 10 percent of their senior class or be among the top 20 percent of those students receiving master’s degrees. Also, students completing all requirements for the doctoral degree conferred by a business school are eligible for Beta Gamma Sigma. It should be noted that Beta Gamma Sigma chapters may be chartered only in those schools of business and management accredited by AACSB, the International Association for Management Education.

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## Scholarships

Each year the college awards a number of divisional and general scholarships. Business scholarships are for students who have completed business course work at the university. The amount and number of the awards vary each year.

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# Undergraduate Academic Standards

## Academic Ethics

Students are expected to conduct themselves in accordance with the highest standards of honesty and integrity. Cheating, plagiarism, illegitimate possession and disposition of examinations, alteration, forgery or falsification of official records and similar acts or the attempt to engage in such acts are grounds for suspension or expulsion from the university. Reported acts of academic dishonesty must be referred to the Honor Council.

Students are advised that plagiarism consists of any act involving the offering of someone else's work as the student's own. It is recommended that students consult with instructors as to the proper preparation of reports, papers, etc., in order to avoid this and similar offenses. Official college procedures concerning academic ethics are maintained in the Office of Undergraduate Studies.

## Standards of Performance

Students are held to basic standards of performance with respect to attendance, active participation in course work, promptness of assignments, correct English usage both in writing and in speech, accuracy in calculations and general quality of scholastic workmanship. In general, examinations are required in all courses and for all students, including seniors.

## Good Academic Standing

To be in good standing, you must have an overall grade point average of C (2.00) or better for all course work taken, and a 2.00 or better for all business courses taken. Students must earn a passing grade for all required courses. This requirement applies to work taken at all university campuses.

Any student earning all or nearly all failing grades, or no academic credit for a semester will not be permitted to register without the dean's approval.

Official double-degree students must maintain required academic standards for the Leeds School as well as their other college.

When semester grades become available, students below the acceptable standard will be placed on probation or suspension. Students are responsible for being aware of their academic status at all times, and late grades and/or late notification do not waive this responsibility.

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If your cumulative grade point average or cumulative business grade point average falls below 2.00, you will immediately be placed on probation for one semester. If you enroll in any term, excluding summers, after being placed on probation you are expected to raise your cumulative and business grade point average to at least a 2.00 or demonstrate significant progress toward improving your GPA(s).

If you do not raise your GPA(s) to 2.00 or make significant progress during your probation semester you will be placed on suspension.

## Significant Progress

Significant progress is defined relative to whichever GPA is below 2.0. If the cumulative GPA is below 2.0, significant progress is defined as a term GPA of 2.5 with at least 12 credits completed toward the cumulative GPA. If the Business GPA is below 2.0, significant progress is defined as a term business GPA of 2.5 with at least 6 credits of business coursework completed.

## Scholastic Suspension

If your cumulative and/or business grade point average is below 2.00 after your semester of probation and you have not demonstrated significant progress (as defined above), you will be suspended. If you are suspended, you will not be able to register for University of Colorado daytime courses on any campus for one academic year OR until you raise your GPA to 2.0 or demonstrate significant progress.

You are allowed to take summer classes at any of the CU Campuses while on suspension.

If you are suspended, you may choose from the following options.

### ***Suspension Option 1: Clear your GPA***

- A) You may take Continuing Education Independent Learning courses, and/or Boulder Evening credit classes, and apply for readmission when you have cleared your grade deficiency or when you have demonstrated significant progress.
- If you are readmitted based on significant progress, you will be readmitted on probation and will be subject to Leeds' probation rules (see Probation).
- B) You may choose to attend another educational institution and apply for readmission when, and only when, you have overcome your grade deficiencies by means of a GPA which is arrived at by averaging the grades from CU with the grades from the other institution. These transfer grades are used only for the purpose of readmission and do not remain in the University of Colorado grade point average. If you choose to attend another institution, you must have your proposed course work pre-approved by the Office of Undergraduate Student Services in the Leeds School of Business.
- If you choose this option and are readmitted based on a virtual GPA, you will be readmitted on probation and you will be subject to Leeds' probation rules (see Probation).
- C) You may choose a combination of A and B.

### ***Suspension Option 2: Do not take classes for one year***

If you have been under suspension for one calendar year and did not elect Option 1, you may apply for readmission. You will have two semesters to raise your cumulative or business grade point average to at least a 2.00. If your GPA falls after the first semester, you will again be suspended for another academic year or until your grade deficiency has been made up.

## Readmission

When you make up your grade deficiency (Option 1) or you have not taken classes for one year (Option 2) and desire to be readmitted, you must request readmission in writing by contacting the Office of Undergraduate Student Services at UCB 419, Boulder, CO 80309, or via email at [leedsug@colorado.edu](mailto:leedsug@colorado.edu). After doing so, you may need to reapply by submitting an application through the Office of Admissions. If you have questions, please call **303-492-6515**.

Suspended Leeds School students who transfer into another school or college of the university will not be eligible to register for business courses and will be subject to administrative drops.

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# Undergraduate Admissions & Enrollment Policies

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All students are responsible for knowing and following the provisions set forth below. Any questions concerning these provisions should be directed to the college. The college cannot assume responsibility for problems resulting from a student's failure to follow the policies stated here or from incorrect advice given by those outside the Office of Undergraduate Services. Similarly, students are responsible for all deadlines, rules and regulations stated in the General Information section of this catalog. All rules and regulations are subject to change. Any questions should be directed to the Leeds School of Business, Office of Undergraduate Services, KOBL S220, **303-492-6515**.

## Admission to the Business Program

Prospective freshman students are encouraged to complete strong academic programs in high school. A minimum of four academic units should be completed each year with special emphasis given to writing, mathematics and science skills. For a detailed explanation of the high school preparation desired, see Undergraduate Admission in the General Information section.

Transfer students are expected to demonstrate proficiency in economics, writing and mathematics. Prospective transfer students should complete courses equivalent to those taken by University of Colorado business freshmen and sophomores.

## Intrauniversity Transfer

An undergraduate student who is enrolled on the Boulder campus and wishes to transfer to the Leeds School of Business may submit a completed application for the fall or spring semester. A cumulative university GPA of 3.00 and a cumulative GPA of 2.00 in business courses is necessary to be considered for admission. In addition, students must have 24 completed semester hours, 12 of which must be graded work at CU-Boulder; 4 credit hours of MATH 1112; and microeconomics and macroeconomics. Students must earn a grade of *B-* or better in ECON and MATH to be considered for admission. Intrauniversity transfer students must take a minimum of 30 hours of business courses, including their area of emphasis, in residence after

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admission to the college. Applications are accepted year round and will be reviewed once a month. However, the deadlines for admission prior to the registration period are October 1 for spring and March 1 for fall. Leeds can't guarantee the usual selection of courses for those who submit applications after the deadline.

In order to apply to the Leeds School of Business, students must complete a mandatory online IUT presentation and quiz.

## Registration Stops

A service indicator stop will be placed on students' records when they have earned 45 credit hours, if they have not yet declared their area of emphasis. All first and second year students will also have a service indicator and be required to attend an advising meeting before registration for the next semester.

## Registration for Business Courses

Business students may register only for those courses for which they have the stated prerequisites.

## Administrative Drops

Instructors may recommend to the Office of Undergraduate Services that students who fail to meet expected course attendance or prerequisites be dropped from their courses at any time during the semester.

## Attendance Regulations

Classroom attendance is left to the discretion of the instructor. Students are responsible for understanding each instructor's policy on attendance.

Students who are unavoidably absent should make arrangements with instructors to make up the work missed. Failure to attend regularly may result in receipt of an *F* in a course. Students who, for illness or other legitimate reasons, miss a final examination must notify the instructor no later than the end of the day on which the examination is given. Failure to do so may result in receipt of an *F* in the course.

## Concurrent Registration

Concurrent registration is for graduating seniors who must be enrolled on two campuses of the University of Colorado at the same time in order to fulfill graduation requirements.

Students enrolled in the Leeds School of Business may exercise the concurrent registration option if they are in their graduating semester or are two semesters from graduating and cannot obtain a course necessary to complete a prerequisite sequence. The course must be required for graduation and must not be offered on the Boulder campus, or the course must conflict with another required course in which the student is enrolled. Students from other colleges and schools who wish to take business courses must have the approval of their own college or school before submitting the concurrent registration form.

## Scholastic Load

The normal scholastic load of an undergraduate student in the college is 15 semester hours, with a maximum of 21 hours during the fall and spring semesters. A maximum of 3 semester hours may be taken during Maymester. A maximum of 6 hours may be taken during a five-week summer term, with no more than 12 hours total during the 10-week summer session.

## Credit Policies

To receive credit, all courses must be listed on the student's official transcript by the Office of the Registrar. Credit is then evaluated by the Leeds School of Business to determine degree acceptability.

### Cooperative Education Credit

No credit is given for work experience or cooperative education programs.

### Correspondence Credit

All correspondence courses must have prior approval and be evaluated to determine their acceptability.

### Credit by Examination

**Advanced Placement (College Board).** For students who earn scores of 3, 4 or 5 on Advanced Placement exams, college credit will be given where appropriate. See the General Information section for a comprehensive chart on AP credit.

**College-Level Examination Program (CLEP).** College credit for approved CLEP subject examinations may be considered, providing the scores are at the 67th percentile or above. Specific information is available in the Office of Undergraduate Student Services.

CLEP credit is only appropriate for nonbusiness requirements and nonbusiness electives. A maximum of 6 hours of credit in any one course area is allowed. CLEP may not be used in course areas where credit has already been allowed. General examinations are not acceptable. CLEP credit is not transferable.

Before a CLEP examination can be taken, students must have prior approval in writing by the Office of Undergraduate Student Services.

### No Credit

Because of enrollment limitations, business classes may not be taken on a no-credit basis.

### Special Sources of Credit

The college reserves the right to accept or reject all special sources of credit that do not have prior approval of the dean.

### Independent Study

A maximum of 6 hours of independent study will be accepted as degree credit. Prior approval is required if the work is to be applied as degree credit. A maximum of 3 hours may be taken in any one semester.

### Study Abroad Credit

Transfer credit from study abroad programs may be applied to the business degree. Students planning to attend study abroad programs must meet with an undergraduate advisor and have their course selections approved prior to leaving campus.

More specific information about these opportunities is available from the Office of International Education.

### Transfer Credit

The school reserves the right to disallow any credit that it deems inappropriate degree credit.

Credits in business subjects transferred from other institutions will be limited to the number of credit hours given for equivalent work in the regular offerings of the university. Only work from regionally accredited institutions will transfer to the college. A maximum of 60 semester hours of credit may be accepted from a two-year school.

Actual equivalent courses may be substituted for required courses. Students must submit a carefully checked catalog description and course syllabus for course equivalency determination.

Business students desiring to apply course work from another institution or University of Colorado campus toward the BS degree in business administration must have prior approval of the Leeds School of Business. Only nonbusiness requirements or elective credit is acceptable in transfer from other institutions once the student has enrolled.

All courses in the area of emphasis must be taken at the University of Colorado Boulder unless written approval is given by the associate dean of undergraduate services. Transfer students must take a minimum of 30 hours of business courses, including the area of emphasis, in residence after admission to the college. For more information on transfer of credit policies, see Transfer of College-Level Credit in the Admission section.

## Grading Policies

In addition to the campuswide grading system and *pass/fail* policy listed under Registration in the General Information section, the Leeds School of Business enforces the following policies.

### *Pass/Fail*

Students in the Leeds School of Business may not use the *pass/fail* option for courses taken to fulfill **General Education Core Requirements, courses used to satisfy the Minimum Academic Preparation Standards (MAPS), business core requirements, business major requirements or business electives**. A grade of *F* when earned in a course taken *pass/fail* will calculate into the GPA as a failing grade. Only nonbusiness electives may be taken on a *pass/fail* basis. A maximum of 6 hours of *pass/fail* credit may be applied toward the BS degree in business administration. *Pass/fail* determination must be made by the deadline set through the Registrar's Office is irreversible. A maximum of 6 hours designated *pass/fail* may be taken in any one semester.

**Failed Courses.** Failed courses may be repeated, but the *F* will be included in the GPA.

### Incomplete Grades

The only incomplete grade given in the college is an *I* grade is given only when documented circumstances clearly beyond the student's control prevent the student from completing the course. Generally, students should make up the missing work and not retake the entire course. Students should not register for the class a second time, unless directed by the instructor. All *I* grades must be made up within one year or the *I* will be changed to a grade of *F*.

### Grade Changes

Final grades as reported by instructors are considered permanent and final. Grade changes will be considered only in cases of documented clerical errors, and must be approved by the associate dean.

### Withdrawal

Students may withdraw from the university any time before the beginning of the final examination period.

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# Undergraduate Degree Requirements

The Bachelor of Science in Business Administration degree requires:

**Total Credits.** A minimum of 120 acceptable semester hours of credit, from the following categories:

- Business core
- Business area of emphasis requirements
- Business electives
- General education nonbusiness requirements (Arts and Sciences core)
- Nonbusiness electives

The school reserves the right to disallow any credit that it determines is not appropriate academic credit.

**Residence.** Students must complete 30 hours of business courses in residence on the Boulder campus after admission to the college, including the 18 hours in the area of emphasis and the 9 hours in the area of application (included in the business electives). Students must be in residence at CU-Boulder and must be registered as business degree students during the term of graduation.

## Minimum Grade Point Average

- A cumulative grade point average of 2.00 in the area of emphasis *and all grades* in the 18 credit hours must have a grade of C- or higher (no *pass/fail* credits can be applied to the area).
- A minimum scholastic cumulative GPA of 2.00 is required for all courses attempted at the university.
- A cumulative 2.000 is required for all business courses attempted at the university.
- A cumulative grade point average of 2.00 is required in the area of application courses.

## General Requirements

### Business Core Requirements

The business core is 30 credit hours and consists of integrated coursework through which students will develop key skills such as communication, teamwork and leadership while learning fundamentals of business and working on live cases.

- BCOR 1015: World of Business (3)

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- BCOR 1025: Data Analysis (3)
- BCOR 1030: Communication Strategy (3)
- BCOR 2001: Principles of Marketing & Management (3)
- BCOR 2002: Principles of Accounting & Finance (3)
- BCOR 2003: Bus Law, Ethics & Social Responsibility (3)
- BASE 2101: BCOR Applied Semester Experience 1
- BASE 2102: BCOR Applied Semester Experience 2
- BASE 2103: BCOR Applied Semester Experience 3
- BASE 2104: BCOR Applied Semester Experience 4

Contact undergraduate student services, or visit [leeds.colorado.edu](https://leeds.colorado.edu) for the specific classes and credit hours required in the business core.

## Business Area of Emphasis (18 credits)

Students must choose an area of emphasis in accounting, finance, management or marketing. Areas of emphasis consist of 18 semester hours of required coursework, and require a minimum of three semesters to complete.

## Business Electives (16 credits)

Students are required to complete 16 credit hours of business electives. Business courses required by specific areas in excess of the 18 hours listed under areas of emphasis may count as business electives.

## Nonbusiness Requirements

Students in the Leeds School of Business are required to complete 39 hours of coursework from the College of Arts and Sciences core requirements, including classes from the following categories:

- Mathematical skills\*
- Contemporary societies\*
- Written communication\*
- Historical context
- Human diversity
- United States context
- Literature and the arts
- Natural sciences
- Ideals and values

\* Leeds students are required to take microeconomics and macroeconomics, specific math and writing courses to fulfill these categories. Contact undergraduate student services for more information, or visit [leeds.colorado.edu](https://leeds.colorado.edu).

A list of courses that fulfill specific requirements for each area can be found at [artsandsciences.colorado.edu/artssciences/current-students/core-curriculum](https://artsandsciences.colorado.edu/artssciences/current-students/core-curriculum).

## Nonbusiness Electives

Students are required to complete 17 credit hours of non-business electives. Not all classes are accepted as elective credits. Generally, to be acceptable, electives must have a form of

assessment such as a term paper and/or examinations and must be regular classroom-type courses. Course coverage must be college level, must not be repetitious of other work applied toward the degree, must be academic as opposed to vocational or technical and must be part of the regular university offerings. Contact Undergraduate Student Services, or visit [leeds.colorado.edu](https://leeds.colorado.edu) for more information about the number of business elective credit hours required.

The Leeds School of Business reserves the right to disallow any credit that it determines is not appropriate academic credit. For more information, contact the Office of Undergraduate Student Services.

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## Programs of Study

### Business Administration

The Leeds School of Business holds accreditation by the Association to Advance Collegiate Schools of Business (AACSB-International). Leeds awards four types of degrees:

- bachelor of science (BS)
- master of science (MS)
- master of business administration (MBA)
- doctor of philosophy (PhD)

### Knowledge and Abilities of Business Students

The following areas of knowledge are central to the undergraduate degree in business administration:

- knowledge of core business concepts that provides students with a comprehensive understanding of the basic functional areas of the discipline;
- knowledge in one or more of the four areas of emphasis, in which students are exposed to in-depth study that provides them with the tools necessary to solve complex business problems;
- awareness of the interrelations between academic theory and practice in order for students to be fully equipped to make effective decisions;
- strong verbal and written communication skills, proficiency in business computer applications and knowledge of international business environments;
- knowledge of mathematics sufficient to facilitate the application of quantitative principles; and
- awareness of the importance of academic fields in the area of arts and sciences, with special emphasis placed on the study of economics, political science and other related fields.

In addition, students completing a degree in business administration are expected to acquire:

- the ability to apply basic business principles to solve problems in new and recurring situations;
- the ability to conceptualize and analyze decision-making situations to facilitate solutions in an effective and timely manner; and
- the ability to effectively communicate the results of problem-solving situations, both verbally and in writing.

|   |
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| • <b>Programs of Study</b> <ul style="list-style-type: none"> <li>• <b>Business Administration</b></li> </ul>   |
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Having acquired these skills and knowledge, students are able to conceptualize and analyze the concept of business and problem solving as a system. They have the ability to present solutions to business problems in an understandable and useful form. Their education provides them with excellent working knowledge, not only in the field of business, but also in related academic disciplines.

## Advising and Records

Undergraduate business students receive academic counseling from a staff of professional advisors in the Office of Undergraduate Student Services. During the semester, advisors are available in KOBL S220, Monday-Friday, 8:00 a.m.-5:00 p.m., by appointment.

Students are expected to assume responsibility for planning their program in accordance with college rules and policies. Students are encouraged to discuss the various emphases available as well as career opportunities with the faculty of the college.

## Minor in Business

### Curriculum

In 2013 the Leeds School of Business launched a 12-credit Business Minor so that all CU Boulder students could gain business fundamentals, increasing their immediate impact as new hires. Through our first two modular courses (BUSM 2001, 2002) students are introduced to the essential elements of Marketing, Management, Accounting and Finance. Students then choose between one of four business track options: Innovation, Analytics, Entrepreneurship or Global Business (BUSM 3001, 3002, 3003, 3004). While not required, student may complete multiple tracks for increased breadth of application. Finally, students complete their minor with a capstone course that focuses on business development (BUSM 4001). Students participate in a business competition followed by a celebratory graduation where competition winners are recognized by Leeds and the local business community.

Business Minor courses are available during fall and spring semesters only, which the Global Business track being the exception. Our Global Business track occurs abroad during Maymester and is available to a select few.

### Application Process

Fall Admission Deadline: March 15

Spring Admission Deadline: October 15

We receive many more qualified applicants than spots available; apply early for favorable admission.

The program takes a minimum of three semesters to complete; it is recommended that you apply before your junior year, but no later than first semester junior year.

The admissions process consists of an online application and a one-page resume. To be eligible for admission students must have a minimum of 12 completed CU credit hours, a 2.0 GPA, be in good academic standing and have earned at least a C- in a preapproved statistics or calculus course. Students currently enrolled in a pre-approved statistics or calculus course may apply and be conditionally admitted pending final course grade.

### Fees

Students accepted into the Business Minor must pay a \$500 per course fee, or \$2000 for the 4-course/12-credit program.

## Learn More

Students can obtain further information about the Business Minor at [www.colorado.edu/leeds/minor-business](http://www.colorado.edu/leeds/minor-business).

## Bachelor's Degree Program(s)

### Bachelor of Science in Business Administration (BS)

All business students pursuing a bachelor's degree in business administration must complete the prescribed courses in at least one **area of emphasis**. The school offers programs in four areas of emphasis: **accounting, finance, management** and **marketing**. An area of emphasis consists of a minimum of 18 semester hours taken at the University of Colorado Boulder. A cumulative grade point average of 2.00 is mandatory for the required area of emphasis courses and all courses must have a grade of C- or higher.

In addition to the area of emphasis, students also may complete an **area of application**. The school offers the following areas of application: **entrepreneurship and small business management, international business** and **real estate**. An area of application consists of a minimum of 9 semester hours taken at the University of Colorado Boulder. A 2.00 cumulative GPA is required for the required area of application courses. Successful completion of additional requirements in some of these areas of application entitles students to a certificate issued by the dean of the college.

## Areas of Emphasis

### Accounting

The accounting area of emphasis prepares students for careers in which they will develop, analyze and interpret complex financial data. Accounting majors become experts in "the language of business." This expertise prepares them for careers in CPA firms, business consulting, industry (from Fortune 500 companies to small entrepreneurial enterprises), not-for-profit enterprises or government. Accountants who pursue careers in public accounting might become partners in public accounting and consulting firms. Those who begin their careers in industry might have positions as a chief executive officer (CEO), chief financial officer (CFO), chief accounting officer (CAO) or controller, tax specialist, internal auditor, accounting systems analyst, financial analyst or managerial accountant. Many students begin their careers in public accounting firms and move to industry or government after several years of experience. Employers seek students with skills in communication, interpersonal interactions, analytical thinking, problem solving and integrity.

The major branches of study in the accounting area of emphasis are 1) Financial Accounting / Analysis and Audit, and 2) Tax Planning and Compliance. Basic coursework in accounting focuses on developing a comprehensive understanding of the theory and concepts underlying the presentation of financial and operating information about an enterprise to external and internal users. Additional course work exposes the student to income taxation of business enterprises and individuals, the practice and principles of auditing and assurance services and cost management. Specialization is available through graduate work.

### Professional Certification as a CPA or CMA

Most accounting students from the University of Colorado earn professional credentials within a year or two of receiving their degrees. The two most widely-recognized professional certifications are the certified public accountant (CPA) and certified management accountant (CMA).

The CPA is a state-granted license, for which each state sets its own requirements. All states require 150 total credit hours of study to be licensed as a CPA, thus earning a degree with only 120 credit hours **will not** meet licensure requirements. Although the CPA requirements of most states have similar components, the specifics of those requirements differ greatly. Most states set requirements for the following before a CPA license will be granted:

1. background checks
2. education
3. CPA Exam passage
4. work experience

Not only do state requirements differ greatly from one state to another, those requirements frequently change. **It is very important that the accounting student obtain the guidelines for the relevant state to ensure proper development of his or her degree plan (see [NASBA.org](http://NASBA.org) or the website of the particular state's board of accountancy).**

The CPA license is a legal requirement for someone to perform financial statement audits, but is not legally required to perform other kinds of accounting work. It is important to note, however, that many professional accounting positions set CPA licensure as a job requirement even where it is not legally required, thus a CPA license is a valuable credential for any accounting professional. As a result, most students completing an accounting emphasis at Leeds continue into the concurrent bachelor's and master's degree program (see MSBA program) to seek their CPA license.

The CPA's expertise typically focuses on presentation and analysis of financial information for an external user. The CMA's primary focus is improving information for the internal user. Professional accountants' expertise in financial matters and their understanding of company operations through financial information prepare them to become key players and critical decision makers for all aspects of business creation, operation and transformation.

As is the case at most colleges and universities, simply meeting the requirements to receive a degree with an undergraduate emphasis in accounting at Leeds will not necessarily meet all of the specific requirements for CPA licensure of any particular state including Colorado. Prior to being licensed, a candidate must be granted permission by a state's board of accountancy to take the CPA Examination. As with the overall requirements for licensure, the specific requirements and timing when students can take the exam differ greatly for different states, all of which makes it crucial for the student to develop the degree plan in conjunction with applicable state requirements.

The CMA is a different type of certification because it not granted by a state, but rather by the Institute of Management Accountants, which is a professional organization. The requirements are the same regardless of where an applicant lives. The website for the Institute of Management Accountants provides information about becoming a Certified Management Accountant. Though not legally required for any kinds of positions in any state, the CMA is also a valuable professional credential.

There are two degree options at the bachelor's level.

## BS in Business Administration: Accounting Emphasis

This degree may be earned by a student who takes 18 hours of accounting beyond the core. The 18-hour requirement for the degree **does not** meet the educational requirements to be licensed as a CPA in any state. This option might be chosen by a student who does not want to become professionally certified, but who seeks a career involving accounting and financial analysis in industry, government or not-for-profit enterprises. This also might be chosen by a

student choosing a dual emphasis, such as accounting and finance or accounting and information systems.

#### **Required Courses and Semester Credit Hours**

- ACCT 3220 Corporate Financial Reporting 1—3
- ACCT 3230 Corporate Financial Reporting 2—3
- ACCT 3320 Cost Management—3
- ACCT 3440 Income Taxation of Individuals—3
- ACCT 4850 Senior Seminar: Accounting Ethics—3

**Plus 3 credit hours from the following courses:**

- ACCT 4240 Advanced Financial Accounting—3
- ACCT 4250 Financial Statement Analysis—3
- ACCT 4330 Advanced Cost Management—3
- ACCT 4540 Accounting Information Systems—3
- ACCT 4620 Auditing and Assurance Services—3
- ACCT 4800 Accounting for Government and Nonprofit Organizations—3
- ACCT 4820 Special Topics: ACCT & FNCE for Energy Ind.—3
- ACCT 4827 Integrated Reporting for Socially Responsible Strategies—3

## **BS in Business Administration: Accounting Emphasis, enhanced by additional course work required to meet state CPA licensure requirements**

All states require 150 total credit hours for licensure as a CPA and most require additional accounting and other business courses. Most states do not require a master's degree. Thus, one route to licensure is obtain a BS with an accounting emphasis, but take additional course work to meet the specific requirements of the state(s) where the student expects to practice. Students can generally find the current requirements for a particular state at the website for that state's board of accountancy, or at [NASBA.org](http://NASBA.org). It is possible that one or more courses that a state requires for CPA certification is not available to undergraduates at the University of Colorado Boulder; in such a case the student could take those courses either in person or online at a different institution.

### **Finance**

The finance area of emphasis has been designed to provide students with in-depth theoretical and applied exposure to the techniques and concepts useful for entry-level positions in various areas of financial management. The principal areas of study include business financial management, investments and derivative securities and financial markets and institutions.

Finance is an applied discipline with an analytical orientation. Courses in finance serve to develop students' abilities to think logically about financial problems and to formulate sound financial decisions and policies. Although the emphasis is on financial management of for-profit organizations, the principles and concepts developed are also applicable to not-for-profit and governmental organizations.

Students with a finance emphasis must take 18 hours of finance courses beyond the BCOR sequence. Students interested in a finance area of emphasis should plan to take FNCE 2010

during their sophomore year.

**Required Courses and Semester Credit Hours**

- FNCE 2010 Fundamentals of Financial Analysis—3 (prereqs., BCOR 1025, 2002 and Math 1112)
- FNCE 3010 Corporate Finance—3 (prereqs., BASE 2101, 2102, 2103, 2104 and FNCE 2010 minimum grade: C)
- FNCE 3030 Investment and Portfolio Management—3 (prereqs., BASE 2101, 2102, 2103, 2104 and FNCE 2010 minimum grade: C)
- ACCT 3220 Corporate Financial Reporting I—3 (prereqs., BCOR 2001, 2002, 2003)
- FNCE 4040 Derivative Securities—3 (prereqs., FNCE 3010 and FNCE 3030)
- FNCE 4850 Senior Seminar in Finance—3 (prereqs., FNCE 3010 and FNCE 3030)

The required courses represent a minimum requirement for competence in financial analysis and decision-making. Combinations of the upper division elective finance courses allow students to structure their learning in preparation for specific career paths.

- FNCE 4000 Financial Institutions Management—3 (prereqs., FNCE 3010, FNCE 3030)
- FNCE 4050 Capital Investment Analysis—3 (prereqs., FNCE 3010)
- FNCE 4060 London Seminar in International Finance and Business—variable credit (prereqs., BASE 2101, 2102, 2103, 2104)
- FNCE 4070 Financial Markets and Institutions—3 (prereqs., FNCE 2010)
- FNCE 4820 Experimental Course—3 (prereqs., 2010)
- FNCE 4820 Special Topics: Fixed Income Securities—3 (prereqs., FNCE 3010, FNCE 3030)
- FNCE 4826 Experimental Seminar: Corporate Governance—3 (prereqs., FNCE 3010)
- FNCE 4830 Seminar in Investment Banking—3 (prereqs., admission is by application)
- FNCE 4831 Seminar in Investment Management—3 (prereqs., FNCE 3010, FNCE 3030)
- APPM 4720 Mathematical Finance—3 (prereqs., FNCE 3010, FNCE 3030)
- ESBM 4570 Entrepreneurial Finance—3 (prereqs., BASE 2101, 2102, 2103, 2104)
- INBU 4200 International Financial Management—3 (prereqs., BASE 2101, 2102, 2103, 2104)
- REAL 4100 Real Estate Finance and Investment Analysis—3 (prereqs., REAL 3000)

**Investment Banking Track** – In addition to the required courses, students interested in a career in investment banking should consider taking the following courses:

- FNCE 4830 Seminar in Investment Banking
- ACCT 3230 Corporate Financial Reporting 2
- FNCE 4050 Capital Investment Analysis

**Investment Management Track** – In addition to the required courses, students interested in a career in investment management should consider taking the following courses:

- FNCE 4050 Capital Investment Analysis
- FNCE 4831 Seminar in Investment Management

- FNCE 4820 Special Topics: Fixed Income Securities

**Commercial Banking Track** – In addition to the required courses, students interested in a career in commercial banking should consider taking the following courses:

- FNCE 4000 Financial Institutions Management
- FNCE 4820 Special Topics: Fixed Income Securities
- FNCE 4070 Financial Markets and Institutions

**Corporate Finance/Consulting Track** – In addition to the required courses, students interested in a career in corporation finance should consider taking the following courses:

- ESBM 4570 Entrepreneurial Finance
- ACCT 3230 Corporate Financial Reporting 2
- FNCE 4050 Capital Investment Analysis

**Entrepreneurial Finance Track** – In addition to the required courses, students interested in a career in entrepreneurial finance should consider taking the following courses:

- ESBM 4570 Entrepreneurial Finance
- INBU 4200 International Financial Management
- FNCE 4826 Experimental Seminar: Corporate Governance

**Personal Financial Planning Track (PFP)** – Program includes six courses, with two required courses, FNCE 4040 and FNCE 4850 waived, see below.

- FNCE 2820 Introduction to Personal Financial Planning
- ACCT 3440 Personal Income Taxation
- FNCE 3040 Insurance, risk management, and retirement planning (note: replaces FNCE 4040 Derivatives)
- FNCE 3060 Estate Planning
- FNCE 4840 Personal Financial Plan Development (note: replaces FNCE 4850 Capstone)

## Management

The Management Area of Emphasis addresses the effective management of people, organizations, operations, information and technology to improve the performance of diverse private and public organizations. A management emphasis provides students with the managerial skills necessary for success in entry-level positions, and builds foundations for success in management positions of greater responsibility, authority and leadership. Students completing the management area of emphasis are viewed by potential employers as having the broad-gauged education required in the team-oriented, horizontally organized and globally competitive environments of the 21st century. The management area of emphasis prepares students for careers managing people, operations, information and technology, and can serve as a strong complement to a second area of emphasis.

Management students must choose one of three tracks: the first emphasizes human resource management; the second focuses on the management of operations; and the third emphasizes the management of information.

## Talent Management Track

The talent management track provides students with the knowledge and skills necessary to

earn certification in human resources from the Society of Human Resources, the principal professional society in the field. Graduates are qualified to act as human resource generalists in small, medium and large companies; specialists in organizations with focused human resource units; or well-rounded general managers in any organization. There are three required courses in the HR Management track:

***Required Courses and Semester Credit Hours***

- MGMT 3030 Critical Leadership Skills—3
- MGMT 4040 Individual, Team and Org. Development—3

In addition, students in the talent management track must complete three of the following elective courses:

- MGMT 3010 Negotiation and Conflict Management—3
- MGMT 4010 Redefining the Employee-Employer Relationship—3
- MGMT 4020 Hiring and Retaining Critical Human Resources—3
- MGMT 4030 Managing Employee Reward Systems—3

***Required Senior Capstone Course:***

- MGMT 4850 Senior Seminar in Management—3

Students focusing on talent management are also encouraged to take INBU 4300 International Management.

## Information Management Track

Advances in business knowledge and technology have radically changed business systems and processes. As a result, critical to today's businesses is the ability to get the right information to the right people at the right time, so that both strategic and operational decisions are made properly and quickly. Students majoring in information management will learn to recognize the pivotal roles that information systems play in the business world and to use their knowledge to increase business competitiveness. They are exposed to a range of tools, methods and techniques for addressing issues such as the selection and implementation of new technologies and the creation of processes that effectively connect with customers, suppliers, and distributor channels. Students are prepared to be leaders in the effective utilization of information in business. There are three required courses in the Information Management track:

***Required Courses and Semester Credit Hours***

- MGMT 3030 Critical Leadership Skills—3
- MGMT 3200 Business Analytics—3
- MGMT 4850 Strategy—3

In addition, students in the Information Management track must complete three of the following elective courses:

- MGMT 3210 Business Application Programming—3
- MGMT 4205 Business Data Management—3
- MGMT 4210 Systems Thinking—3
- MGMT 4220 Business Technologies—3
- MGMT 4230 Design of Usable Business—3

- MGMT 4140 Project Management—3

IM students inclined toward careers in technical information systems are encouraged to take programming courses as non-business electives (such as CSCI 1300 Programming or ATLS 3519 Applied Java Programming).

## Operations Management Track

The principal function of any organization is the efficient creation and delivery of products and services to its customers (operations). The operations management track focuses on this creative process and identifies how organizations use productivity, quality, flexibility, timeliness and technology to compete and prevail in their markets. Students graduating from the operations management track will have a broad understanding of the importance of operations in the success of any organization, and will be qualified to serve in entry-level line management positions and as general managers later in their careers. There are three required courses in the Operations Management track:

### *Required Courses and Semester Credit Hours*

- MGMT 3030: Critical Leadership Skills—3
- MGMT 3100: Operations Management—3
- MGMT 4110: Supply Chain Management—3

In addition, students in the Operations Management track must complete two of the following elective courses:

- MGMT 4120: Managing Business Processes—3
- MGMT 4130: Sustainable Operations—3
- MGMT 4140: Project Management—3
- MGMT 4150 or INBU 4151: International Operations—3; only one can apply to the OPS area
- MGMT 4820: Decision Modeling—3

### *Required Senior Capstone Course:*

- MGMT 4850: Senior Seminar in Management—3

Students focusing on Operations are also encouraged to take MGMT 4150 International Operations.

## Strategy & Entrepreneurship Track

### *Required Courses for the Strategy & Entrepreneurship Track:*

- ESBM 3700: Entrepreneurial Environments—3
- ESBM 4830: Venture Planning—3

### *Choose Three of the Following Strategy & Entrepreneurship Track Elective Courses:*

- CESR 4828/MGMT 4828: Corporate Boards in Action—3
- ESBM 4570: Entrepreneurial Finance—3
- INBU 3300: International Management—3
- MGMT 3030: Critical Leadership Skills—3

- MGMT 4020: Hiring and Retaining Critical Human Resources—3
- MGMT 4030: Managing Employee Reward Systems—3
- MGMT 4040: Individual, Team, & Organizational Development—3

**Required Senior Capstone Course:**

- MGMT 4850: Senior Seminar in Management—3

*\*additional Entrepreneurship (ESBM), Management (MGMT) and other courses may be taken as Business Electives*

## Leadership Track

**Required Courses for the Leadership Track:**

- MGMT 3030: Critical Leadership Skills—3
- MGMT 4040: Individual, Team and Org. Development—3

**Choose three of the following Leadership Track Elective courses:**

- CESR 4000/4001: Leadership Challenges I & II - Exercises in Moral Courage—3
- MGMT 4828/CESR 4828: Corporate Boards in Action—3
- INBU 3300: International Management—3
- MGMT 3010: Negotiation and Conflict Management

**Required Senior Capstone Course:**

- MGMT 4850: Senior Seminar in Management—3

*\*additional Management (MGMT) courses may be taken & applied to Business Electives*

## Marketing

The marketing area of emphasis hones skills in analysis and decision-making for a wide spectrum of marketing careers in fields such as advertising, market research, brand management, e-business, selling and sales management, distribution, industrial and business-to-business marketing, international marketing, the marketing of services and marketing for not-for-profit organizations.

Marketing strategies are essential to the communication and sale of both products and services. They are applied across consumer and business markets, across domestic and global boundaries and across traditional and electronic business environments. Key concepts focus on identifying customer needs and wants, developing products and/or services to satisfy these needs and wants, establishing channels and communications to move products and services through intermediaries to end users and monitoring transactions and customer responses to guide future activities.

Students with a marketing emphasis must take 18 hours of marketing courses beyond BCOR 2001 or 2400. Students pursuing a marketing emphasis will need three semesters to complete the required course work after taking BCOR 2001 or 2400. The required courses are:

**Required Courses and Semester Credit Hours**

- MKTG 3250 Buyer Behavior (prereq., BCOR 2001 or 2400)—3

- MKTG 3350 Marketing Research (prereq., BCOR 2001 or 2400)—3
- MKTG 4250 Product Strategy (prereqs., MKTG 3250 and 3350)—3
- MKTG 4300 Pricing and Channels of Distribution (prereqs., MKTG 3250 and 3350)—3
- MKTG 4550 Advertising and Promotion Management (prereqs., MKTG 3250 and 3350)—3
- MKTG 4850 Senior Seminar in Marketing (prereqs., any two of MKTG 4250, 4300 and 4550, with the remaining one of these courses taken as a corequisite)—3

## Areas of Application

### Center for Education on Social Responsibility (CESR)

#### Certificate in Socially Responsible Enterprise (SRE)

CU-Boulder's Leeds School of Business is one of the few undergraduate business schools in the nation that emphasizes socially responsible conduct in business throughout its curriculum. CESR helps undergraduate students become outstanding business leaders of tomorrow by preparing them to meet the ethical challenges posed by an increasingly competitive, globally-connected business world.

CESR offers the Certificate in Socially Responsible Enterprise (SRE) to business students who seek to distinguish themselves in the field of socially responsible business, whether their unique interests lie in environmental sustainability, social entrepreneurship, corporate ethics or values-driven leadership. Students who complete the certificate will develop the practical knowledge and marketable experiences that will distinguish them as business professionals who strive to make a positive social impact. Interested students need to register with the CESR office and must graduate with a 3.00 GPA.

#### General Courses

It is recommended that students complete 6 hours (2 courses) in the areas of philosophy, environmental studies, political science, economics, communication, civil engineering or sociology from the following list. Check prerequisites before enrolling.

##### ***Recommended Courses and Semester Credit Hours***

- ECON 3545 Environmental Economics
- ECON 4292 Migration, Immigrant Adaption and Development
- ECON 4626 Economics of Inequality and Discrimination
- ECON 4774 Economic Reform in Developing Countries
- ECON 4784 Economic Development
- ENVD 4361 Special Topics: Social Factors in Design
- ENVS 3070 Energy and the Environment
- ENVS 4027 Inequality, Democracy and the Environment
- ENVS 4100 Topics in Environmental Policy
- FNCE 4832 Microfinance
- GEOG 2002 Geographies of Global Change
- GEOG 3682 Geography of International Development
- GEOG 4742 Environments and Peoples
- PHIL 2200 Major Social Theories

- PHIL 2140 Environmental Justice
- PSCI 4012 Global Development
- PSYC 2456 Social Psychology of Social Problems
- SOCY 2011 Contemporary Social Issues
- WRTG 3040 Writing on Business and Society (Section with CSR Emphasis)

## 1. Business Coursework

Complete three of the following:

- CESR 4000/4001 Leadership Challenges: Exercises in Moral Courage (year-long course)—3
- CESR 4005 Business Solutions for the Developing World: Learning through Service—3
- Global Seminar: Social Entrepreneurship and Innovation (Cocle, Panama) – 3
- CESR 4130/MGMT 4130 Sustainable Operations—3
- CESR 4440/MGMT 4440 Privacy in Big Data Analytics—3
- CESR 4827/ACCT 4827 Integrated Reporting for Socially Responsible Strategies—3
- CESR 4828/MGMT 4828 Corporate Boards in Action—3
- MGMT 4140 Project Management (must be pre-approved for SRE course work credit)—3
- MGMT 3030 Critical Leadership Skills - 3

NOTE: These courses are in addition to BCOR, the capstone course for the Area of Emphasis, as well as any other prerequisites. See course descriptions for prerequisite details.

## 2. Experiential Learning

The experiential learning component is meant to give SRE students the freedom to gain practical experience working in a field of social responsibility of particular interest to them. Students must meet with the SRE Certificate Advisor to gain pre-approval of their proposed experiential learning experience. Upon completion of the experience, students and their supervisor will complete a brief form (provided by the SRE Certificate Advisor) that documents the student's service. Experiences will be evaluated for application of **business skills and social impact**.

Experiential Learning Options Include:

- **Intern for an organization (for-profit or non-profit)**

Acceptable internships will be characterized by substantive work that adds value to the organization and contributes to the student's learning. The SRE Certificate Advisor has information on organizations seeking business assistance from Leeds students. Students may also contact Career Connections for information about internships.

- **Service Learning through Study Abroad Office**

The Office of International Education offers study abroad programs focused on service learning. These programs generally span one academic quarter or semester in the host country, during which the student will participate in, and gain credit for, study in a school of higher education. Outside of the classroom, students will work with local institutions and non-governmental organizations on service projects that promote community development. Service learning programs that are approved through the Office of International Education are automatically approved for experiential learning credit for this certificate.

- **Related Coursework**

Select courses may count toward the Experiential Learning requirement or toward the Business Coursework requirement, but not toward both.

- CESR 4005: *Business Solutions for the Developing World*
- MGMT 4140: *Project Management* (with advisor approval)

Advisor-approved independent study in a related topic; or an advisor-approved internship of an appropriate nature

For course descriptions and program details, visit [www.colorado.edu/leeds/CESR/cesr-learning](http://www.colorado.edu/leeds/CESR/cesr-learning).

Sign up for the experiential learning requirement with the SRE Certificate advisor

### 3. Personal Reflection and Statement of Purpose

Upon completion of all certificate requirements, students will reflect on their learning and draft a short reflection paper and a statement of purpose, setting out the values that will guide their conduct and their careers. They will then meet with the CESR faculty advisors to discuss their SRE Certificate experience. This final requirement is to remind students why they elected to pursue the certificate and how it will continue to have an impact on their lives after college. Students are encouraged to truly “live” the statement of purpose.

## Entrepreneurship and High Growth Ventures

Whether working for a large global corporation or a small start-up venture, graduates will be valued for their ability to innovate, lead change, recognize emerging markets and launch new products. The entrepreneurship program is designed to develop an individual’s abilities to create, discover and exploit opportunities in start-up ventures or existing organizations.

The entrepreneurship program at the Leeds School of Business is internationally recognized for the quality of its instruction and the capabilities of our students. Within the Leeds School, the Deming Center for Entrepreneurship has served as a rich resource for students with interests in entrepreneurship—coordinating the academic curriculum, providing help with internship and job placement, creating links with the business community and sponsoring networking opportunities and many special events.

The curriculum focuses on experiential learning. Courses are designed to give students hands-on experiences that develop the ability to act on opportunities. Students may begin the study of entrepreneurship in their junior year. A Certificate in Entrepreneurship is granted to students who fulfill the following requirements: 1) complete the three courses listed below with at least a 3.00 GPA; 2) complete an entrepreneurship internship; 3) pass a written exam in entrepreneurship at the conclusion of their studies; and 4) participate in entrepreneurship related extracurricular activities and provide a write up on their experiences.

#### ***Required Courses and Semester Credit Hours***

- ESBM 3700 Entrepreneurial Environments—3
- ESBM 4570 Entrepreneurial Finance—3
- ESBM 4830 Venture Planning—3

NOTE: Students seeking internships should complete ESBM 3700 by the end of their junior year.

## Global Business

The globalization of the marketplace has created a need for managers who can function effectively in the international business environment. Despite this movement toward globalization, there remain significant environmental differences (cultural, economic and political) between countries and/or regions. Managers in an international business must be sensitive to these differences and also must adopt the appropriate policies and strategies for dealing with them.

To address these issues, the Leeds School of Business offers an area of application in international business consisting of 9 credit hours. Students completing additional requirements may earn a **Certificate in International Business**. The certificate program builds on the students' understanding of the functional areas of business and provides them with an appreciation of the international environment. It also supplies them with a framework for developing policies and strategies appropriate for the global marketplace.

### *Required Courses and Semester Credit Hours*

- INBU 3300 International Business Management or
- INBU 4200 International Financial Management or
- Global Seminar: London International Finance
- MGMT 4150 International Operations Management or
- Global Seminar: International Operations in Hong Kong
- INBU 3450 International Marketing or
- Global Seminar: Marketing in the Global Environment

In addition to the three INBU courses, the **certificate program** requires the completion of the following requirements:

- six credits of additional international course work, such as international business electives not on the required list above, or courses in economics, geography or political science. Courses must be selected from an approved list maintained by the Leeds Undergraduate Advising Office.
- fourth level of a foreign language.
- a significant international experience, which may be satisfied in a number of ways including participation in a study abroad program, an international academic internship, service work in an international location or an internship with an organization focused on global business and economics. Students should check with the Leeds Undergraduate Advising Office to verify that their global experience will qualify to meet this requirement.
- Students must apply online to receive the Global Business Certificate.

## Operations and Information Management (OPIM)

### OPIM Certificate

Advances in business knowledge and technology have radically changed business systems and processes—for example, how organizations buy and sell goods and services, integrate their supply chain and logistic systems and reach or retain customers. As a result, critical to today's businesses is the ability to get the right information to the right people at the right time, so that both strategic and operational decisions are made properly and quickly. To help students develop this ability, the Leeds School of Business offers the OPIM Certificate.

Students who are not in the OM or IM track in the Management and Entrepreneurship Division

can take any three courses listed in the course description section below. *Students majoring in the OM track can take any three IM track courses, while students majoring in the IM track can take any three OM track courses.* To complete the OPIM certificate requirements, all students must also complete a faculty-supervised OPIM research project (MGMT 4900 Independent Study) or faculty-supervised OPIM internship (MGMT 4910 Academic Internship in Management).

In addition, students are required to maintain an overall GPA of 3.00 or higher for the selected courses and receive a letter grade of B- or higher in each of the three courses. Successful completion of the certificate program will appear on the student's transcript.

The following illustrates some of the courses that students not majoring in IM or OM might want to take:

### **Accounting Students**

- MGMT 4140 Project Management
- MGMT 4210 Systems Thinking
- ACCT 4220 Business Technologies

### **Finance Students**

- MGMT 3200 Business Intelligence
- MGMT 3210 Business Application Programming
- MGMT 4210 Systems Thinking

### **Management (HR Track) Students**

- MGMT 3200 Business Intelligence
- MGMT 4120 Managing Business Processes
- MGMT 4210 Systems Thinking

### **Marketing Students**

- MGMT 3200 Business Intelligence
- MGMT 4110 Supply Chain Management
- MGMT 4210 Systems Thinking

## **Quantitative Finance**

### **Certificate in Quantitative Finance**

The Quantitative Finance Track is one of two tracks that make up the Actuarial Studies and Quantitative Finance Certificate Program and is cosponsored by the Leeds School of Business and the College of Arts and Sciences. The program is interdisciplinary and rigorous. The goal of the program is to augment the financial education provided by the Leeds School with a more extensive mathematical base.

The analytical demands of business are increasing rapidly and constantly. This program is designed to prepare students for the increased requirements of the most attractive financial analyst positions. In addition, the program provides a solid base for success in graduate studies.

Program requirements are extensive and challenging. Students must meet two separate GPA

requirements. First, the overall GPA for all courses applied to certificate requirements must be at least 3.00. In addition, students must meet a requirement specifically for mathematics and statistics courses applied to certificate requirements. This requirement can be met one of two ways, either by achieving a GPA of 2.87 or greater in calculus courses or a GPA of 3.00 or greater in the six mathematics and statistics courses required for the certificate. Most students will begin study during the freshman year and continue throughout their undergraduate career. A brief summary of course requirements is presented below. For a complete list of requirements and further information regarding the quantitative finance track and the related actuarial studies track, see the Actuarial Studies Program website. The certificate program is also described in the College of Arts and Sciences section. Interested students should contact Daniel Brown, Daniel.Brown@colorado.edu, Leeds School of Business.

#### ***Area of Study and Semester Credit Hours\****

- Finance and Accounting—25
- Mathematics and Statistics—23
- Economics—14
- Computer Programming—3

*\* Number of credit hours may vary according to the specific courses completed.*

## Real Estate

The real estate area of application is designed to provide students with exposure to the concepts, tools and techniques necessary for entry-level positions. A career in real estate provides an opportunity for individuals to operate as entrepreneurs whether they are brokers, appraisers, developers, property managers, consultants or investors. An integrated process is followed in the three application area courses to prepare students for real estate careers.

#### ***Required Courses and Semester Credit Hours***

- REAL 3000 Principles of Real Estate Practice—3
- REAL 4000 Real Estate Law—3
- REAL 4100 Real Estate Finance and Investment Analysis—3

The real estate **certificate program** allows students to broaden their knowledge and understanding of real estate through a multidisciplinary focus, whereby courses are taken outside of the Leeds School of Business. For this program, students must complete the courses listed above (REAL 3000, 4000 and 4100), 6 credits of nonbusiness electives listed below and an academic internship. See the Real Estate center for a list of the approved electives and internships.

#### ***Required Courses and Semester Credit Hours***

- area of application courses listed above—9
- courses in Program in Environmental Design OR from the construction management area in the Department of Civil, Environmental and Architectural Engineering of the College of Engineering and Applied Science—6
- academic internship in real estate practice or related area—3

## Concurrent Bachelor's/Master's Program

### BS in Telecommunications/MS in Business

The Leeds School of Business also offers a unique program that allows undergraduates the opportunity to earn a bachelor's and master's degree simultaneously. The joint program graduates students with a bachelor's degree from the Leeds School of Business and a master's degree from the College of Engineering in telecommunications. For more information, see [engineeringanywhere.colorado.edu/itp/](http://engineeringanywhere.colorado.edu/itp/).

## Graduate Degree Program(s)

### Graduate Study in Business

The Leeds School of Business offers programs leading to the master of business administration (MBA), master of science (MS) emphasis in accounting and doctor of philosophy in business administration (PhD) degrees. The Leeds School also offers a part-time MBA program called the Evening MBA that leads to the same degree as the full-time MBA program. Dual degree options available in the MBA program include juris doctor/master of business administration (JD/MBA), master of business administration/master of arts (MBA/MA) in fine arts, master of business administration/master of arts (MBA/MA) in anthropology, master of business administration/master of arts (MBA/MA) in Germanic and Slavic Languages, master of business administration/master of arts (MBA/MA) in theatre and dance, master of business administration/master of science (MBA/MS) in environmental studies, master of business administration/master of science (MBA/MS) in computer science, master of business administration/master of science (MBA/MS TLEN) in telecommunications. The Leeds School of Business, in conjunction with the Peace Corps, also offers a Master's International (MBA-MI). Dual degree options are not available in the Evening MBA program.

These programs are open to qualified individuals who hold a bachelor's degree from a regionally accredited college or university, or a recognized international university, without regard to their undergraduate major. The Leeds School of Business also offers a concurrent BS/MS program in accounting that awards the bachelor's and master's degrees simultaneously.

### Master of Science in Business Administration (MSBA)

There are two paths to the master of science in business administration (MSMA) degree with an emphasis in financial accounting or taxation. The first is the concurrent bachelor's and master's degree program. In this program, both the bachelor's and master's degrees are awarded simultaneously upon the completion of 150 specified hours of course credit. An academic internship is a highly recommended option within this requirement. The program is designed for students pursuing the 150-hour educational background requirement for CPAs and is a carefully integrated and challenging program of study. Upon completion of 90 credit hours, including specific prerequisites, undergraduate students in the Leeds School of Business may apply to the program and, if admitted, begin taking graduate courses and an internship during their senior year. This program provides an excellent foundation for careers in professional accounting.

The second path is an independent stand alone master's degree program. Students with undergraduate degrees other than accounting or business may also be admitted to the program, but may have to take additional coursework to fulfill deficiency requirements in addition to the regular program requirements.

Students in both programs choose an area of study that focuses on financial accounting or taxation.

**Minimum Requirements.** Accounting and taxation students must complete a minimum of 30 semester hours of graduate-level work. The newly-accepted student should consult with the faculty advisor for the program to develop an individualized degree plan. No thesis is required.

Students in the Master of Science in Business Administration programs are governed by the

rules of the [Graduate School](#).

## Emphasis in Financial Accounting/Audit

The master of science in business administration that emphasizes financial accounting/audit provides students with opportunities to take a broad cross-section of accounting and accounting-related classes. Most graduates pursue professional careers as certified public accountants (CPAs) specializing in assurance services (auditing) or advisory services (consulting). In addition to auditing courses, students take courses such as international accounting, advanced financial accounting, financial statement analysis, oil and gas accounting, income tax reporting and integrated (non-financial) reporting. Students with a financial accounting/audit emphasis will:

- Develop expanded skills regarding complex financial reporting topics, including alternative reporting regimes (i.e., U.S. and international reporting);
- Develop ability to prepare, interpret, analyze and audit financial statements from a broad set of reporting entities, both domestic and international; and
- Have access to, and interaction with, professionals engaged in the financial reporting process and audit profession.

## Emphasis in Taxation

The master of science in business administration that emphasizes taxation integrates accounting and law school courses. Some of the tax and law courses are strictly tax-related while others include related legal aspects of a particular subject area. The combination of courses is designed to give exposure to taxation from both accounting as well as law perspectives.

The purpose of this program is to prepare students for professional careers as CPAs specialized in taxation. Therefore, the student will:

- develop a refined ability to recognize tax problems and understand tax issues in a broad economic framework;
- research and present well-developed strategies or solutions to tax problems; and
- develop creative tax planning opportunities in a variety of contexts.

## Master of Business Administration (MBA)

The breadth of training that master of business administration graduates receive prepares them to become high-level managers and lead in a challenging and evolving business environment.

The MBA program is rigorous and comprehensive, and demands student commitment. The curriculum develops a set of broad-based, integrative skills. Core courses provide a solid foundation in both business management and analytical disciplines, a foundation that fosters continued career growth. In addition to core courses stressing key functional areas of business, students can choose electives specific to a chosen area of concentration.

The case study method and student projects are used broadly throughout all courses, and common areas of study such as ethics, technology, communications and international issues are integrated throughout much of the curriculum. Students learn about management theory and its practical applications in “real-world” situations. Lectures, seminars, team teaching, team projects and guest lectures are various approaches taken by the faculty to generate new ideas and encourage student input.

## Requirements for Admission to MBA Programs

For all MBA programs, the admissions committee reviews each applicant's complete application, with consideration given to the following:

- an applicant's academic record
- an applicant's score on the Graduate Management Admission Test (GMAT) or the Graduate Record Exam (GRE). The GMAT or GRE must be retaken if the test date was more than five years ago.
- international students must provide a test showing proof of English language proficiency
- an applicant's work experience
- written essays
- personal interviews
- letters of recommendation

In addition, a nonrefundable application fee is required of all applicants. This fee is waived for active duty military. See the specific MBA application for more information. The online application is on the MBA program website at [leeds.colorado.edu](https://leeds.colorado.edu).

The mailing address for additional materials is Leeds School of Business, University of Colorado Boulder, 419 UCB, Boulder, CO 80309-0419, or call 303-492-8397.

## Diversity

The Leeds School of Business encourages qualified individuals to apply regardless of gender, race, religion, national origin, age, physical limitation or sexual orientation.

## MBA Policies and Requirements

For current, detailed information regarding the MBA program, contact the Leeds School of Business.

**Advising.** During the first semester of study, to ascertain degree requirements, MBA students should check in with the student services manager for the MBA program.

**Minimum Hours Required.** Students entering the MBA program take a prescribed sequence of classes before beginning elective courses. A minimum of 55 credit hours is needed to graduate. Students entering the MBA program are expected to complete the degree in two years. Transferred course work is not accepted into the MBA program.

**Core Course Waiver.** Students may not waive core courses.

**Courses Taken Outside the Leeds School of Business (limits).** MBA students may enroll in up to 12 hours of elective course work outside the Leeds School of Business with approval from the MBA Programs office, provided the remaining 18 hours of electives are taken within the MBA program. Course work taken outside the Leeds School of Business must be at the graduate program level. Students may not take courses outside the University of Colorado Boulder and count them toward the degree. Students should contact individual departments for course listings and registration requirements for nonbusiness courses.

**Grades and Quality of Work.** All courses applied toward the 55 credit hours must be taken for a grade. Courses in which a C- or below is received are not accepted for credit toward the 55 credit hours and may have to be retaken. In this case, both grades are factored into the GPA. To withdraw from an elective course and receive a grade of W, a student must be earning a passing grade in that course. Students normally are not permitted to withdraw from courses after the sixth week of the semester. Students in the MBA program may not withdraw from specified, lock-step course work. An I is an incomplete grade. Use of the I is at the discretion of

the course instructor and/or the dean. Students must ask for an incomplete grade. An I is given only when students, for reasons beyond their control, have been unable to complete course requirements. A substantial amount of work must have been satisfactorily completed before approval for such a grade is given.

**Calculating GPAs.** For the purpose of calculating GPAs for MBA student rankings and probation, only course work taken within the business school is counted.

**Withdrawal.** Students who choose to leave the program must formally withdraw. Failure to do so will result in assessment of full tuition and fees. Students who withdraw must reapply to the program if they wish to continue their studies. Applicants who reapply are evaluated with current applicants to the program. Students who are granted re-admission must complete the requirements of the current program. Course work taken more than five years earlier must be validated by examination in order to count toward the degree and may be considered elective credit.

**Probation.** A student whose cumulative GPA falls between a 2.50 and 3.00 is placed on academic probation. The student is allowed to remain on probation for one semester as long as reasonable progress is made to improve the GPA. The MBA director for academic programs determines whether reasonable progress is being made and whether the student can graduate with a 3.00 in the stated time limit.

**Suspension.** A student whose cumulative GPA falls below 2.50 at any time is automatically suspended from the program. A suspended student is eligible to petition for readmission after one year.

## Master of Business Administration/Master's International (with Peace Corps Service)

The Leeds School of Business, in conjunction with the Peace Corps, offers a program resulting in a master of business administration (MBA) combined with Peace Corps service. Students spend the first year at Leeds developing a base level of core business skills, followed by two years of volunteer service with the Peace Corps. MI-MBA students will then return to Leeds to complete the remaining MBA degree requirements.

## Master of Business Analytics

The MSBA degree, Business Analytics concentration, focuses on the exciting and fast-growing field of "big data." Merging developments in marketing and customer analytics with operations research, business analytics, aspects of computer science and statistical methods, the specialization offers a technical, quantitative and statistically intensive program designed to train specialists in turning "big data" into business decisions. Analytics may be used as input for human decisions or may drive fully automated decisions about why some data pattern is observed, what will happen next and how a firm can adapt to optimize that outcome.

This nine-month program includes extensive coursework and an application of materials, preparing students for a range of job opportunities. In addition to the academic coursework, four enrichment seminars in topics ranging from teamwork and leadership to ethics and corporate social responsibility support our commitment to developing the "whole student," by incorporating professional development into the academic experience.

The experiential project pairs students with clients in industry to work on important practical problems in business analytics. Students work under the supervision of MSBA faculty and meet together weekly to discuss progress, jointly work on problems and to share experiences. This hands-on analytics project management experience prepares graduates to make an immediate meaningful contribution in the workplace.

## **Required Courses and Semester Credit Hours**

### **Summer Review**

- Admission to the program may recommend or require preparation or refresher courses in statistics, math and business.

### **August Intensive**

- Survey of Business Analytics—3

### **Fall**

- Advanced Statistics Analysis—3
- Data Analytics—3
- Market Intelligence—3
- Advanced Data Systems—3
- Analytics Lab—3

### **Spring**

- Supervised Analytics Project—6
- Elective—3
- Elective—3
- Elective—3

Electives offer variety within the specialization:

- Project Management
- Digital Marketing
- Decision Analysis
- Process Analytics
- Customer Analytics
- Supply Chain and Operations Analytics

**Supervised Business Analytics Project.** Based on an "action learning" model, the course is designed to provide hands-on analytics project management experience, amplified by shared experiences with other students. Exposes students to the multiple facets of business analytics at an executive level and integrates program coursework with this experience. While gaining first-hand experience, students are also adding value to the company by completing a project that draws on the skills gained through course work and educational experiences.

For additional information, please visit our website at [www.colorado.edu/leedsms](http://www.colorado.edu/leedsms) or email us at [leedsms@colorado.edu](mailto:leedsms@colorado.edu).

## **Master of Finance**

The twelve-month MSBA, Finance specialization, provides extensive coursework and an in-depth application of materials, preparing you for a range of job opportunities. In addition to the coursework, enrichment seminars in topics ranging from teamwork and leadership to ethics and corporate social responsibility support the "whole student" experience, by incorporating

professional development into the academic experience.

The focused Finance curriculum offers students without a background in finance a firm grounding in general finance, and helps to develop the specific skills necessary to pursue careers in a variety of financial fields. The investment management track provides the skills necessary to pursue a career with an investment management firm and prepares you to take the CFA Level I exam. The corporate finance/consulting track prepare you for a career in management consulting, investment banking, private equity and venture capital.

***Required Courses and Semester Credit Hours***

## Investment Management Track

### Summer

- Quantitative Methods—3
- Managerial Economics—3
- Financial Accounting—3
- Corporate Finance—3

### Fall

- Investment Management and Analysis—3
- Derivative Securities—3
- Markets, Institutions and Regulations—3
- Fixed Income Investment—3

### Spring

- Financial Statement Analysis—3
- Security Analysis and Valuation—3
- Advanced Portfolio Management, choice of Applied Financial Management or International Financial Management—3

## Corporate Finance/Consulting Track

### Summer

- Quantitative Methods—3
- Managerial Economics—3
- Financial Accounting—3
- Corporate Finance—3

### Fall

- Investment Management and Analysis—3
- Derivative Securities—3
- Markets, Institutions and Regulations—3
- Fixed Income Investment—3

### Spring

- Financial Statement Analysis—3
- Security Analysis and Valuation—3
- Financial Strategy and Decision Modeling—3
- Applied Financial Management—3

For additional information, please visit our website at [www.colorado.edu/leedsms](http://www.colorado.edu/leedsms) or email us at [leedsms@colorado.edu](mailto:leedsms@colorado.edu).

## Master of Real Estate

The Master of Science in Real Estate provides an in-depth education for students interested in a career in the real estate industry. The twelve-month program offers extensive coursework and an application of materials, preparing students for a range of job opportunities. The program incorporates experiential learning and a multitude of opportunities for students to interact with industry leaders in classes and in events sponsored by the CU Real Estate Center.

The MS Real Estate degree curriculum includes a rigorous background in quantitative financial analysis and management, and specifically prepares you for careers in the financial, management and operations aspects of real estate. The program develops business skills so you can add value for your employers quickly. The *Development Management track* prepares you to become a real estate development project manager. The *Asset Management track* prepares you for a variety of careers in real property asset and portfolio management.

## Development Management Track

### *Required Courses and Semester Credit Hours*

#### **Summer**

- Quantitative Methods—3
- Financial Accounting—3
- Managerial Economics—3
- Corporate Finance—3

#### **Fall**

- Real Estate Finance and Investments—3
- Real Estate Economics—3
- Real Estate Law and Practice—3
- Construction Engineering & MGT Fundamentals—3

#### **Spring**

- Design Development—3
- Legal Aspects of Construction—3
- Sustainable Real Estate—3
- Real Estate Project Completion—3

## Asset Management Track

### *Required Courses and Semester Credit Hours*

## Summer

- Quantitative Methods—3
- Financial Accounting—3
- Managerial Economics—3
- Corporate Finance—3

## Fall

- Real Estate Finance and Investments—3
- Real Estate Economics—3
- Real Estate Law and Practice—3
- Investment Management & Analysis—3

## Spring

- Property/Asset/Portfolio Risk Management—3
- Sustainable Real Estate—3
- Financial Statement Analysis—3
- Real Estate Project Completion—3

Applicants for the MS in Real Estate must have a minimum of two year's relevant work experience.

For additional information, please visit our website at [www.colorado.edu/leedsms](http://www.colorado.edu/leedsms) or email us at [leedsms@colorado.edu](mailto:leedsms@colorado.edu).

## Master of Supply Chain Management

The MS Supply Chain Management program provides an in-depth education in the specific area of Supply Chain Management. This nine-month program includes extensive coursework and an application of materials, preparing students for a range of job opportunities. In addition to the academic coursework, four enrichment seminars in topics ranging from teamwork and leadership to ethics and corporate social responsibility support our commitment to developing the "whole student," by incorporating professional development into the academic experience.

The MS Supply Chain curriculum includes the theory, tools and applied knowledge from quantitative, qualitative and managerial perspectives. Graduates will be prepared for responsible and influential jobs in a variety of organizations, including large manufacturing, retail and distribution organizations; transportation companies; supply chain software companies; and supply chain consulting firms.

A core required curriculum provides the common grounding within the discipline, while elective options and projects in a company setting develop individualization and specialization.

### *Required Courses and Semester Credit Hours*

## Summer Review

- Admission to the program may recommend or require preparation or refresher courses in statistics, math and business.

## August Intensive

- Supply Chain Strategy—3

## Fall

- Transportation and Logistics—3
- Procurement and Contracting—3
- Advanced Data Systems—3
- Data Analytics—3
- Elective—3

## Spring

- Supervised Supply Chain Project—6
- Supply Chain and Operations Analytics—3
- Elective—3
- Elective—3

Electives offer variety within the specialization:

- Project Management
- Decision Analysis
- Customer Analytics
- Process Analytics
- IT and Business Strategy
- Negotiations

**Supervised Supply Chain Project.** Based on an “action learning” model, the course is designed to provide hands-on supply chain project management experience, amplified by shared experiences with other students. Exposes students to the multiple facets of supply chain management at an executive level and integrates program coursework with this experience. While gaining first-hand experience, students are also adding value to the company by completing a project that draws on the skills gained through course work and educational experiences.

For additional information, please visit our website at [www.colorado.edu/leedsms](http://www.colorado.edu/leedsms) or email us at [leedsms@colorado.edu](mailto:leedsms@colorado.edu).

## Doctor of Philosophy in Business Administration (PhD)

A PhD degree recognizes scholarly achievement and is the highest academic honor that CU-Boulder bestows. The PhD in business administration prepares scholars to be preeminent in their field of expertise. The program focuses on developing the necessary skills for the design and execution of original, innovative research and for the dissemination of knowledge through teaching and writing.

**Requirements for Admission.** To preserve the individualized character of the PhD program and its quality, the number of students is limited and the application process is very competitive. Students are admitted for study in a specific area for doctoral work. The Leeds School of Business currently offers the following areas of study: accounting; finance; marketing; information management; operations management; and strategic, organizational and

entrepreneurial studies.

For more information on the application requirements and process, write Leeds School of Business, PhD Program, University of Colorado Boulder, 419 UCB, Boulder, CO 80309-0419; call **303-492-4984**; or visit [leeds.colorado.edu/phd](https://leeds.colorado.edu/phd).

**Background, Prerequisites and Deficiencies.** Each student must have a background in mathematics at or beyond calculus. Based on experience, background and at the discretion of the academic advisor and/or division chair and/or the doctoral program director, additional prerequisites may be required of the PhD student.

**Requirements for the Degree.** Most curriculum and program requirements are decided by the division. Consult the PhD program advisor of the appropriate division for information regarding course selection, graduate teaching program certification, research internships and other division requirements. Students must complete all Graduate School, Leeds School of Business and division requirements to be conferred the PhD in business administration.

The newly accepted PhD student should consult with the division chair and/or academic advisor to develop an individualized degree plan. Students are required to become proficient in their primary area of study. In addition, all students are required to complete course work in a field outside their division. These "second fields" are governed by the departments offering the course work but typically require 6 to 12 credit hours. The second field may also require an additional preliminary or comprehensive exam.

**Course Work.** All doctoral students are required to complete at least 30 hours of course work and 30 hours of dissertation credit at CU-Boulder. Additional course work may be required as determined by the academic advisor. To comply with this 30-hour requirement, a course must have been taught by a member of the university's graduate faculty, must be at the 5000 level or above, and the student must achieve a grade of B- or better.

Courses must be approved by the student's academic advisor before registration. Most students are required to complete 7000- and 8000-level doctoral seminars.

For full-time status, the Leeds School of Business requires successful completion of 5 credit hours of course work each semester. During and after comprehensive exams, full-time status requires completion of a minimum of 5 dissertation hours each semester.

**Transfer of Credit.** A maximum of 9 semester hours of courses taken at other schools (this includes other University of Colorado campuses) or taken as a special student at the university may be transferred into the doctoral program. Course work must be recent and of doctoral-level quality. A doctoral student must establish a satisfactory record of residence in the doctoral program before the course work is eligible for transfer. The transfer of credit must be approved by the division, the doctoral program director and the Graduate School. There is no guarantee any course work will be accepted for transfer.

**Residency.** The Leeds School of Business adheres to the Graduate School rules regarding residency. All students in the doctoral program are expected to be full-time students on the Boulder campus (at least during residency and prior to completing the comprehensive examinations). Doctoral students are expected to be available to participate in colloquia and other informal academic discussions. Full-time employment outside the university is prohibited during the residency period. Any off-campus status must be approved by the division and the doctoral program director.

**Time Limit.** Doctoral students have six years from the commencement of course work to complete all requirements of the degree, but most students complete their program within five years.

**Comprehensive Examination.** Before admission to candidacy, a doctoral student must pass a comprehensive examination in the field of concentration. The examination may be oral, written or both, and will test the student's mastery of a broad field of knowledge, not merely the formal course work completed. Each division will determine the required content, length and standards of evaluation for the exam. Check with the division as to the specific requirements for the comprehensive exam.

**Admission to Candidacy.** Students are admitted to candidacy according to Graduate School procedures and requirements. Students shall complete all course work and any other requirements listed on their degree plans, earn at least four semesters of residence and successfully pass the comprehensive exams before admission to candidacy is approved by the Graduate School. In addition, requirements related to academic quality of work, graduate-level course work, the minimum number of course hours, and graduate faculty membership must be met before admission to candidacy is approved.

**Dissertation.** A dissertation based upon original investigation showing mature scholarship and critical judgment, as well as competence with research tools and methods, must be written on a subject approved by the candidate's dissertation committee. To be acceptable, the dissertation must be a significant contribution to knowledge in the candidate's primary field.

**Final Examination (Defense).** Upon recommendation of the candidate's doctoral dissertation committee, a final oral examination shall be given. This examination covers both the dissertation and the primary field of study. The oral examination is open to the public.

**Filing the Dissertation.** The dissertation must comply in mechanical features with the University of Colorado Graduate School Thesis and Dissertation Specifications. The dissertation must be filed with the Graduate School by the posted deadline for the semester in which the degree is to be conferred.

## Dual Degree Programs

### Juris Doctor/MBA

The purpose of this dual-degree program is to allow students admitted to both the School of Law and the Leeds School of Business to obtain the juris doctor (JD) and the master of business administration (MBA) degrees in four (or fewer) years of full-time study. The program is designed to train students for careers in which business administration and law overlap.

**Admission.** To be eligible for the JD/MBA dual-degree program of the School of Law and the Leeds School of Business, a student must apply separately to and be admitted by each of the two schools under their respective admission procedures and standards.

Students may elect the dual-degree program at the time of initial application to both schools, or they may apply for the dual-degree program during their first year of study in the degree program of either school.

**Course of Study.** A student enrolled in the JD/MBA program may commence studies under the program in either the School of Law or the Leeds School of Business. Dual-degree students are strongly encouraged to begin their course of study at the School of Law. However, a student must take the first year of the JD curriculum as a unit exclusively in the School of Law. Likewise, a student must take the first year of the MBA curriculum as a unit exclusively in the Leeds School of Business. Students can then take additional courses necessary to meet the requirements of the degree programs of the two schools.

No student in the dual-degree program shall be allowed to take fewer than 9 semester hours or more than 16 semester hours during any term (excluding summer terms) without receiving the consent of the program advisor in each school in which courses are being taken.

**Credit for Law Courses in the JD/MBA Program.** The Leeds School of Business grants credit toward the MBA degree for up to 12 semester hours of acceptable performance in law courses taken by a JD/MBA student at the School of Law. Core courses required in the law school program cannot be counted toward the 12 hours. A student must earn at least a 77 grade in a law school course to be accepted for Leeds School of Business credit. For credit to be granted, the law school courses must be approved before enrollment by an MBA advisor. Only courses taken after admission into the MBA program are credited toward the degree.

**Grading in the Dual-Degree Program.** Leeds School of Business credit for courses completed in the School of Law as part of the joint degree program is recorded on a *pass/fail* basis and is not included in the required MBA 3.00 cumulative average.

## MBA/MFA

The Leeds School of Business, in conjunction with the Department of Art and Art History, offers students the ability to earn an MBA and an MA in fine arts through a three-year dual-degree program. Students in the MBA/MA dual-degree program pursue careers in digital marketing, web design, e-commerce, gallery/museum administration and private art consulting.

**Admission.** Applicants must apply to both programs and must meet the application requirements for each program separately. Students may apply simultaneously to both programs or may apply to the second program after starting the first master's program, provided they do so during the first year of study.

**Course of Study.** Students in the MBA/MA in fine arts spend the first year of their dual-degree program exclusively in either the business school or the fine arts program. In the second year, courses are taken exclusively in the other department. The third year offers students the opportunity to take both MBA and fine arts elective courses.

**Credit for Fine Arts Courses in the MBA/MA Fine Arts Program.** Dual-degree students in studio arts are required to complete 43 hours of MBA course work and 45 hours of fine arts course work. Dual-degree students in art history are required to complete 43 hours of MBA course work and 30 hours of fine arts course work.

## MBA/MA in Anthropology

The MBA/MA in anthropology dual-degree program enables students to earn an MBA and an MA in anthropology simultaneously over three or four years depending on the student's subdiscipline in anthropology. Students in this MBA/MA program pursue careers in managing the business aspects of archaeological projects, working in the growing field of corporate cultural anthropology and ethnography or museum management.

**Admission.** Applicants must apply to both programs and must meet the application requirements for each program separately. Students may apply simultaneously to both programs or may apply to the second program after starting the first master's program, provided they do so during the first year of study.

**Course of Study.** Students in the MBA/MA in anthropology spend the first year of their dual-degree program exclusively in either the business school or the department of anthropology. In the second year, courses are taken exclusively in the other department. The remaining year(s) offers students the opportunity to take both MBA and anthropology elective courses.

## MBA/MA in German Studies

The MBA/MA in German studies dual-degree program enables students to earn an MBA and an MA in German studies simultaneously over three or four years. Students in this MBA/MA

program pursue careers in international business.

**Admission.** Applicants must apply to both programs and must meet the application requirements for each program separately. Students may apply simultaneously to both programs or may apply to the second program after starting the first master's program, provided they do so during the first year of study.

**Course of Study.** Students in the MBA/MA in German studies spend the first year of their dual-degree program exclusively in either the Leeds School of Business or the Department of Germanic and Slavic Languages and Literatures. In the second year, courses are taken exclusively in the other department. The remaining year(s) offers students the opportunity to take both MBA and German studies elective courses.

## MBA/MA in Theater and Dance

The Leeds School of Business, in conjunction with the Department of Theatre and Dance, offers students the ability to earn an MBA and an MA in theatre or dance through a three-year dual-degree program. Students in the MBA/MA dual-degree program pursue careers in a wide variety of fields and jobs in the world of the performing arts. Types of organizations include theatre companies, dance companies, opera companies, symphonies, arts councils, performing arts complexes, civic auditoriums and arts presenters.

**Admission.** Applicants must apply to both programs and must meet the application requirements for each program separately. Students may apply simultaneously to both programs or may apply to the second program after starting the first master's program, provided they do so during the first year of study.

**Course of Study.** Students in the MBA/MA in theatre and dance spend the first year of their dual-degree program exclusively in either the business school or the theatre/dance program. In the second year, courses are taken exclusively in the other department. The third year offers students the opportunity to take both MBA and theatre/dance elective courses.

**Credit for Courses.** Dual degree students are required to complete 43 hours of MBA course work and 24 hours of theatre/dance course work. A minimum of 67 approved credits must be completed to earn both degrees.

## MBA/MS in Computer Science

The MBA/MS in computer science enables students to earn an MBA and an MS in computer science over three or four years. Students in this MBA/MS program have career interests that combine corporate business and technology.

**Admission.** Applicants must apply to both programs and must meet the application requirements for each program separately. Students may apply simultaneously to both programs or may apply to the second program after starting the first master's program, provided they do so during the first year of study.

**Course of Study.** Students in the MBA/MS in computer science spend the first year of the dual-degree program exclusively in either the business school or the computer science department. In the second year, courses are taken exclusively in the other department. The remaining year(s) students may take both MBA and computer science electives.

## MBA/MS in Environmental Studies

The MBA/MS in environmental studies enables students to earn an MBA and an MS in environmental studies over three or four years. Students in the MBA/MA program have career interests that combine corporate business and environmental protection, the management of

renewal energy, water conservation or environmental programs.

**Admission.** Applicants must apply to both programs and must meet the application requirements for each program separately. Students may apply simultaneously to both programs or may apply to the second program after starting the first master's program, provided they do so during the first year of study.

**Course of Study.** Students in the MBA/MS in environmental studies spend the first year of the dual-degree program exclusively in either the business school or the environmental studies department. In the second year, courses are taken exclusively in the other department. The remaining year(s) students may take both MBA and environmental studies electives.

## MBA/MS in Telecommunications

The Leeds School of Business, in conjunction with the College of Engineering and Applied Science, offers a dual-degree program resulting in a master of business administration (MBA) and master of science in telecommunications (MS/TLEN). The dual-degree program combines broad-based business management study with an in-depth understanding of telecommunications technology. This program prepares students to be competent, effective managers in the telecommunications industry.

**Admission.** An individual must apply separately and be admitted to both programs under each school's or college's admission procedures and standards. Applicants are encouraged to apply to the programs concurrently.

**Course of Study.** Students in the MBA/MS in telecommunications spend the first year of the dual-degree program exclusively in either the business school or the telecommunications program. In the second year, courses are taken exclusively in the other department. In the third year students will take both MBA and telecommunications elective courses to complete both master's degrees.

**Credit for Courses.** Dual degree students are required to complete 43 hours of MBA course work and 36 hours of telecommunications course work. A minimum of 79 approved credits must be completed to earn both degrees.

## Certificate Program(s)

### Certificate in Entrepreneurship (for Leeds students)

The entrepreneurial way of thinking is valuable in whatever you do in your career and life. From creative problem solving to building a successful team to capitalizing on opportunities, you'll learn a tool set that will help you throughout your career. And you'll be a part of a supportive and dynamic community working together in learning how to create value in the world. The Entrepreneurship Certificate for Leeds Students consists of a few key components:

1. **Courses.** Three entrepreneurship courses, including Entrepreneurial Finance, Feasibility Analysis and Venture Planning.
2. **Events.** Attend a few entrepreneurial events to meet leading business owners and gain insights.
3. **Internship.** Immerse yourself into an entrepreneurial environment and experience first-hand the excitement and energy of a fast growing business.
4. **Capstone exam.** A practical exam that allows you to apply your entrepreneurial tool kit.

For more information, please visit [www.colorado.edu/leeds/deming](http://www.colorado.edu/leeds/deming).

## Certificate in Cross-Campus Entrepreneurship (for non-Leeds students)

The entrepreneurial way of thinking is valuable in whatever you do in your career and life. From creative problem solving to building a successful team to capitalizing on opportunities, you'll learn a tool set that will help you throughout your career. And you'll be a part of a supportive and dynamic community working together in learning how to create value in the world. The Cross-Campus Entrepreneurship Certificate consists of a few key components:

1. **Courses.** This Certificate is an enhancement to the business minor. By selecting the entrepreneurship track in the minor, you'll complete the course requirements.
2. **Events.** Attend a few entrepreneurial events to meet leading business owners and gain insights.
3. **Internship.** Immerse yourself into an entrepreneurial environment and experience first-hand the excitement and energy of a fast growing business.
4. **Capstone exam.** A practical exam that allows you to apply your entrepreneurial tool kit.

For more information, visit [www.colorado.edu/leeds/deming](http://www.colorado.edu/leeds/deming).

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## Faculty: Business

| Name                 | Title   | Education  |
|----------------------|---|--|
| ANDERSON, Brian S.   | assistant professor, of management and entrepreneurship | BS, University of Colorado Denver; MS, University of Denver; PhD, Indiana University               |
| APPENZELLER, William | assistant professor of recreation emeritus              |  |
| BAAS, Roy            | senior instructor of finance                            | BS, University of New Orleans  |
| BALKIN, David B.     | professor of management and entrepreneurship            | BA, University of California, Los Angeles; MA, PhD, University of Minnesota                        |
| BALLANTINE, John Jay | senior instructor of business law                       | BS, Purdue University; MBA, Indiana University; JD, University of Colorado                         |
| BANGS, F. Kendrick   | professor of business and administration emeritus       |  |
| BEAGLE, Chauncey M.  | associate professor of accounting emeritus              |  |
| BERNTHAL, Wilmar F.  | professor of management and organization emeritus       |  |
| BHAGAT, Sanjai       | professor of finance                                    | BTech, Indian Institute of Technology; MBA, University of Rochester; PhD, University of Washington |
| BORUM, Owen          | instructor, CESR  | BS, University of Florida; JD, University of Colorado  |
| BOSS, R. Wayne       | professor of management and entrepreneurship            | BS, MPA, Brigham Young University; PhD, University of Georgia                                      |
| BROWN, Daniel        | instructor of finance                                   | BA, Cornell University; DPhil, Oxford  |

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|---------------------|--|---|
| BUCHMAN, Thomas A.  | professor emeritus                               | BS, MS, PhD, University of Illinois   |
| CACCIA, Roberto     | director, Burrige Center for Finance             | Laurea, University of Rome; MBA, Massachusetts Institute of Technology; PhD, University of Rome                                 |
| CAMPBELL, Meg       | professor of marketing                           | AB, PhD, Stanford University  |
| CATEORA, Phillip R. | professor of marketing emeritus                  |   |
| CHEN, Hui           | assistant professor of accounting                | BA, MA, Northeast Normal University, China; MBA, Stuttgart Institute of Management and Technology; PhD, University of Tennessee |
| CHEN, Zeyun (Jeff)  | assistant professor of accounting                | BBA, Fudan University; MBA, University of Louisiana; PhD, University of Houston   |
| CHRISTOFF, Lorna    | instructor, CESR                                 | BS, University of Colorado; JD, University of Denver  |
| COOKSON, J. Anthony | assistant professor of finance                   | BS, MS, Montana State University; PhD, University of Chicago  |
| CORRELL, Mark R.    | senior instructor of business economics emeritus |   |
| CROPANZANO, Russell | professor of management and entrepreneurship     | BA, Louisiana State University; MA, Southern Methodist University; PhD, Purdue University                                       |
| DARNELL, Jerome C.  | professor of finance emeritus                    |   |
| DAVIES, Shaun       | assistant professor of finance                   | BA, BS, University of Colorado Boulder; MA, PhD, University of California, Los Angeles  |
| de LANGHE, Bart     | assistant professor of marketing                 | BA, MA, Catholic University Leuven, Belgium; PhD, Erasmus University, the Netherlands   |
| DEMAREE, John D.    | associate professor of management science and    |   |

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|-------------------------|--|--|
|                         | information systems<br>emeritus  |  |
| DONCHEZ, Robert         | senior instructor of finance   | BS, Lehigh University; MBA, Fordham University   |
| DUNCAN, Calvin P.       | associate professor of<br>marketing                                    | BS, MBA, University of Colorado; PhD,<br>Indiana University                            |
| EDWARDS, Emily J.       | instructor of marketing  | BA, Loyola University; MBA, University<br>of Colorado                                  |
| ENGEL, Steven           | senior instructor of<br>marketing emeritus                             |  |
| ERTIMUR, Yonca          | associate professor of<br>accounting                                   | BS, Boğaziçi University; MBA,<br>University of Rochester; PhD, New York<br>University  |
| FERNBACH, Philip<br>M.  | assistant professor of<br>marketing                                    | BA, Williams College; PhD, Brown<br>University   |
| FOO, Maw Der            | associate professor of<br>management and<br>entrepreneurship           | BA, National University of Singapore;<br>PhD, Massachusetts Institute of<br>Technology |
| FREDERICK, David<br>M.  | associate professor of<br>accounting                                   | BS, University of Colorado; PhD,<br>University of Michigan                             |
| FUND, Bret              | assistant professor of<br>management and<br>entrepreneurship           | BA, MA, Brigham Young University;<br>PhD, Penn State University                        |
| GARNAND, John J.        | senior instructor of<br>business economics<br>emeritus                 |  |
| GLOVER, Fred W.         | professor of management<br>science and operations<br>research emeritus |  |
| GOELDNER,<br>Charles R. | professor of marketing<br>emeritus                                     |  |
| GORDON, Kenneth<br>R.   | senior instructor of<br>operations management<br>emeritus              |  |
| GROSS, David            | senior instructor of finance   | BA, New York University; MBA,<br>Fordham University; PhD, University of<br>Colorado    |
|                         |  |  |

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|----------------------|---|---|
| HE, Chuan            | associate professor of marketing                                    | BA, Memorial University of Newfoundland; MA, University of Toronto; PhD, Washington University  |
| HEKMAN, David        | assistant professor of management and entrepreneurship              | BS, Grand Valley State University; PhD, University of Washington, Seattle                       |
| IKENBERRY, David L.  | dean, Leeds School of Business; professor of finance                | BS, Penn State University; MM, Northwestern University; PhD, University of Illinois             |
| IYENGAR, Kishen      | instructor of operations and information management                 | BS, MBA, Osmania University; MS, University of Texas–Dallas; PhD, University of Texas–Arlington |
| JACKSON, Betty R.    | professor of accounting emerita                                     |   |
| JAGOLINZER, Alan     | associate professor of accounting                                   | BS, Pennsylvania State University; MBA, Syracuse University; PhD, Pennsylvania State University |
| JEDAMUS, Paul E.     | professor of management science and information systems emeritus    |   |
| JENNINGS, Tracy      | senior instructor of management and entrepreneurship                | BA, Williams College; MBA, PhD, University of Denver  |
| JENSEN, Howard G.    | associate professor of accounting emeritus                          |   |
| JOHNSON, Stefanie K. | assistant professor of management                                   | BA, Claremont McKenna College; MA, PhD, Rice University   |
| JOHNSTON, Randy      | senior instructor of accounting                                     | BS, MS, Clarkson University; MEd, St. Lawrence University                                       |
| KLINE, Bruce         | senior instructor of finance  | BA, Carleton College; MM, Northwestern University   |
| KOBERG, Christine S. | associate professor of strategy and organization management emerita |   |
| KOLB, Burton A.      | professor of finance emeritus                                       |   |
| KORNISH, Laura       | associate professor of marketing                                    | BA, Harvard University; MS, PhD, Stanford   |

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|-------------------------|--|--|
| KOZAR, Kenneth A.       | professor emeritus   | BS, MS, PhD, University of Minnesota   |
| LAGUNA, Manuel          | professor of operations management                                   | BS, Monterrey Technologie at Queretaro, Mexico; MS, PhD, University of Texas at Austin   |
| LARSEN, Kai             | associate professor of information management                        | PhD, Nelson A. Rockefeller College, University of Albany, State University of New York   |
| LAWRENCE , Stephen R.   | associate professor of operations management                         | BS, MS, Purdue University; MS, PhD, Carnegie Mellon University   |
| LAZAR, Joseph           | professor of business law emeritus                                   |  |
| LEACH, J. Chris         | professor of finance; senior associate dean for faculty              | BS, Oral Roberts University; MBA University of New Mexico; PhD, Cornell University   |
| LEE, Jintae             | associate professor of information management                        | BA, University of Chicago; MA, Harvard University; MPhil, University of Cambridge, England; PhD, Massachusetts Institute of Technology |
| LEWIS, Barry L.         | professor of accounting emeritus                                     |  |
| LEWIS, Mary Beth        | instructor of marketing  | BS, BA, West Virginia University; MBA, University of Pittsburgh  |
| LICHTENSTEIN, Donald R. | professor of marketing   | BS, University of Alabama; PhD, University of South Carolina   |
| LYMBERPOULOS, P. John   | professor of finance emeritus  |  |
| LYNCH, Jr., John G.     | Ted G. Anderson Professor of Free Enterprise; professor of marketing | BA, MA, PhD, University of Illinois  |
| MACALUSO, Gregg         | instructor of management and entrepreneurship                        | BS, Regis University, Colorado; MS, University of California, Irvine; Executive MBA, Northwestern University                           |
| MACFEE, Jr., Raymond D. | senior instructor in accounting emeritus                             |  |

|                      |   |   |
|----------------------|---|---|
| MARSHALL, Nathan     | assistant professor of accounting   | BBA, University of Michigan; MS, University of Illinois at Chicago; PhD, Indiana University         |
| MATUSIK, Sharon      | associate professor of management and entrepreneurship                                    | BA, Colby College; PhD, University of Washington  |
| McGRAW, A. Peter     | associate professor of marketing  | BA, MEd, Rutgers University; MA, PhD, Ohio State University   |
| McMAHON, Kevin       | senior instructor, CESR   | BA, University of Michigan; MBA, Indiana University   |
| MELICHER, Ronald W.  | professor emeritus  | BS, MBA, DBA, Washington University, St. Louis  |
| MEYER, G. Dale       | professor of strategy and organization management emeritus                                |   |
| MILBURN, Catherine K | senior instructor, CESR   | BA, MS, University of Colorado  |
| MONTEALEGRE, Ramiro  | director, international management program; associate professor of information management | BSI, Universidad Francisco Marroquin; MS, Carleton University; DBA, Harvard University              |
| MORLEY, Susan        | senior instructor of accounting   | BA, University of Kentucky; MS, JD, University of Colorado  |
| MORRISON, Edward J.  | professor of strategy and organization management emeritus                                |   |
| MOYEN, Natalíe       | associate professor of finance  | BSc, Université de Moncton; MA, Queen's University of Kingston; PhD, University of British Columbia |
| MOYES, Frank         | emeritus instructor   | BA, Pennsylvania State University; MBA, University of Pennsylvania                                  |
| MUELLER, Erick       | senior instructor of management and entrepreneurship                                      | BS, Eastern Michigan University; MA, University of Colorado   |
| NELSON, James E.     | associate professor of marketing emeritus   |   |
| NELSON, Thomas       | senior instructor of finance  | BA, MBA, PhD, University of Colorado  |
|                      |   |   |

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|-----------------------|---|--|
| NONDORF, Maria E.     | director, masters of accounting programs      | BBA, Mercer University; PhD, University of North Carolina at Chapel Hill   |
| OEST, Don             | instructor, CESR                              | BS, Ramapo College; MBA, Fairleigh Dickinson University  |
| PALMER, Michael       | professor of finance emeritus                 |  |
| PAPUZZA, Antonio      | instructor of management and entrepreneurship | BA, University of Palermo; PhD, University of Florence   |
| PARKIN, Don           | professor of marketing emeritus               |  |
| PAYNE, David          | instructor, CESR                              | BA, Trinity College; Ed.M. Harvard University, MBA, University of Colorado   |
| PENG, Liang           | associate professor of real estate            | BS, MS, Renmin University of China; MPhil, MA, PhD, Yale University  |
| PINHEIRO, Roberto     | assistant professor of finance                | BA, University of Sao Paulo; MA, Pontifical Catholic University of Rio de Janeiro; PhD, University of Pennsylvania |
| RICHEY, Clyde W.      | professor of real estate emeritus             |  |
| RINGGENBERG, Ralph G. | associate professor of finance emeritus       |  |
| ROCK, Steven K.       | associate professor of accounting             | BS, Shippensburg University; MBA, PhD, Pennsylvania State University   |
| ROGERS, Jonathan      | associate professor of accounting             | BA, BBA, University of Texas at Austin; PhD, University of Pennsylvania  |
| ROSSE, Joseph G.      | professor of management and entrepreneurship  | BS, Loyola University of Los Angeles; PhD, University of Illinois  |
| RUSH, David F.        | professor of finance emeritus                 |  |
| SCHATTKER, Rudolph    | professor of accounting emeritus              |  |
| SELTO, Frank          | professor of accounting emeritus              | BSME, Gonzaga University; MSME, University of Utah; MBA, PhD, University of Washington                             |

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| Name                 | Title  | Education  |
|----------------------|--|--|
| SEWARD, Lori         | senior instructor of management and entrepreneurship   | BA, MSci, PhD, Virginia Tech   |
| SINHA, Atanu R.      | associate professor of marketing                       | BSta, MStat, Indian Statistical Institute; PhD, New York University                        |
| SMITH, Al W.         | associate dean, undergraduate affairs                  | BS, MA, East Carolina University; PhD, University of North Carolina at Greensboro          |
| SORENSEN, Ralph Z.   | professor of management emeritus                       |  |
| SPINETTO, Richard D. | associate professor of operations management emeritus  |  |
| STANTON, William J.  | professor of marketing emeritus                        |  |
| STAPP, Elizabeth C.  | instructor, CESR                                       | BA, College of the Holy Cross; JD, Boston University                                       |
| STEPHENSON, Craig    | senior instructor of finance                           | BS, University of Colorado; MBA, University of Texas at Austin; PhD, University of Arizona |
| STUTZER, Michael     | professor of finance                                   | BA, PhD, University of Minnesota   |
| SUN, Yacheng         | assistant professor of marketing                       | BS, Huazhong University; MA, PhD, Indiana University                                       |
| TAYLOR, Robert H.    | professor of marketing emeritus                        |  |
| THIBODEAU, Thomas    | academic director of real estate, professor of finance | BS, University of Hartford; MA, MS, PhD, State University of New                           |

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|-----------------------|--|--|
|                       |  | York at Stony Brook  |
| TONG, Tony            | associate professor of management and entrepreneurship   | BA, Shanghai Institute of Foreign Trade; MSC, National University of Singapore; MA, PhD, Ohio State University |
| TRACY, John A.        | professor of accounting emeritus   |  |
| VAN WESEP, Edward     | associate professor of finance   | ScB, Brown University; PhD, Stanford University  |
| VOSSEN, Thomas        | associate professor of operations management   | MS, Eindhoven University; PhD, University of Maryland  |
| WADDELL, Jay          | instructor of marketing  | BS, MS, University of Wisconsin-Madison  |
| WANG, Yanwen          | assistant professor of marketing   | BBA, Fudan University; MPh, University of New South Wales; PhD, Emory University                               |
| WILLIAMS, Lawrence    | assistant professor of marketing   | AB, Harvard University; MPh, PhD, Yale University  |
| WILLIS, Michael Jared | senior instructor of accounting  | BS, MBA, Brigham Young University; PhD, University of Pennsylvania   |
| WINN, Daryl           | associate professor of business economics emeritus   |  |
| WOBBEKIND, Richard    | associate dean for external relations; director of the business research division; associate professor of business economics | BA, Bucknell University; MA, PhD, University of Colorado   |
| YAO, Xin (Eva)        | assistant professor of management and entrepreneurship   | BA, Renmin University of China; PhD, University of Washington  |
| YORK, Jeffrey         | assistant professor of management and entrepreneurship   | BA, University of Georgia; MBA University of Tennessee; PhD, University of Virginia                            |
| ZECHMAN, Sarah        | associate professor of accounting  | BS, Washington University; PhD, University of Pennsylvania   |
| ZENDER, William H.    | finance division chair; William H.   | BA, University of Colorado; MA,  |

|            |  |  |
|------------|--|--|
| Jaime      | Baugh Professor of Finance                   | MPhil, PhD, Yale University                            |
| ZHANG, Dan | assistant professor of operations management | BE, Chongqing University; PhD, University of Minnesota |

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## School of Education



**Lorrie A. Shepard, dean**

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School website: [www.colorado.edu/education](http://www.colorado.edu/education)

The School of Education offers programs that prepare individuals to lead in a wide array of educational settings, including teaching in K-12 classrooms, conducting educational research, developing evidence-informed policy and designing innovative learning environments both in schools and in community-based settings.

The school provides teacher licensure programs that ensure rigorous content preparation and extensive clinical experience in local partner schools. Teacher licensure programs are available at the undergraduate, post-baccalaureate and master's level. The School of Education collaborates with the College of Arts & Sciences to design degree programs for undergraduates that combine a major in Arts & Sciences with courses and field experiences in education that lead to a Colorado initial license. The school offers a range of experiences and courses for undergraduates interested in educational issues, serving in the Peace Corps and/or working in community-based settings. Through the center CU Engage, the school offers undergraduates opportunities to participate in community-based research and programs. In addition, the school offers two undergraduate minors, one in education and one in leadership.

Graduate programs in the school serve practicing teachers as well as those seeking to improve education through rigorous research and evidence-informed policy and practice. The school's doctoral program is a cohort-based, full-time program that prepares individuals to lead in universities, research or policy institutes, state or government agencies and innovative non-profit organizations.

### Mission

The School of Education is dedicated to inspiring and preparing educators, researchers and policy makers who understand and further the democratic foundations of education, who are

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committed to social justice, who seek to bring about greater equity and access in education and who will draw upon evidence-informed policy and practice to improve the quality of education in both Colorado and the world.

## Accreditation

The licensure programs, both undergraduate and graduate, are fully accredited by the North Central Association of Colleges and Schools, the Council for Accreditation of Educator Preparation, the Colorado Department of Education and the Colorado Commission on Higher Education.

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## Academic Excellence

### Scholarships and Awards

A limited number of scholarships and awards are available for second- and third-year students within the School of Education to support study at the master's and undergraduate levels. Each year a combination of teaching assistantships (TAs), research assistantships (RAs), other forms of graduate assistantships (GAs) and fellowships are available in the School of Education to support full-time doctoral study. The strongest doctoral applicants are nominated by the school for fellowships awarded by the Graduate School. Candidates apply in the spring semester for scholarships and awards for the following school year. Application procedures and deadlines are publicized on the School of Education website.

Students are eligible to apply for university-wide financial assistance through the Office of Financial Aid. State and federal programs are available for loan cancellation or forgiveness for Colorado teachers of certain subjects or who teach in designated schools serving students from low-income families. Information about these opportunities may be found at [www.colorado.edu/education](http://www.colorado.edu/education).

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## Academic Standards

Upon enrollment in the Teacher Education Program, a student who fails to maintain a 2.75 GPA (3.00 for graduate students) will be placed on probation or may be suspended. Readmission is subject to program requirements in effect at the time of reapplication. The same conditions apply to students in other colleges and schools who have been admitted to the teacher education program.

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## Programs of Special Interest

### CU Engage

The mission of *CU Engage* is to leverage the resources of the Boulder campus to work collaboratively with community groups to address complex public challenges. The Center, housed in the School of Education, develops and sustains equity-oriented partnerships, organizes opportunities for students to learn alongside community members and supports participatory research methods focused on the public good.

CU Engage provides support for two focal activities: 1) community-based learning pathways and 2) community-based research. These activities are linked through the formation of community partnerships that support both learning and research. Community-based learning pathways—including INVST Community Studies, Public Achievement, CU Dialogues and the Leadership Studies Minor—prioritize experience (learning by doing), reciprocity (work *with* rather than *for* communities) and intellectual rigor rooted in academic disciplines. Community-based research refers to projects that bring people together with varied training and expertise, working collectively in mutually beneficial ways, on research studies that matter to the public.

### Equity & Diversity Initiatives

As an important part of its mission, the CU-Boulder School of Education has a strong commitment to democracy, diversity and social justice. Given that education is a cornerstone of individuals' life chances and opportunities as well as an informed and engaged public, the unwavering evidence of inequality in American education demands the sustained and dedicated attention of researchers, educators and policymakers.

### Educational Diversity Scholars Program

The Education Diversity Scholars (EDS) program works with the University of Colorado's LEAD Alliance Neighborhood to provide students of color and first-generation college students with social and academic support, as well as advising on financial support and career preparation. The goal of the program is to offer students a welcoming environment and a strong support network in order to help them excel in their chosen fields. By participating in the Diversity Scholars neighborhood, students have access to the personal contact and support of a small community while still being able to take advantage of the benefits of a large university.

### Graduate Students of Color Collaborative

The Graduate Students of Color Collaborative (GSCC) is a collective that strives to create and promote safe spaces for graduate students of color in the School of Education and across campus. In recognizing the unique challenges and isolation students of color often face in graduate programs at CU, GSCC aims to regularly offer social gatherings, opportunities to

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critically reflect and engage in discussions of race as it pertains to campus climate, as well as a formal presence representing graduate students in diversity initiatives across campus. In addition GSCC members seek to collaborate with other cultural, equity and diversity based organizations on campus and graduate student support structures ranging from first-year student community support to dissertation writing groups.

## Teachers of Color & Allies Summit

Since 2004, the school has hosted the Teachers of Colors and Allies Summit each fall. The conference brings together practicing and pre-service educators of color and allies to share innovative and evidence-informed approaches to supporting students and families of color. The conference provides a unique venue where educators of color and allies meet with one another to network, provide collegial support and mentor new teachers and emerging leaders. For participants, the conference is a special opportunity to recruit and retain teachers who represent the diversity of our K-12 students.

## STEM Initiatives

CU is a leader in Science Technology Engineering and Math (STEM) education. The School of Education in collaboration with the College of Arts & Sciences developed and is a national leader in the Learning Assistant model. Additional, CU was one of the original 13 institutions selected to replicate the U Teach Model. Both the LA and CU Teach programs help us prepare outstanding secondary math and science teachers.

The Learning Assistant (LA) Model at the University of Colorado-Boulder uses the transformation of large-enrollment science courses as a mechanism for achieving four goals:

- to recruit and prepare talented science majors for careers in teaching;
- to engage science faculty in the recruitment and preparation of future teachers;
- to improve the quality of science education for all undergraduates; and
- to transform departmental cultures to value research-based teaching for ourselves and for our students

The transformation of large-enrollment courses involves creating environments in which students can interact with one another, engage in collaborative problem solving and articulate and defend their ideas. To accomplish this, undergraduate LAs are hired to facilitate small-group interaction in our large-enrollment courses.

CU Teach is a four-year degree/licensure program that allows students to complete a rigorous education in a mathematics, science or engineering major and fulfill requirements for a Colorado initial teaching license in secondary mathematics or secondary science. It is a unique collaborative program between the College of Arts and Sciences, the College of Engineering and Applied Science and the School of Education. CU Teach students get immediate hands-on K-12 teaching experience by enrolling in the first course in the program, STEP 1 (EDUC 2020). Students can enroll in Step 1 as early as their freshman year at CU. In addition to taking courses from research faculty in the School of Education, College of Arts and Sciences and College of Engineering and Applied Science, CU Teach students get support from Mentor Teachers (current K-12 teachers) and Master Teachers (CU faculty who are veteran classroom teachers). The student organization hosts activities and events that are social as well as service-oriented, and that help students develop career networks.

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## Programs of Study

### Teacher Licensure Programs

The School of Education offers course work leading to initial Colorado licensure to undergraduate, postbaccalaureate and master's degree students in the fields of elementary through secondary education.

**Course code for this program is EDUC.**

### Education as a Minor Field

The School of Education offers a 19-credit minor that is open to all undergraduates. MA programs outside of the School of Education can include education as a minor if both their major department and the associate dean for graduate studies in the School of Education approve.

**Course code for this program is EDUC.**

### Leadership Studies as Minor Field

The Leadership Minor involves 16 credit hours and is open to all undergraduates.

**Course code for this program is LEAD.**

### INVST Community Studies

The INVST Community Leadership Studies program is a two-year program designed to cultivate deep understanding about issues facing people and the planet, and to provide skills and experiences for community leaders to fulfill progressive visions for change.

**Course code for this program is INVS.**

### Graduate Degree Programs

The School of Education offers the following degrees for graduate study:

- Curriculum and Instruction (MA, PhD)
- Educational Equity and Cultural Diversity (MA, PhD)
- Educational Foundations, Policy and Practice (MA, PhD)

|   |
|---|
| <input type="checkbox"/> Arts & Sciences  |
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| <input type="checkbox"/> Music  |
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- Educational-Psychological Studies (MA, PhD)
- Research and Evaluation Methodology (PhD)

**Course code for this program is EDUC.**

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# Teacher Licensure Program

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The School of Education offers course work leading to initial Colorado licensure to undergraduate, postbaccalaureate and master's degree students. Colorado requires public school teachers to be licensed by its state department of education. Students who successfully complete all School of Education requirements will be recommended for a Colorado provisional (initial) teaching license, the license issued to all new teachers in Colorado. Licensure requirements vary from state to state and from teaching area to area. Students who are interested in teaching in other states should familiarize themselves with the requirements of those states so they may plan an appropriate degree program.

Teacher education at the University of Colorado, while administered by the School of Education, is a university-wide function. Many academic departments provide course work that supports the teacher in training. Undergraduate students follow a prescribed set of Arts and Sciences core courses that meet state content preparation standards, complete a major and satisfy professional education requirements concurrently. The program involves a combination of courses at the university and K–12 school placements.

## Undergraduate and Postbaccalaureate (Nonmaster's Degree) Licensure Programs

- Elementary (grades K–6) education
- Secondary education (grades 7–12) fields:
  - English
  - Mathematics
  - Science
  - Social studies
  - World language (French, German, Japanese, Latin, Russian or Spanish)
- Music (grades K–12)

## Secondary Master's Degree Plus Licensure Program (see Graduate Study section for additional program information)

- Secondary education (grades 7–12) fields:
  - English

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Mathematics  
Science  
Social studies

## Program Mission and Commitments

The School of Education prepares educators who are able to enact commitments to social justice and equitable access to deep content learning in school, family and community contexts.

The following principles guide our work in preparing the next generation of educators:

- Teachers must position students as sense-makers and knowledge-generators, who desire to invest and succeed in school. This involves noticing children/youth, building relationships with them, valuing their perspectives and attending to their thinking, curiosities and capabilities.
- Teaching is both intellectual work and a craft. Deep knowledge of content and pedagogy, creativity and passion fuel both learning and teaching.
- Teachers must design equitable learning environments in which all children are engaged in robust and consequential learning.
- Teacher's instruction and student learning is always conducted within the context of larger social systems, structures and hierarchies.
- What we do and say matters and must be analyzed. Our language and action constructs or constrains opportunities for children to build meaningful, positive and sustained relationships to learning and one another.

## Colorado Teacher Quality Standards

Teacher education candidates engage in a planned sequence of courses and accompanying clinical experiences in local community and school sites. Courses and assessments ensure candidates have demonstrated appropriate mastery of (1) content taught in the Colorado Academic Standards and (2) professional practices and dispositions associated with the Colorado Teacher Quality Standards listed below.

- I. Teachers demonstrate mastery of and pedagogical expertise in the content they teach.
- II. Teachers establish a safe, inclusive and respectful learning environment for a diverse population of students.
- III. Teachers plan and deliver effective instruction and create an environment that facilitates learning for their students.
- IV. Teachers reflect on their practice.
- V. Teachers demonstrate leadership.
- VI. Teachers take responsibility for student academic growth.

## Academic Majors

**Undergraduate Students.** Undergraduate students enrolled at the University of Colorado Boulder seeking both a bachelor's degree and teacher licensure must complete a major approved for prospective teachers by the Colorado Department of Higher Education. With

Careful planning beginning freshman year, these programs may be completed in four years. A list of these approved majors is available on the School of Education website, [www.colorado.edu/education](http://www.colorado.edu/education). No professional education course work taken before the implementation of the Colorado Model Content Standards and Performance-Based Standards for Colorado Teachers may count for teacher education requirements.

The major selected is determined by the student's interest in teaching a certain subject or instructional level. Before selecting a particular major, students may see the School of Education advisor. **Students interested in teaching at the secondary level should be aware that in many subject areas the teaching program requires additional courses or more hours than the academic major.** Course requirements for all programs are explained in the program checklists available in Education 151.

## Admission

Admission to all School of Education programs is selective. Satisfying minimal admission criteria does not guarantee admission.

## Students Entering or Currently Enrolled at the University of Colorado

Undergraduate students seeking to complete the School of Education teacher education program must be enrolled in an approved degree program in one of the colleges or schools of the university. Students should meet with the School of Education advisor as soon as they start considering teacher licensure programs to begin planning course sequences and ensuring you satisfy program requirements for your major and your teaching license as efficiently as possible. Freshman and sophomore students are encouraged to satisfy as many of their degree granting college or school's core requirements and content area requirements for the appropriate licensure program as early as possible before applying for admission to the teacher education program. Some education courses may be taken prior to admission to the teacher education program. Students should pick up advising materials in Education 153 and attend all education information sessions, including freshman orientation, and make an appointment with an Education advisor by calling 303-492-6555.

## Transfer Students

Undergraduate students who seek to transfer to the University of Colorado from another accredited institution must apply for admission through the Office of Admissions. They must enroll in a degree program in one of the undergraduate degree-granting colleges or schools of the university and also apply for admission to the teacher education program in the School of Education. At least 30 hours of course work for licensure must be taken while the student is officially enrolled as a student in the university. Credit in student teaching will not transfer to the University of Colorado Boulder. Please see Undergraduate Admission in the General Information section for specific requirements.

## Former Students

Former students who have not completed an undergraduate degree may reenter the university according to general university policies; however, subsequent to that readmission, they must apply separately for entry into the teacher education program. Undergraduate students who anticipate that they will graduate prior to completing the teacher education program must see the School of Education advisor. All admitted students who remain continuously enrolled will be expected to complete the program in effect at the time of their admission to the program unless state accrediting changes dictate otherwise.

## Postbaccalaureate and Master's Degree Students Seeking Teacher Training

Students who already hold a bachelor's degree and wish to pursue licensure should apply directly to the School of Education. Students desiring institutional recommendation for licensure must complete at least 30 semester hours of work at the University of Colorado and also must fulfill the same content area requirements as undergraduate students. The actual number of required hours will depend on courses already completed.

## Application Requirements

Students may apply to one of the teacher education programs if the following requirements have been fulfilled:

1. **GPA.** Elementary and secondary students must have and maintain a 2.75 (on a 4.00 scale) cumulative GPA, 2.75 at CU-Boulder, 2.75 in their subject area (secondary teacher fields) and 2.75 in education. Music students must have and maintain a 3.00 overall and in their subject area. Students applying to Master's Plus (MA+) programs must have and maintain a 3.00 cumulative GPA.
2. **Prior Degrees.** Students applying to Postbaccalaureate and Master's Plus (MA+) programs must have a bachelor's degree from an accredited institution.
3. **Youth Experience.** Students must provide written verification of 25 clock hours of satisfactory experiences with elementary, middle/junior high or senior high school-aged youth (appropriate to the desired program) in the past five years. Forms for this purpose are available in the Office of Student Services, Education 153, or online at [www.colorado.edu/education/sites/default/files/attached-files/Youth\\_Experience\\_Form.pdf](http://www.colorado.edu/education/sites/default/files/attached-files/Youth_Experience_Form.pdf). Students in the CU Teach program meet this requirement through school experiences in Step 1 and 2 courses.
4. **Basic Skills.** All teacher education students must demonstrate basic skills competence in mathematics and literacy. This may be done through acceptable grades in appropriate college course work, or by acceptable standardized test scores. Contact the Office of Student Services in Education 153 for more information.
5. **Letters of Recommendation.**
6. **Personal Statement.**
7. **CDE Authorized Fingerprint Card and Fee.** The School of Education requires applicants to the teacher education program to submit a Colorado Department of Education (CDE)-authorized fingerprint card to the School of Education as part of the application process. In addition to the fingerprint card, a cashier's check or money order for the exact amount payable to Colorado Bureau of Investigation, must be submitted to the school of Education. The fingerprinting policy and instructions are available online at <https://www.colorado.edu/education/node/666/attachment/newest>
8. **Application Fee.** The appropriate application fee should be submitted with application materials. Fees vary by program.

Individuals interested in completing the teacher education program at the University of Colorado Boulder should request application materials from the Office of Student Services, Education 153 or online at [www.colorado.edu/education/prospective-students](http://www.colorado.edu/education/prospective-students). Students currently enrolled in a degree program at Boulder will need to complete an application.

Individuals who have completed a baccalaureate degree at an accredited institution and are not currently enrolled at the university must complete a program application, a university application and submit official transcripts from all previous colleges directly to the Office of Admissions.

## Advising

Students are responsible for obtaining a student handbook and program checklist, which are available online. The student handbook is available at [www.colorado.edu/education/current-students/forms-policies](http://www.colorado.edu/education/current-students/forms-policies) and the program checklists are available at [www.colorado.edu/education/prospective-students/undergraduate-licensure/current-CU-undergrads](http://www.colorado.edu/education/prospective-students/undergraduate-licensure/current-CU-undergrads).

Off-campus students may obtain advising materials online at [www.colorado.edu/education/prospective-students](http://www.colorado.edu/education/prospective-students) or by calling **303-492-6555**.

At CU-Boulder, degree requirements vary among the schools and colleges. Students seeking a degree at the University of Colorado should consult, as soon as possible, with an advisor in the college or school from which they expect to graduate and with the School of Education advisor.

Students are encouraged to become familiar with the teacher education requirements by comparing their own transcripts to the published advising materials. Students can then talk with an advisor before applying to the program or they may wait until after their applications are processed. Students seeking teacher training in French, German, Japanese, Latin, Russian, Spanish or music should see the designated advisor for that teaching field in addition to the School of Education advisor.

Advising also may be obtained by email through contacting [edadvise@colorado.edu](mailto:edadvise@colorado.edu). When requesting email advising, students should make questions as specific as possible.

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## Minor in Education

The School of Education offers a 19-credit minor open to all undergraduates. The minor comprises 7 credits of core courses in education and 12 credits of elective courses. Courses are taught by faculty known for their teaching excellence. Courses and field experiences in the education minor introduce undergraduates to the complex interactions among the various political, cultural, social and historical dynamics that shape educational policy and practice. Through the education minor students develop an understanding of learning and instructional practice in both formal and informal settings.

The education minor is designed to serve students with a passion for social justice who are interested in serving in the Peace Corps, leading after-school or community-based youth programs or working in education and youth policy. Individuals who plan to teach in a K-12 school setting should explore Teacher Licensure Programs.

Students in the education minor may also be affiliated with programs offered through [CU Engage](#).

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## Minor in Leadership Studies

The Leadership Studies Minor is a valuable academic program available to all undergraduates regardless of major or college. The Leadership Studies Minor provides academically based leadership training that incorporates:

- Understanding the broad context of leadership theory;
- Gaining a historical context of leadership;
- Developing core leadership competencies;
- Practicing and observing leadership experiences.

By including the Leadership Studies Minor with a chosen field of study, undergraduates will develop essential skills that prepare them for future work in fields such as community organizing, business, city government, and social services. The minor offers an important credential that distinguishes students in the job exploration process.

The minor involves 16 credit hours of coursework that include a foundations course, three electives and a capstone course.

Students enrolled in the Leadership RAP, Presidents Leadership Class (CLC), INVST Community Studies and all ROTC units should talk to their respective programs about how these programs can become integrated as pathways to the Leadership Studies Minor.

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## INVST Community Studies

Consistent with their vision for a just and sustainable world, the INVST Community Studies program develops engaged citizens and leaders who work for the benefit of humanity and the environment. INVST Community Studies innovatively operates as a community-based organization, practicing service learning and participatory education. In order to fulfill this mission, the program offers:

- a comprehensive two-year Community Leadership Program (CLP) focused on developing community leaders who engage in compassionate action as a lifetime commitment;
- Community Studies electives that foster civic responsibility and leadership potential;
- a Public Achievement Program where CU undergrads coach local primary and secondary school students in the design and implementation of public action projects; and
- a Youth Council for Public Policy that empowers young people to use the democratic process as a tool for positive social change.

The INVST CLP offers a unique and transformational educational experience to all majors. Each year the INVST CLP admits a small group of students who are committed to making a positive difference with their lives. The two-year program is designed to cultivate deep understanding about issues facing people and the planet and to provide skills and experiences for community leaders to fulfill progressive visions for change. Specifically, students participate in theory classes, skills-training classes and two summer service-learning experiences, one domestic and one international. In addition, students intern six hours each week with community-based organizations during their first academic year, and collectively design, implement and evaluate community leadership projects during their second academic year. Students learn and serve together in a small group environment throughout the program. Applications for the INVST CLP are due every year in February. For more information, contact Sabrina Sideris at **303-492-8045**.

**Course code for this program is INVS.**

### Minor in Leadership Studies

The Leadership Studies Minor is available to all undergraduates regardless of major or college. The Leadership Studies Minor provides academically based leadership training that incorporates:

- Understanding the broad context of leadership theory;
- Gaining a historical context of leadership;
- Developing core leadership competencies;
- Practicing and observing leadership experiences.

Arts & Sciences

Business

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**• INVST Community Studies**

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Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

By including the Leadership Studies Minor with a chosen field of study, undergraduates will develop essential skills that prepare them for future work in fields such as community organizing, business, city government, and social services. The minor offers an important credential that distinguishes students in the job exploration process. The minor involves 16 credit hours of coursework that include a foundations course, three electives and a capstone course.

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## Graduate Degrees in Education

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### Graduate Study

Graduate study in education at the University of Colorado is administered through the Office of Student Services, School of Education, and all inquiries regarding programs should be directed to the following address: **Office of Student Services**, School of Education, University of Colorado Boulder, 249 UCB, Boulder, CO 80309-0249.

Detailed program information is available at [www.colorado.edu/education/graduate-programs](http://www.colorado.edu/education/graduate-programs). *The School of Education Graduate Student Handbook* is available on the School of Education website at [www.colorado.edu/education/current-students/graduate-students](http://www.colorado.edu/education/current-students/graduate-students). The degrees available in the various areas of graduate study are listed below:

#### 1. Curriculum and Instruction (K–12 humanities education; K–12 mathematics and science education; K–12 literacy education; research on teaching and teacher education)

- Master of arts
- Doctor of philosophy
- Secondary Master's Plus (MA+) Licensure Programs  
CU-Boulder offers special programs for prospective secondary teachers that combine a master of arts degree in curriculum and instruction in a content area and teacher licensure to qualified students already holding bachelor's degrees. Admission is highly competitive, and program completion requires a two-year commitment of course work and school placements. Students in the MA+ programs become eligible for a Colorado teaching license after three semesters; they complete remaining course work for the master's degree in the fourth semester. Applicants must meet all graduate requirements listed below and undergo an extensive screening process. This program admits students for fall semester only. Complete program information is available in the Office of Student Services, Education 153 or by calling **303-492-6555**.

#### 2. Educational-Psychological Studies (educational psychology and learning sciences)

- Master of arts

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Doctor of philosophy

**3. Research and Evaluation Methodology** (methods of educational research and evaluation, including statistics, measurement and qualitative methods)

- Doctor of philosophy

**4. Social, Multicultural and Biligual Foundations** (bilingual and multicultural education; bilingual/special education; education and cultural diversity; English as a second language; cultural, historical, social and philosophical foundations; education policy)

- Master of arts
- Doctor of philosophy

CU-Boulder does not offer programs in early childhood education, physical education, art education, counseling, school administration, school psychology or educational technology.

## Teaching Endorsements at the Graduate Level

Through the School of Education (and in conjunction with other departments), the University of Colorado Boulder offers advanced course work leading to graduate level teaching and special services training in the following areas:

- Culturally and linguistically diverse education (grades K–12)
- Culturally and linguistically diverse education specialist: bilingual education (grades K–12)
- Reading teacher (grades K–12)
- Special education generalist (grades K–12)
- Special education specialist (grades K–12)
- Special services (offered through SLHS): Audiologist (ages 0–21); Speech/language pathologist (ages 0–21)

All of the above programs have degree, licensure or experience requirements that must be fulfilled before admission. Please check with the department before applying.

## Admission

Prospective students seeking admission to a graduate degree program should view electronic application materials at [www.colorado.edu/education/prospective-students](http://www.colorado.edu/education/prospective-students). Prospective graduate students should also read the Graduate School section for additional admission information. If test scores are required for admission to the desired program, applicants should request that the Educational Testing Service send their scores on the verbal reasoning, quantitative reasoning and analytical writing sections of the Graduate Record Examination (GRE) to the Office of Student Services. A doctoral applicant who has not taken the GRE should arrange to do so.

Admission to all programs and degrees in the School of Education is selective. Meeting minimal admission requirements does not guarantee admission.

Application papers and all supporting documents, including GRE or Miller's Analogy Test (MAT) scores, if these scores are required for admission to the desired program, must be submitted electronically by the admission deadline. Master's admissions are rolling, and priority deadlines are September 1 for spring semester and February 1 for summer session and fall semester.

The PhD deadline is December 15. The PhD program only has one admission cycle each year. The international student deadline for PhD applications is December 1. Students should visit the International Student Admission website for additional forms and information, [www.colorado.edu/international/international-admissions](http://www.colorado.edu/international/international-admissions). The Secondary Master's Plus (MA+) application deadline is January 1.

## Advising

Graduate students are assigned an individual faculty advisor after admission and are required to submit a formal plan of study, approved by their advisor, before the end of the first full year of study. Graduate students may obtain program information from the School of Education, Office of Student Services, Education 151, or from their faculty advisors.

## General Information

### Maximum Load and Part-Time Study

A maximum of 15 semester hours in any one semester may be applied toward degree requirements. During the summer, 9 semester hours is the maximum that will be counted toward education graduate degrees. Within this limit, students may take up to 6 semester hours in a five-week summer term, and/or 3 semester hours in a three-week term. During the academic year for financial aid purposes, students will be regarded as having a full load if they are registered for 5 or more semester hours in courses numbered 5000 or above, or are registered in a minimum of 5 dissertation or 1 MA thesis hour. At least four semesters of residence credit, two of which must be consecutive in one academic year, must be earned for work taken at CU-Boulder. See the Graduate School section for clarification.

### Quality of Work

A grade average of *B* (3.00) or better is required for all work taken for any graduate degree. Transferred credits are not included when calculating grade averages.

A mark below *B-* will not be credited toward the PhD program; a mark below *C* is not acceptable for MA students. Any graduate course in which a mark of *D* or *F* is reported as failed and must be repeated and passed if it is required in a student's degree program. Students who do not maintain at least a *B* (3.00) average or better may be suspended by the dean of the Graduate School upon the recommendation of the associate dean of graduate studies in the School of Education. Students may also be suspended from the Graduate School for continued failure to maintain satisfactory progress toward the degree sought.

### Opportunities for Assistantships

The School of Education has a limited number of assistantships administered by the dean on the recommendations of faculty and the associate dean for Teacher Education or associate dean for graduate studies. Some assistantships involve the supervision of student teachers; others involve helping professors in their teaching or research. Taxable stipends in amounts set by the university are paid for all assistantships. Appointments are usually made in terms of one-fourth time (10 hours a week) or one-half time (20 hours a week). Inquiries should be directed to the associate dean for graduate studies.

## Graduate Degree Program(s)

### Master of Arts in Education

The master of arts degree requires one academic year or more of graduate work beyond the bachelor's degree.

The master's degree must be completed within four years of initial enrollment. The MA plan II (nonthesis) degree requires a minimum of 30 semester hours. *See the Graduate School section for discussion of plan I and plan II.* Students may transfer no more than 9 semester hours of work taken at another institution or as a nondegree student at CU-Boulder.

All program areas have outlined a recommended or required program of study, and students pursuing a degree are expected to follow that program unless they have appropriate substitutions arranged in advance with their advisors and the associate dean for graduate studies.

At the beginning of the final term of study, each student must submit a form titled, "An Application for Admission to Candidacy for an Advanced Degree." These forms are available in the Office of Student Services. If a minor is included, the form must first be signed by a representative of the student's minor department or program area. The form must be signed by the student and the student's advisor, and then submitted to the school's Office of Student Services for School of Education approval and then to the Graduate School for final approval. All students are required to pass a comprehensive-final examination or its equivalent, as determined by the program's faculty committee. (For time limits and other information, see the Graduate School section under Master's Degree.)

## Education as a Minor Field

In MA programs for majors outside the School of Education, students may include education as a minor if both their major department and the associate dean for graduate studies in the School of Education approve. For master's degrees, a minor in education consists of at least 9 hours of study in related courses. Not more than 2 semester hours may be transferred from another institution. A minor in education alone will not meet Colorado licensure requirements.

Students who propose to minor in education must have had sufficient undergraduate work in education to prepare them for graduate study in the field.

## Doctoral Study in Education

In addition to the information included here, prospective PhD students should see the Graduate School section, and obtain a current copy of the *School of Education Graduate Handbook*.

The School of Education offers the doctor of philosophy (PhD) in education. Most students take five to six years to complete the course work, examinations and dissertation required for the doctoral degree.

The school requires at least two semesters of full-time study in residence (one semester must be during the first two years of doctoral study). The School of Education expects that students will not hold a full-time job during their two semesters of residence.

In addition to course work requirements, doctoral students should be immersed in ongoing research with the faculty as early in their program as possible. All doctoral students in the school will be required to complete, at a minimum, one publishable paper; other research endeavors prior to the dissertation are desirable. Each of the program committees has established a structure for implementing this requirement. For example, in some programs students work individually with their faculty advisors; in other programs students make the research product an extra course requirement attached to a professional seminar.

**Admission Requirements.** Applicants for admission to doctoral study are expected to have a strong liberal arts background. A minimum undergraduate grade point average of 2.75 is required, but applicants are judged competitively so that most admitted applicants have GPAs of 3.00 or higher. A GPA of 3.00 or above is expected on all graduate work completed. PhD

applicants are not required in all cases to have a master's degree; the decision rests with the program area faculty. At least two years of professional teaching experience relevant to the applicant's proposed area of study is strongly encouraged and recommended for programs in curriculum and instruction.

The Graduate Record Examination (GRE) (verbal and quantitative reasoning) is required for admission; there is no established minimum score. Faculty consider the GRE score as one factor among many in making admission decisions. An interview with a faculty admissions committee may be required.

**Degree Requirements.** Incoming doctoral students are a part of a cohort, and are required to complete a one-year core course sequence. The sequence is comprised of course topics such as Multiculturalism, Perspectives on Classrooms, Learning and Teaching, Introduction to Educational Research and Policy, Quantitative Research Methods and Qualitative Research Methods. All other required course work is determined by the student's program area.

Fifty-six semester hours of course work beyond the master's degree is the normal requirement for the PhD. All program areas committees have outlined a program appropriate for individuals pursuing study in their area, and students are expected to follow that program unless they have arranged appropriate substitutions in advance with their advisor and the associate dean for graduate studies.

No continuing education work is accepted for the PhD.

**Culture/Language Requirement.** The culture/language requirement consists of two components: a Multiculturalism course and a language component. Introductory language courses (see item one below) are recorded on the Degree Plan form as having satisfied the language requirement but may not be listed as doctoral course work. To fulfill the language component one of three options are possible:

1. Satisfactory completion of two semesters of college-level conversational language course taken at an accredited institution within the three years preceding admission with a grade of C- or better. The conversational language requirement also can be met by:
  - a. Conversational courses offered through Continuing Education. If the courses are taken for no credit, the instructor must provide written documentation of second-semester oral proficiency. Students should inform instructors before the start of the courses that such certification is sought.
  - b. Introductory Boulder campus courses such as SPAN 1010, ITAL 1010, FREN 1010, GRMN 1010, etc. These traditional courses meet the conversational requirement because instruction is conducted in the language and substantial language labs are part of the course expectations. Courses taken at another institution must be equivalent to the above courses to count toward this requirement.
  - c. Satisfactory performance on an oral proficiency examination indicating sufficient mastery to complete a second-semester college course. (Given a specific request, arrangements can be made for such exams to be available through language department faculty or from Continuing Education instructors on a case-by-case basis.)
2. The BUENO Puebla experience or a similar alternative experience to be approved by an EECD faculty member.
3. Course on Language Issues in Educational Research.

**Comprehensive Examination.** Before taking the comprehensive examination, students must submit the "Application for Admission to Candidacy for an Advanced Degree," available through the school's Office of Student Services at least two weeks prior to the exam.

Near the end of the term when students complete their course work and if their advisor approves, they take a comprehensive examination given by program area faculty that covers

foundational knowledge in the program area. Students who fail this examination may repeat it once, at a time to be determined by the examining committee.

**Dissertation.** In addition to course work, a doctoral dissertation for 30 semester hours of credit is required. A student registers for EDUC 8994 Doctoral Dissertation for three or more terms, for not more than 10 semester hours in any term. Not more than 10 dissertation credit hours taken in semesters prior to the semester in which the comprehensive examination is passed may be counted in the required 30 dissertation hours. After satisfactory completion of the comprehensive examination, the student must continuously register for a minimum of 5 dissertation hours during fall and spring semesters until the final defense. Off-campus students may register for 3 dissertation credit hours. On- and off-campus students must be registered for 5 hours during the semester the defense is completed.

When the student and the chair of the dissertation committee agree on a dissertation subject, they work with the associate dean for graduate studies to identify a five-person committee. Then the student prepares a detailed prospectus and arranges for a meeting with the committee. After committee approval, the student may proceed with the research. Research involving human subjects must also have the approval of the university Institutional Review Board. During the research for and the writing of a dissertation, a grade of *IP* (in progress) is reported for the credit hours taken; if the dissertation is completed and accepted as satisfactory, a grade is reported for the student's record.

**Time Limits.** Time limits for the PhDs is six years; see the Graduate School section for PhD time limits.

When students have passed the comprehensive examination, they must be registered each semester until the degree is attained, and pay the standard fee as announced by the Graduate School.

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## Faculty: Education

| Name                | Title                        | Education   |
|---------------------|------------------------------|---|
| ANDERSON, Ronald    | professor emeritus           |   |
| ANDREW, Julie       | instructor                   | BA, Carlton College; MS, University of New South Wales, NSW, Australia  |
| ARAGON, Lorenzo     | assistant research professor | BA, University of Northern Colorado; MA, University of Colorado Boulder; PhD, University of Colorado Denver                     |
| ATTERBERRY, Allison | assistant professor          |   |
| BACA, Leonard M.    | professor emeritus           | STB, Catholic University of America, MA, University of New Mexico; EdD, University of Northern Colorado                         |
| BEGLEY, Donna       | senior instructor            | BS, University of Southern Oregon and University of Alaska; MEd, College of William and Mary; PhD; Southern Illinois University |
| BOARDMAN, Alison G. | assistant research professor | BA, University of California, Los Angeles; MA, University of San Francisco; PhD, University of Texas at Austin                  |
| BRIGGS, Derek       | professor                    | BA, Carleton College; PhD, University of California, Berkeley   |
| BUNNING, Kim        | instructor                   | BA, University of Wyoming; PhD, University of Colorado  |
| CLINE, Ruth         | professor emerita            |   |
| DALTON, Bridget M.  | associate professor          | BA, American University; MEd, Old Dominion University, Virginia; EdD, Harvard University  |

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|------------------------|------------------------------|---|
| DiPARDO, Anne          | professor emerita            | BA, California State University; MA, University of California, Los Angeles; EdD, University of California, Berkeley |
| DiSTEFANO, Philip      | chancellor; professor        | MA, West Virginia University; BS, PhD, Ohio State University  |
| DONATO, Ruben          | professor                    | BA, University of California, Santa Cruz; MA, PhD, Stanford University  |
| DUTRO, Elizabeth       | professor                    | BS, La Sierra University; MA, San Francisco State University; PhD, University of Michigan                           |
| EISENHART, Margaret A. | distinguished professor      | BA, Emory University; MA, PhD, University of North Carolina   |
| ESCAMILLA, Kathy C.    | professor                    | BA, University of Colorado Boulder; MS, University of Kansas; PhD, University of California, Los Angeles            |
| FLEXER, Roberta        | associate professor emerita  |   |
| FURTAK, Erin           | associate professor          | BA, University of Colorado Boulder; MA, University of Denver; PhD, Stanford University                              |
| GLASS, Gene V.         | research professor           | BA, University of Nebraska; MS, PhD, University of Wisconsin  |
| HAAS, John             | professor emeritus           |   |
| HAND, Victoria         | associate professor          | BA, University of California, San Diego; MA, PhD, Stanford University   |
| HODGE, Stephen         | professor emeritus           |   |
| HOOVER, John J.        | associate research professor | BA, Illinois State University; MA, Northern Arizona University; PhD, University of Colorado Boulder                 |
| HOPEWELL, Susan        | assistant professor          | BA, University of Colorado; MA, University of Virginia; PhD, University of Colorado                                 |
| HOPKINS, Kenneth       | professor emeritus           |   |
| HOUSE, Ernie           | professor emeritus           |   |
| HOWE,                  | professor                    | BA, MA, PhD, Michigan State University  |

|                          |  |  |
|--------------------------|--|--|
| Kenneth R.               |  |  |
| JUROW, A.<br>Susan       | associate professor  | BA, New York University; MA, PhD, University of California, Berkeley                                 |
| KIRSHNER,<br>Benjamin R. | associate professor  | BA, Brown University; MA, Harvard University; PhD, Stanford University                               |
| KRAFT,<br>Richard        | professor emeritus   |  |
| LANGER,<br>Phillip       | professor emeritus   |  |
| LECOMPTE,<br>Margaret D. | professor emerita  |  |
| LINN, Robert L.          | distinguished<br>professor emeritus                          |  |
| LISTON, Daniel<br>P.     | professor  | BA, Earlham College; PhD, University of Wisconsin  |
| LOPEZ,<br>Enrique        | assistant professor  | BA, MS, California State University, Fresno; PhD, Stanford University                                |
| McGINLEY,<br>William     | associate professor  | AB, Western Kentucky University; MEd, Idaho State University; PhD, University of Illinois            |
| MEYER,<br>Elizabeth J.   | associate dean,<br>teacher education;<br>associate professor | BA, Newcomb College of Tulane University; MA, University of Colorado Boulder; PhD, McGill University |
| Miller, SJ               | associate professor  | BA, UCLA; MA, Hebrew Union College; PhD, University of New Mexico                                    |
| MOSES,<br>Michele        | associate dean for<br>graduate studies;<br>professor         | BA, University of Virginia; MEd, University of Vermont; MA, PhD, University of Colorado Boulder      |
| NOGUERON-<br>LIU, Silvia | assistant professor  | BA, Instituto Tecnológico de Sonora; MA, PhD, Arizona State University                               |
| OTERO,<br>Valerie K.     | professor  | BS, University of New Mexico; MS, PhD, University of California, San Diego                           |
| O'CONNOR,<br>Kevin       | assistant professor  | BA, St. Joseph's University; PhD, Clark University   |
| PENUEL,<br>William       | professor  | BA, Clark University; EdM, Harvard University; PhD, Clark University                                 |

|                                  |   |   |
|----------------------------------|---|---|
| POLMAN,<br>Joseph L.             | associate dean for<br>research; professor | BA, Brown University; PhD, Northwestern<br>University   |
| SHEPARD,<br>Lorrie A.            | dean; distinguished<br>professor          | BA, Pomona College; MA, PhD, University of<br>Colorado  |
| SOLTERO-<br>GONZALEZ,<br>Lucinda | assistant professor                       | BA, Universidad Panamerica; MA, PhD, University<br>of Arizona   |
| STILLMAN,<br>Jamy                | associate professor                       | BA, University of California San Diego; MAT,<br>University of California Santa Cruz; PhD,<br>University of California Los Angeles |
| SWADENER,<br>Marc                | associate professor<br>emeritus           |   |
| WEBB, David                      | associate professor                       | BS, University of California, Los Angeles; MA,<br>University of California, Santa Barbara; PhD,<br>University Wisconsin–Madison   |
| WELNER,<br>Kevin G.              | professor                                 | BA, University of California, Santa Barbara; JD,<br>PhD, University of California, Los Angeles                                    |
| WHITE,<br>Terrenda               | assistant professor                       | BS, Northwestern University; MA, Loyola<br>Marymount University; PhD, Teachers College,<br>Columbia University                    |
| WILLMANN,<br>Kent                | instructor                                | BS, St. Joseph's College; MEd, Colorado State<br>University   |
| WILSON, Terri                    | assistant professor                       | BIS, University of Minnesota Twin Cities; PhD,<br>Columbia University Teachers College  |
| WRITER,<br>Jeffrey               | instructor                                |   |



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## College of Engineering & Applied Science



**Robert H. Davis, dean**

422 UCB • phone: 303-492-5071 • fax: 303-492-2199

college website: [www.colorado.edu/engineering](http://www.colorado.edu/engineering)

The College of Engineering and Applied Science offers the Bachelor of Science degree in:

1. aerospace engineering sciences
2. architectural engineering
3. chemical engineering
4. chemical and biological engineering
5. civil engineering
6. electrical engineering
7. electrical and computer engineering
8. environmental engineering
9. mechanical engineering
10. engineering plus
11. computer science
12. applied mathematics
13. engineering physics
14. technology, arts and media

The first nine of the programs are accredited by the Engineering Accreditation Commission of ABET (see [www.abet.org](http://www.abet.org)). The 10th is a new degree program for which ABET EAC accreditation will be sought, and the 11th program is accredited by the Computing Accreditation Commission (CAC) of ABET (see [www.abet.org](http://www.abet.org)). Degrees in applied mathematics and engineering physics are offered in cooperation with the Departments of Applied Mathematics

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and Physics in the College of Arts and Sciences; accreditation by ABET is not usually sought in these areas. The CU-Boulder campus is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools.

## Mission & Vision

The mission of the College of Engineering and Applied Science is to generate new knowledge in engineering and related fields and to equip students from diverse backgrounds as future leaders and responsible citizens in these fields for the betterment of individuals and society. Its vision is to be a world leader in engineering research and education, with an emphasis on integrated and discovery learning and on engineering for global society.

The college embraces the following core values:

- **Global Society:** Our innovative research programs seek to create and disseminate knowledge to improve global society in areas such as health and well-being, energy and environmental sustainability and infrastructure for both developed and developing communities. Similarly, our innovative educational programs seek to prepare graduates with not only technical knowledge and excellence, but also skills for societal leadership and global citizenship.
- **Active Learning:** We design the student experience based on engineering educational research findings that demonstrate enhanced learning through active engagement of students, both within the classroom and through personalized and team-based opportunities such as design projects, discovery learning, service learning, internships and leadership programs.
- **Inclusive Excellence:** To improve the educational experience and better serve global society, we are committed to building a culture of inclusive excellence of diverse faculty, staff and students with high ethical and performance standards.

The college seeks the following outcomes in our graduates:

- Technical excellence and knowledge in modern engineering, mathematics and science
- Ability to communicate effectively with diverse peoples and other cultures
- Ability to think critically, analyze data and formulate and solve complex problems
- Ability to contribute effectively as individuals and in multidisciplinary teams
- Knowledge of contemporary issues and preparation for societal leadership and world citizenship
- Desire and skills for lifelong learning and personal and professional development
- Passion for serving others and commitment to sustainability

Additional information about the academic programs, services and faculty of the College of Engineering and Applied Science can be found at [www.colorado.edu/engineering](http://www.colorado.edu/engineering).





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## Engineering Degrees Overview

In most departments of this college, several academic options are offered within each degree program. Some programs of study are oriented toward graduate work, and others toward engineering practice.

Engineers work in a wide variety of disciplines, with the college's 13 undergraduate and 11 graduate degree programs reflecting this diversity. The following descriptions summarize these areas.

**Aerospace engineering sciences** prepares students for successful and rewarding careers in aerospace and other high-tech industries, national research laboratories, government services and academia. This program provides students unique opportunities to develop in-depth technical knowledge, effective communication skills and a systems engineering perspective that enables them to develop creative solutions to complex problems. The curriculum encompasses core aerospace subjects including fluids, thermodynamics, dynamics, orbital mechanics, structures and systems; design of air and space vehicles; and exciting multidisciplinary applications including bioastronautics, unmanned systems, remote sensing and GPS.

The **ATLAS Institute** is a center of interdisciplinary research, learning, and collaboration in engineering, creative technologies and design. A creative community of researchers, instructors and students from the arts, sciences, social sciences and engineering united by their common interest in technology, ATLAS cultivates a vibrant culture of innovation and interdisciplinary collaboration that benefits from strong ties to the technology sector in Colorado and beyond. Multidisciplinary academic programs include doctoral, master's, bachelor's, minor and certificate programs oriented around topics including creative technologies, physical computing, digital media, virtual reality, technology education, big data and wearable technology.

**Applied mathematicians** have the expertise and mathematical sophistication necessary to make contributions in a wide variety of fields, including scientific computation, actuarial science, financial modeling and most areas of science and engineering that have a mathematical basis.

A professional applied mathematician may work with engineers, scientists, programmers and other specialists. The curriculum at CU-Boulder is designed to have the breadth for such an interdisciplinary career.

Course offerings at the undergraduate level focus on providing students with mathematical tools, problem-solving strategies and expertise useful in science and engineering. To fulfill requirements, a concentrated area of engineering courses (or approved natural science courses) must be completed. The college has formulated several recommended options within the discipline.

**Architectural engineering** prepares students for leadership careers in the building design, consultation, construction and management industry and for research at the graduate level on building- and sustainability-related topics. This course of study fulfills the academic

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requirements for registration as a professional engineer.

The architectural engineering curriculum is recommended for those wishing to specialize within the building industry in engineering design (heating, cooling, illumination, electrical, solar and structures) or construction and contracting (facilities management). Architectural engineering students may select from several concentration areas, including: structural systems; mechanical systems (heating, ventilating and air conditioning); lighting and electrical systems; and construction engineering and management.

**Chemical engineering** prepares students for careers in a range of industries including energy, consumer products, petrochemicals, semiconductors, medicine, environment and materials. Modern industry depends on chemical engineers to tailor manufacturing technology to the requirements of its products, and chemical engineers play a central role in development of new polymeric materials, alternative energy sources and safe, efficient processes for chemical synthesis.

The undergraduate program in chemical engineering includes curricular options in environmental, materials, microelectronics, computing, bioengineering and a premedicine curriculum track. There are active and exciting research and educational programs in biotechnology, pollution control, novel membrane separations and advanced polymeric and ceramic materials.

**Chemical and biological engineering** prepares students for careers in biotechnology, pharmaceuticals, medicine and materials. This degree program adapts a core chemical engineering curriculum to allow for greater depth in biological aspects of chemical engineering. Exploring the structure of protein molecules, the functioning of cells and the growth and regeneration of tissues are among the new frontiers that chemical and biological engineering students will address.

In addition to the standard curriculum, a premedicine curriculum is also offered. The chemical and biological engineering department has active research and educational programs in the exciting field of biotechnology, which involves the use of individual cells and their components for producing pharmaceuticals and other important products. The department is also active in biomedical engineering, which involves medical devices, tissues and biomaterials. A formal cooperative education (co-op) program is offered by the department and its industry partners.

**Civil engineering** offers a wide range of careers for students interested in the planning, design and construction management of facilities essential to modern life in both the public and private sectors. Varying widely in nature, size and scope, such facilities include buildings, bridges, tunnels, highways, transit systems, dams, airports, irrigation projects, water treatment and distribution facilities, waste treatment and processing facilities, structures for space exploration and offshore engineering designs applications.

In the coming decades, almost two billion more people will populate Earth in both developed and developing countries. This growth will create unprecedented demands and opportunities for new methods and innovations in energy production, food supply, land development, water treatment, transportation systems, materials processing, waste disposal, healthcare delivery, environmental preservation and structural designs. Civil engineers play both direct and indirect roles in meeting many of these needs, with the goal of providing and improving the quality and infrastructure of life.

**Computer science** offers study in the fields of computer architecture, operating systems, networking, mobile computing, computer security, robotics, algorithm design, artificial intelligence, software and web engineering, programming languages, database design and data mining, human-computer interaction, computer-supported cooperative work, machine learning, lifelong learning and design, numerical and parallel computation, speech and language

processing, scientific computing and theoretical computer science.

Graduates typically take positions as software engineers for computer manufacturers or software firms, advanced applications programmers in scientific research firms or technically oriented usability experts or systems designers in commercial or government settings.

**Electrical engineering** offers study of the basic science and technology of information and energy. Its areas of knowledge include information theory and communications systems, computers and digital systems, signal processing and instrumentation, feedback systems and automatic control, electrical and electronic devices and systems, power electronics and renewable energy, electromagnetics and microwave devices and optics and photonic systems. Students learn how this basic knowledge is applied to such modern technologies as computers, telecommunications, biomedical systems and remote sensing. The curriculum accommodates a variety of student interests including design, production, testing, consulting services, research, teaching and management. Graduates pursue careers in a large variety of fields in the computer, telecommunications, instrumentation, biomedical, aerospace, energy, materials and semiconductors industries, as well as academia. Some go on to careers in other professions such as law or medicine.

**Electrical and computer engineering** offers the same curriculum as electrical engineering, except that required courses in computer hardware and software replace some upper-division electives. As with electrical engineering, it accommodates broad student interests from design to service, and from research to management. Its graduates take positions in fields as diverse as those listed above for electrical engineering.

**Engineering Management** provides advanced education for engineers and technical professionals who want to take the next step into first or second level of management. The core curriculum focuses on the business basics of project management, finance and accounting, quality management and leadership in engineering settings. Earn a [Masters Degree in Engineering Management](#) by attending classes on-campus, or online via our distance program—participate in our live classes or on-demand, anytime and anywhere.

**Engineering physics** provides students with a broad exposure to the basic physical theories and mathematical techniques underlying engineering. The program may be specialized to meet the student's interests through engineering electives. Most students become involved in laboratory research, and graduates find opportunities in optics, electronics, magnetics and other hardware-based job markets. The program also provides excellent preparation for graduate study in physics, applied physics and other areas of the natural sciences and engineering.

The **Engineering Plus Program** prepares graduates for exciting, diverse and innovative professional careers, and for graduate study in a wide variety of disciplines. The degree program provides a pathway through engineering for students interested in interdisciplinary hands-on engineering design, coupled with a disciplinary engineering emphasis, plus the flexibility to explore another concentration of the students' choice within, or external to, engineering. Students complete core engineering and design coursework, followed by their choice from six engineering emphases (aerospace, architectural, civil, electrical, environmental or mechanical). Students also choose a concentration area, which can be student designed, or an established concentration in secondary math or science teaching, entrepreneurship, pre-medical, or many others. Students will find opportunities in many engineering enterprises, as well as unique positions enabled by their emphasis and concentration choices.

**Environmental engineering** plays a vital role in maintaining the quality of both public health and the natural environment. Environmental engineering encompasses the scientific assessment and development of sustainable engineering solutions to environmental problems impacting the biosphere and land, water and air quality. Environmental issues affect almost all commercial and industrial sectors, and are a central concern for the public, for all levels of

government and in international relations.

In common with other engineering fields, courses in solid mechanics, fluid dynamics and thermal sciences are central to the environmental engineering degree. Course work specific to environmental engineering includes environmental chemistry and microbiology, as well as treatment processes and approach.

**Interdisciplinary Telecommunications** prepares students to play a key role in a wide variety of industries that rely on the Internet and many telecommunications technologies: wireless networking; network engineering; network security; and telecom. Courses are available on campus and from a distance. This cross-discipline curriculum offers graduate certificates, masters and doctoral degrees. The PhD in Telecom enables students to address the key challenges of our global society's communications and networking infrastructure.

**Materials Science and Engineering** provides a rigorous education in materials science and engineering and the fundamental physics, engineering, chemistry and biology that underlie this discipline.

**Mechanical engineering** prepares students for careers in a variety of industrial sectors including transportation, energy, manufacturing, aerospace, medical and environmental. Based on their education in the fundamentals of mathematics, physics and chemistry, mechanical engineers deal with diverse components and systems such as power plants, aircraft, medical instruments, robotics, space platforms and pollution control devices. Career opportunities include work in basic and applied research and development, design, manufacturing, project management, consulting and teaching. Mechanical engineers are employed by a wide variety of industrial, governmental and educational organizations. A mechanical engineering background also provides a firm foundation for other professional careers such as engineering management, law and medicine.

**Open Option Program.** The College of Engineering and Applied Science provides the opportunity for new first-year undergraduate students to delay their selection of an engineering major by enrolling in the open option program. This program is available only to new first-year students; students in the program should select a specific engineering degree program by the eighth week of their second semester.

The college's first-year experience coordinator provides advising for all engineering open option students. This advising is supplemented by advisors in each engineering degree program. Students selecting the open option program are subject to all College of Engineering and Applied Science academic rules and policies. They are also required to satisfy any remaining minimum academic preparation standards (MAPS) required for graduation. For more information, see [www.colorado.edu/engineering/students/first-year/open-option](http://www.colorado.edu/engineering/students/first-year/open-option).

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## Academic Excellence

### Dean's List

An undergraduate student in the College of Engineering and Applied Science who completes at least 12 credit hours of course work for a letter grade during the fall or spring semester on the Boulder campus, and who earns a semester grade point average (GPA) of at least 3.600, will be included on the college dean's list for that semester. Notation of "Dean's List" is placed on the student's transcript, and is viewable at the end of the semester in which the designation is earned.

### Honors at Graduation

Undergraduate students may be eligible for honors designations at graduation. For more information, visit the engineering website for [graduation requirements](#).

### Scholarships

Undergraduate scholarships are provided by public funds and private donations by alumni, corporations and friends of the college. In some cases, endowments have been established; other scholarships are based on annual gifts. Some companies provide matching funds for gifts from their employees who are alumni.

For additional information about college-based scholarships, contact the dean's office at **303-735-2440** or see [www.colorado.edu/engineering/admissions/finances/scholarships](http://www.colorado.edu/engineering/admissions/finances/scholarships). Students may also contact the Office of Financial Aid at **303-492-5091**.

Anyone interested in providing an undergraduate scholarship or contributing to the scholarship fund may contact Engineering Advancement, University of Colorado Boulder, 422 UCB, Boulder, CO 80309-0422, **303-492-7899**.

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# Academic Standards

## Academic Policies

Students in the College of Engineering and Applied Science must abide by all college policies and procedures as outlined at [www.colorado.edu/engineering/academics/advising-and-registration](http://www.colorado.edu/engineering/academics/advising-and-registration) and [www.colorado.edu/engineering/academics/policies](http://www.colorado.edu/engineering/academics/policies). Students should refer to these websites often since policies, procedures and forms may be updated throughout the academic year.

## Ethics

As members of the academic community, students have a responsibility to conduct themselves with the highest standards of honesty and integrity. These qualities are vital to the profession of engineering.

Academic sanctions (which can affect a course grade) and non-academic sanctions (which may include suspension or expulsion) are imposed for the following acts, or intent to engage in such acts: plagiarism; illegal possession and distribution of examinations or answers to specific questions; the presentation of another student's work as one's own; performing work or taking an examination for another student; or the alteration, forging or falsification of official records. This listing is not complete and includes only some types of academic dishonesty. Any student accused by a course instructor of academic dishonesty will be allowed to remain in the course until such time the student acknowledges an act of academic dishonesty or until a hearing has determined that an act of academic dishonesty has been committed. For additional information, see [www.colorado.edu/engineering/academics/policies/honesty](http://www.colorado.edu/engineering/academics/policies/honesty) and the the Honor Code website at [honorcode.colorado.edu](http://honorcode.colorado.edu). See also Academic Integrity and Student Conduct under Campus Policies in the General Information section of this catalog.

## Academic Standing

Academic standing policies and procedures in the College of Engineering and Applied Science may be found at [www.colorado.edu/engineering/academics/policies/academic-standing](http://www.colorado.edu/engineering/academics/policies/academic-standing).

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# Admission & Enrollment Policies

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## Freshman Applicants

When students apply to the College of Engineering and Applied Science from high school, they may indicate to enter the college as “open option” (unsure of engineering major), or they may select a preliminary engineering major. Sometime after completion of the first semester, and by the eighth week of the second semester, all students should finalize their choice of major in the college. For details regarding this process, see

[www.colorado.edu/engineering/academics/policies/confirming-your-major](http://www.colorado.edu/engineering/academics/policies/confirming-your-major).

Specific admission requirements are detailed in the Admission section of this catalog. For more information, see [www.colorado.edu/engineering/admissions/first-year](http://www.colorado.edu/engineering/admissions/first-year).

## Transfer Students

Students desiring to transfer from other accredited collegiate institutions are considered for admission on an individual basis. All transfer students are expected to be enrolled as full-time students and must be admitted to the college prior to the last 45 semester credit hours of their degree program. Admission criteria for students at other CU campuses are the same as for other transfer students.

For more information, see [www.colorado.edu/engineering/admissions/transfer](http://www.colorado.edu/engineering/admissions/transfer).

## Intrauniversity Transfer Students

Undergraduate intrauniversity transfers (IUTs) on the Boulder campus of the University of

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Colorado to the College of Engineering and Applied Science are considered on designated criteria. The applicant's academic record must fulfill the IUT admissions requirements of the College of Engineering and Applied Science. Specific admission criteria and application details may be found at [www.colorado.edu/engineering/admissions/transfer/intra-university](http://www.colorado.edu/engineering/admissions/transfer/intra-university).

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## Former Students

A former student is expected to meet the current requirements outlined in the Admissions section of this catalog and must reapply to the university. Courses taken at other collegiate institutions are not necessarily a determining factor in the student's readmission to the University of Colorado Boulder, but transcripts on all such work must be submitted.

Interruption of studies may require completion of current degree work in addition to repetition of course work for new degree requirements.

A former student returning to the college after a break in attendance must have course work reevaluated by the student's major department/program if it is older than 10 years from the date of his or her return.

## Minimum Academic Preparation Standards (MAPS)

All students entering the University of Colorado who finished high school in the spring of 1988 or after must meet Minimum Academic Preparation Standards (MAPS) specified by each school or college. The College of Engineering and Applied Science has adopted the following standards for students. These standards are defined in high school units; a unit is one full year of high school course work:

- **English:** 4 units
- **Mathematics:** 4 units (includes at least 2 of algebra, 1 of geometry and 1 of college preparatory math such as trigonometry, analytic geometry or elementary functions)
- **Natural Science:** 3 units (2 of physics AND 1 of biology or chemistry; **OR** 2 of chemistry AND 1 of physics or biology; **OR** 2 of biology AND 1 of chemistry or physics; **OR** 1 of physics AND 1 of chemistry or biology AND 1 of another science)
- **Social Science:** 3 units
- **Foreign Language:** 3 of the same foreign language or 2 years in each of two different foreign languages

For additional information, see the Admission and MAPS sections of this catalog.

## Attendance and Full-Time Enrollment

Successful work in the College of Engineering and Applied Science is dependent upon regular attendance in all classes. Students who are unavoidably absent should make arrangements with instructors to make up the work missed. Non-attendance does not constitute withdrawal from a course. *If students stop attending a course in which they are formally enrolled, they are likely to receive a failing grade (F).* All students are expected to be enrolled full time and must petition to be enrolled part time.

## Changing Majors

The form necessary for transferring from one undergraduate engineering major to another, or to

add an additional engineering major, is available online at [www.colorado.edu/engineering/academics/advising-and-registration](http://www.colorado.edu/engineering/academics/advising-and-registration) (Change of Major).

## Class Standing

To be classified as a sophomore in the college, a student must have completed 30 semester credit hours; to be classified as a junior, 60 hours; and to be classified as a senior, 90 hours. A student with more than 120 hours is classified as a fifth-year senior. This class standing does not necessarily reflect the class standing of a student in a degree program.

## Credit Policies

### Advanced Placement

Advanced placement (AP) and college credit may be granted on the basis of the College Entrance Examination Board's (CEEB) Advanced Placement tests. For students who have taken an advanced placement course in high school and who make the required score in the CEEB's Advanced Placement examination, advanced placement and college credit are granted. All advanced placement credit must be validated by satisfactory achievement in subsequent courses, in accordance with the transfer credit policies of the college. For additional information, see [www.colorado.edu/admissions/undergraduate/apply/freshman/credit](http://www.colorado.edu/admissions/undergraduate/apply/freshman/credit).

### College-Level Examination Program Credit

Prospective students may earn college credit on select College-Level Examination Program (CLEP) examinations, provided that they score at the 67th percentile or above. A list of subjects in which CLEP examinations are accepted may be found at [www.colorado.edu/career/testing/exemption-exams-0](http://www.colorado.edu/career/testing/exemption-exams-0).

### Credit for Reserve Officers Training Corps (ROTC)

Up to 6 semester hours of credit of approved ROTC courses may be counted toward a student's degree requirements in the humanities/social sciences. These approved courses may be found at [www.colorado.edu/engineering/academics/policies/hss](http://www.colorado.edu/engineering/academics/policies/hss). With written approval from the student's major department/program, additional ROTC credit hours may be applied as free electives and/or technical professional electives.

### Final Grade Appeal

The college's grade appeal policy may be found at [www.colorado.edu/engineering/sites/default/files/Grade-Appeal-Policy.pdf](http://www.colorado.edu/engineering/sites/default/files/Grade-Appeal-Policy.pdf).

### Incompletes

The grade of *I* (incomplete) may be given by an engineering faculty member when requested and only with documented circumstances beyond a student's control. A substantial amount of work must have been satisfactorily completed before approval for such a grade is given. If an incomplete grade is given, the instructor is required to document both the conditions precedent to the removal of the incomplete and the time limit for the fulfillment of these conditions. The specified time shall not exceed a one-year period. A copy of the "Incomplete Grade Form" is filed with the dean's office, the student's major department/program, the instructor and the student involved.

Course work to complete a grade of *I* must be taken on the same campus on which the grade of *I* was awarded. Credit for a course similar to the course in which the grade of *I* was awarded may not be used to substitute for the incomplete course or be used to remove the grade of *I*.

If the *I* grade is not resolved within one year, it reverts to an *F*.

## No Credit Restrictions

In the College of Engineering and Applied Science, courses required for fulfillment of graduation requirements *cannot be taken for no credit (NC)*. Once a course has been taken for no credit, the course cannot be repeated for credit. Engineering students must petition for approval before enrolling for any course *NC*.

## Pass/Fail Option

The primary purpose for offering courses on a *pass/fail* grading option is to encourage students to broaden their educational experience by selecting elective courses with this grade option without serious risk to their academic record. Individual departments may have rules that should be checked before registering for the *pass/fail* option. The college *pass/fail* policy is:

1. The maximum number of credit hours a student may elect with the *pass/fail* option shall be designated by the student's major department/program, but no more than 16 semester hours of *pass/fail* credit can be applied toward degree requirements. (Study abroad *pass/fail* credit is exempt from this limitation.)
2. Students should obtain advance approval via petition prior to selecting the *pass/fail* option using the College Petition form. Course work taken *pass/fail* without appropriate approval may be reverted to the letter grade earned.
3. All students who wish to register for the *pass/fail* option must do so by the Registrar's Office deadline very early in each semester.
4. Students on academic probation may not elect the *pass/fail* grade option.

## Transfer Credit

After a prospective transfer student has been admitted, the Office of Admissions issues a transfer credit evaluation listing those courses acceptable for transfer by University of Colorado Boulder standards. A copy of this evaluation is made a part of the student's college record. The student's major department/program will then indicate which of those courses are acceptable in meeting engineering degree requirements. It is the responsibility of the transfer student to request final validation of the transfer credit hours by the major department/program and confirm that this validation is noted in the student's college file.

If at any time a student wishes to have a course not previously accepted reconsidered for transfer, the student should consult with the faculty transfer credit evaluator in his or her major department/program to determine if petitioning for credit is in order.

**Nontransferable Credit Hours.** Students desiring to transfer credit hours from engineering technology programs should note that such credit hours are accepted only upon submission of evidence that the work involved was fully equivalent to that offered in this college.

Some technology courses are taught with titles and textbooks identical to those in similar engineering courses. These courses may still not be equivalent to engineering courses because the areas of academic emphasis are divergent.

In order to assist engineering technology students with transfer problems, the following guidelines have been established:

1. Courses on basic subjects such as mathematics, physics, foreign languages, literature or history may be acceptable for transfer credit if they were taught as part of an accredited program for all students and were not specifically designated for technology students.
2. Students who have taken courses with technology designations that may be valid

equivalents for engineering courses have these options:

- They may petition for permission to waive the course requirement. The course requirement can be waived if students demonstrate that, by previous course work, individual study or work experience, they have acquired the background and training normally provided by the course. No credit is given for a waived course, but students may benefit from the waiver by being able to include more advanced work in their curriculum. A student will need to substitute an equivalent number of credit hours (approval by major department/program and college required). Other students may profit by repeating the course at this college and thus establishing a fully sound basis for what follows.
- The appropriate University of Colorado Boulder academic department may recommend to the dean's office that credit be transferred to count toward the requirements for a related course in its curriculum. Credit cannot be given for vocational/technical or remedial courses under rules of the university.
- The student may seek credit for the course by examination, if available, and the student pays the appropriate fee.

For more information on transfer of credit policies, see Transfer of College-Level Credit in the Admission section.

## Work Experience

It is the academic policy of the College of Engineering and Applied Science that credits accrued in the official records of a student that were awarded for work or co-op experience do not apply toward degree requirements.

## Petition Policy

A student desiring a waiver of college or departmental policies must request and secure approval for this waiver through a petition procedure. Petitions are first presented to the student's major department/program for review, followed by review at the dean's office. It is the student's responsibility to obtain official notification of the petition decision from the dean's office. Petition forms and information on the petition procedure are available in the dean's office, in the academic major office or at [www.colorado.edu/engineering/academics/advising-and-registration](http://www.colorado.edu/engineering/academics/advising-and-registration).

## Registration and Enrollment

To ensure the prompt completion of degree requirements and satisfaction of the four-year guarantee, the undergraduate student is expected to register for, and complete each semester, a full-time course load as outlined in the relevant major department/program curriculum. All students are expected to be enrolled full time and must petition to be enrolled part time. Part-time enrollment (less than 12 credit hours) will negatively impact the student's financial aid and scholarships, and is likely to negatively impact student health insurance, on-campus housing and the four-year graduation guarantee. Students must also petition to be enrolled in more than 19 credit hours in any given semester.

## Sequence of Courses

Students are expected to follow the curriculum recommended by their major department.

A student who receives a grade of *D+* or lower in a course that is prerequisite to another may not enroll in the succeeding course without an approved petition from the student's major department/program, the instructor of the succeeding course and the dean's office. (Check with

the major department/program for more stringent requirements on prerequisite course grades.)

All courses are not necessarily offered each semester. According to college policy, undergraduate courses having an enrollment of fewer than 20 students may be cancelled. Students can minimize scheduling problems by closely following the curricular sequence recommended by their major department/program. If a course is unavailable, a student may petition to enroll for equivalent study.

## Add Policy

After the add deadline published by the Registrar's Office, late course adds are processed by the instructor's department (with instructor approval). Engineering students may not enroll in more than 19 credit hours in a semester (17 credit hours for first-semester students) without an approved college petition.

## Drop Policy

Students may drop a class online through the initial drop deadline published by the Registrar's Office (during the third week of classes in a semester), without a *W* grade appearing on the student's transcript. After that date, students may still drop a class online through the final drop deadline published by the Registrar's Office (during the tenth week of classes in a semester), but a *W* grade will appear on the student's transcript. After the final drop deadline, students must file a detailed college petition to request a late drop, which may be approved under the following conditions:

- After the tenth week of class, a student may be approved to late drop a course if they had not previously attended or participated in the course, handed in homework or taken any examinations. Course instructor approval is required.
- After the tenth week of class, a student may be approved to late drop a course only with documentation to verify circumstances beyond their control or a university error. Course instructor approval is required.

Students are responsible for being aware of the consequences of a late drop(s), including impacts on financial aid/scholarships, health insurance, on-campus housing eligibility, academic progress towards degree requirements, etc.

## Repeating Courses

**A student may not enroll more than three times in a course that applies towards degree requirements; furthermore, after the third attempt, a student may not substitute an equivalent course.** This means that a student has a maximum of three opportunities to show sufficient mastery of a particular subject area, whether the course is from CU-Boulder or through another collegiate institution. Furthermore, the most recent occurrence of the subject is the grade which is applied (e.g., to meet a grade required for a prerequisite course). If a student has earned AP or IB college credit and then subsequently enrolls in that course content, the later grade is applied. All grades will be employed to calculate grade point averages, including any courses which are repeated.

## Withdrawal from the University

If you are leaving the university during an academic semester/term or after having paid your registration deposit, you must withdraw from all courses through the Registrar's Office. See [www.colorado.edu/registrar/withdrawing-university](http://www.colorado.edu/registrar/withdrawing-university) for procedural information. Students are responsible for being aware of the consequences of a withdrawal, including impacts on financial aid/scholarships, health insurance, on-campus housing eligibility, academic progress towards degree requirements, etc.

If a student withdraws, college permission may be required for reenrollment. Students who interrupt their course of study may be required to complete all current degree requirements and to repeat courses previously completed.

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## CU System Course Equivalencies Table

The following course-by-course equivalency table should assist in advising students anticipating an intercampus transfer to the College of Engineering and Applied Science at the CU-Boulder campus. Note there may be credit hour differences between equivalencies, thus students should inquire about credit hours applicable toward degree requirements with their destination major department.

| <i>CU-Boulder Course</i>                               | <i>CU-Colorado Springs Equivalent Course</i> | <i>CU Denver Equivalent Course</i> |
|--|--|------------------------------------|
| AREN 1027-3 Engineering Drawing                        | none   | CVEN 1025                          |
| APPM 1350-4 Calculus 1 for Engineers                   | MATH 1350 or<br>(MATH 1310 + 1320)           | MATH 1401                          |
| APPM 1360-4 Calculus 2 for Engineers                   | MATH 1360                                    | MATH 2411                          |
| APPM 2350-4 Calculus 3 for Engineers                   | MATH 2350                                    | MATH 2421                          |
| APPM 2360-4 Differential Equations with Linear Algebra | MATH 3130 + 3400                             | MATH 3195 or<br>(MATH 3191 + 3200) |
| CHEM 1113-1 General Chemistry 1                        | CHEM 1301                                    | CHEM 2031                          |
| CHEM 1114-1 General Chemistry 1 Laboratory             | CHEM 1301                                    | CHEM 2038                          |
| CHEM 1133-4 General Chemistry 2                        | CHEM 1311                                    | CHEM 2061                          |
| CHEM 1134-1 General Chemistry 2 Laboratory             | CHEM 1311                                    | CHEM 2068                          |
| CHEM 3311-3 Organic Chemistry 1                        | CHEM 3101                                    | CHEM 3411                          |

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| CHEM 3321-1 Organic Chemistry 1 Laboratory          | CHEM 3102 | CHEM 3418             |
| CHEM 3331-3 Organic Chemistry 2                     | CHEM 3111 | CHEM 3421             |
| CHEM 3341-1 Organic Chemistry 2 Laboratory          | CHEM 3112 | CHEM 3428             |
| CHEN 1211-4 General Chemistry for Engineers         | none      | CHEM 1130             |
| COEN 1500-1 Introduction to Engineering             | ENGR 1502 | ENGR 1000             |
| CSCI 1000-1 CS as a Field of Work and Study         | CS 3050   | None                  |
| CSCI 1300-4 Computer Science 1 : Programming        | CS 2060   | CSCI 1410 + CSCI 1411 |
| CSCI 2270-4 Computer Science 2 : Data Structures    | CS 1450   | CSCI 2312 + CSCI 2421 |
| CSCI 2400-4 Computer Systems                        | CS 2160   | CSCI 2525             |
| CSCI 2824-3 Discrete Structures                     | none      | CSCI 2511             |
| CSCI 3104-4 Algorithms                              | CS 4720   | CSCI 3412             |
| CSCI 3155-4 Principles of Programming Languages     | CS 3160   | CSCI 3415             |
| CSCI 3202-3 Introduction to Artificial Intelligence | CS 4820   | CSCI 4202             |
| CSCI 3287-3 Database and Information Systems        | CS 4420   | CSCI 3287             |
| CSCI 3308-3 Software Engineering Methods and Tools  | CS 3300   | CSCI 3508             |
| CSCI 3434-3 Theory of Computation                   | CS 4700   | CSCI 4034             |
| CSCI 3656-3 Numerical Computation                   | CS 4600   | CSCI 4650             |
|   |           |                       |

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|--|----------------------|------------------------|
| CSCI 3753-4 Operating Systems                              | CS 4500              | CSCI 3453              |
| CVEN 2012-3 Introduction to Geomatics                      | none                 | CVEN 2212              |
| CVEN 2121-3 Analytical Mechanics 1                         | none                 | CVEN 2121              |
| CVEN 3111-3 Analytical Mechanics 2                         | none                 | CVEN 3111              |
| CVEN 3161-3 Mechanics of Materials 1                       | none                 | CVEN 3121              |
| CVEN 3313-3 Theoretical Fluid Mechanics                    | none                 | CVEN 3313              |
| CVEN 3323-3 Hydraulic Engineering                          | none                 | CVEN 3323              |
| CVEN 3414-3 Fundamentals of Environmental Engineering      | none                 | CVEN 3401              |
| CVEN 3424-3 Water and Wastewater Treatment                 | none                 | CVEN 3414              |
| CVEN 3525-3 Structural Analysis                            | none                 | CVEN 3505              |
| CVEN 3602-3 Transportation Systems                         | none                 | CVEN 3602              |
| CVEN 3698-3 Engineering Geology                            | none                 | CVEN 4780              |
| CVEN 3708-3 Geotechnical Engineering 1                     | none                 | CVEN 3708              |
| CVEN 3718-3 Geotechnical Engineering 2                     | none                 | CVEN 4728              |
| ECEN 1100-1 Freshman Seminar                               | none                 | ELEC 1201              |
| ECEN 1310-4 C Programming for EE/ECE                       | ECE 1021             | None                   |
| ECEN 1400-3 Introduction to Digital and Analog Electronics | ECE 1001             | None                   |
| ECEN 2250-3 Introduction to Circuits and Electronics       | ECE 2205 or ECE 2210 | ELEC 2132 or CSCI 2132 |
| ECEN 2260-3 Circuits as Systems                            | ECE 3205             | ELEC 2142              |
| ECEN 2270-3 Electronics Design                             | ECE 3230 + ECE       | ELEC 2552 + ELEC       |

|   |                       |                        |
|---|-----------------------|------------------------|
| Laboratory  | 3240                  | 3715 + ELEC 3735       |
| ECEN 2350-3 Digital Logic                                     | ECE 1411 + ECE 2411   | ELEC 1510 or CSCI 1510 |
| ECEN 3010-3 Circuits and Electronics for Mechanical Engineers | MAE 2055              | MECH 3030 + MECH 3032  |
| ECEN 3030-3 Electrical/Electronic Circuits for Non-Majors     | none                  | ELEC 3030              |
| ECEN 3170-3 Energy Conversion 1                               | ECE 3910 or ECE 4160  | ELEC 3164              |
| ECEN 3250-3 Microelectronics                                  | ECE 3210              | ELEC 3215              |
| ECEN 3300-3 Linear Systems                                    | ECE 3510 or ECE 2610  | ELEC 3316              |
| ECEN 3320-3 Semiconductor Devices                             | ECE 3020 or 2050      | ELEC 4025              |
| ECEN 3350-3 Programming of Digital Systems                    | ECE 3430              | ELEC 1520              |
| ECEN 3360-3 Digital Design Laboratory                         | ECE 3420 + ECE 3440   | ELEC 4411 + ELEC 2531  |
| ECEN 3400-3 Electromagnetic Fields                            | ECE 3110              | ELEC 3133              |
| ECEN 3410-3 Electromagnetic Waves and Transmission            | ECE 3120 or ECE 4110  | ELEC 4133              |
| ECEN 3810-3 Introduction to Probability Theory                | ECE 3610              | ELEC 3817              |
| GEEN 1400-3 First-Year Engineering Projects                   | ENGR 1001             | None                   |
| MCEN 1025-4 Computer-Aided Design and Fabrication             | MAE 1005 + MAE 2501   | MECH 1025              |
| MCEN 2023-3 Statics and Structures                            | MAE 2103              | MECH 2023              |
| MCEN 2024-3 Materials Science                                 | MAE 2200 or CHEM 3010 | MECH 3024              |

|   |                        |                        |
|---|------------------------|------------------------|
| MCEN 2043-3 Dynamics  | MAE 2104 + MAE 4402    | MECH 2033              |
| MCEN 2063-3 Mechanics of Solids                               | MAE 3201               | MECH 3043              |
| MCEN 3012-3 Thermodynamics                                    | MAE 2301               | MECH 3012 or ENGR 3012 |
| MCEN 3021-3 Fluid Mechanics                                   | MAE 3130               | MECH 3021              |
| MCEN 3022-3 Heat Transfer                                     | MAE 3310               | MECH 3042              |
| MCEN 3025-3 Component Design                                  | MAE 3501               | MECH 3035              |
| MCEN 3030-3 Computational Methods                             | MAE 3020               | MECH 4110 or MECH 3010 |
| MCEN 3032-3 Thermodynamics 2                                  | MAE 3302               | MECH 3022              |
| PHYS 1110-4 General Physics 1 + PHYS 1120-4 General Physics 2 | PES 1110 + 1120 + 2130 | PHYS 2311 + 2331       |
| PHYS 1140-1 Experimental Physics 1                            | PES 1160 + 2160        | PHYS 2321 + 2341       |
| PHYS 2130-3 General Physics 3                                 | PES 3130               | PHYS 2811              |

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Fundamentals taught in the freshman year are of prime importance in the more advanced classes, and every effort is made to place all freshman students in appropriate courses.

It is strongly recommended that students avoid the likelihood of later scheduling problems by carefully following the recommended curriculum in their major or in the open option program.

## Advising

Students are advised by professional staff advisors and faculty mentors from their respective major department/program, typically at least once a semester. Academic advising information and a list of contacts may be found at [www.colorado.edu/engineering/academics/advising-and-registration](http://www.colorado.edu/engineering/academics/advising-and-registration). Students use MyCUHub to communicate with advisors, setup appointments, explore majors, etc.

## Four-Year Graduation Guarantee

For academically prepared freshmen who do not wish to extend their studies beyond eight semesters, the University of Colorado extends a guarantee that required or essential courses, or acceptable alternative courses, will be available to allow each student to complete all course work required for a bachelor of science degree from the College of Engineering and Applied Science no later than the end of eight consecutive semesters of full-time enrollment. In the event the University of Colorado is not successful in meeting the terms of this guarantee, the university will reimburse the student all tuition and course fees for those courses remaining to successfully complete the previously designated bachelor of science degree.

Full details regarding the guarantee and qualifications may be found at [www.colorado.edu/engineering/academics/policies/four-year-graduation-guarantee-and-flexible-first-year](http://www.colorado.edu/engineering/academics/policies/four-year-graduation-guarantee-and-flexible-first-year).

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Graduate School Other Academic Programs

To be eligible for the baccalaureate degree from the College of Engineering and Applied Science on the Boulder campus, a student must meet all of the following minimum requirements:

- The satisfactory completion of the prescribed and elective work in any curriculum as determined by the appropriate academic department. A student must complete a minimum number of semester hours, not less than 128, of which the last 45 must be Boulder coursework earned after admission to the university and this college.
- A University of Colorado cumulative grade point average of 2.250 (2.000 for new students prior to fall 2011) for all courses attempted.
- A cumulative grade point average, separately computed, of 2.250 (2.000 for new students prior to fall 2011) in courses taken from the student's major department is also required. For students in the applied mathematics program, the major department shall be the Applied Mathematics Department; for students in the engineering physics program, the major department shall be the Physics Department. For students majoring in environmental engineering, all chemical, civil, environmental and mechanical engineering courses will be considered in lieu of those from a single department. For students majoring in Engineering Plus, all courses in the Engineering Core and the Disciplinary Emphasis will be considered.
- The recommendation of the faculty of the academic department (or program) offering the degree. The campus designation on the diploma and transcript shall correspond to the campus designation of the academic department initiating the degree recommendation.
- The recommendation of the faculty of the college.
- The satisfactory completion of all Minimum Academic Preparation Standards (MAPS) deficiencies.
- Some majors require the successful completion of an outcome measurement prior to graduation (e.g., the Fundamentals of Engineering (FE) examination).

Students should meet with their academic advisor to discuss progress towards degree requirements, and then if appropriate, apply for graduation via the online Student Center according to timelines provided by the College, the Graduate School and/or the Registrar's Office.

See [www.colorado.edu/engineering/academics/policies/graduation-requirements](http://www.colorado.edu/engineering/academics/policies/graduation-requirements) for more information.

## Double Majors / Double Degrees

A student in the College of Engineering and Applied Science may be able to major in two engineering disciplines or obtain one degree in engineering and obtain one in another field, such as business, music or one of the arts and sciences disciplines. Full degree requirements must be met for each college/major. The degrees are awarded concurrently.

## Minors

The college offers a number of minors. For more information, visit [www.colorado.edu/engineering/academics/degrees-minors-certificates/minors](http://www.colorado.edu/engineering/academics/degrees-minors-certificates/minors).

## Premedical Option

Students interested in meeting requirements for entry into medical or other health professions

schools while earning a degree in engineering should consult with a prehealth academic advisor ([advising.colorado.edu/prehealth](http://advising.colorado.edu/prehealth)). Students should also discuss their plans with their major department's academic advisor, since some of the required course work may fulfill electives in their engineering curriculum.

## Concurrent BS and MS Degree Program in Engineering

Students with strong academic records who plan to continue in the Graduate School usually find it advantageous to apply for admission to the concurrent BS/MS degree program.

Application is made to the Graduate School through the appropriate academic department.

Application and admission may occur during the junior year; consult individual departments for their exact timing. The College of Engineering and Applied Science requires a minimum GPA of 3.25 for admission to this program; some departments may have higher requirements.

Requirements for the two degrees are the same as those for two degrees taken separately: 128 credit hours for the BS degree; plus 30 credit hours including 4-6 thesis hours (Plan I) or 30 credit hours (Plan II) for the MS degree. In some departments, up to 6 hours of graduate course work may be applied to the undergraduate degree. Students are allowed to structure their senior and graduate years in an order that is optimal for their program, as long as all requirements for both the BS and MS degrees are completed by the end of the joint BS/MS program. The BS and MS degrees must be awarded concurrently at the completion of the degree program. The tuition rate for students in this program will be at the undergraduate rate until the student is converted to graduate status, which will automatically happen when the student has 145 credit hours in the undergraduate career. Transfer, AP and IB hours are included when determining the total credit hours completed.

For additional details on this program, contact the appropriate engineering academic department or the Graduate School.

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## Graduate Study in Engineering

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The College of Engineering and Applied Science offers degree programs for the master of engineering (ME), master of science (MS) and doctor of philosophy (PhD) degrees. There are degree programs in each of the following areas:

- aerospace engineering sciences
- architectural engineering
- chemical engineering
- civil engineering
- computer science
- electrical engineering
- engineering management
- materials science and engineering
- mechanical engineering
- technology, media and society
- telecommunications

The master of science in applied mathematics is offered through the Department of Applied Mathematics in the College of Arts and Sciences.

Graduate programs within each engineering department offer a variety of options, providing a number of alternative careers.

The **aerospace program** is organized around focus areas in astrodynamics and satellite navigation systems; bioastronautics; remote sensing, Earth and space sciences; and aerospace engineering systems, including fluid dynamics and propulsion, automatic control, structures and mechanics of materials.

**Architectural engineering** focuses on the design, construction and operation of buildings and their systems. Areas of emphasis include sustainable building design and operation, illumination engineering, energy efficient and renewable energy technologies and construction engineering and management.

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Graduate School Other Academic Programs

Key activities in **chemical engineering** include biomaterials and tissue engineering, biosensing, biotechnology and pharmaceuticals, catalysis and surface science, computational science and engineering, energy, fluids and flows, interfaces and self-assembly, membranes and separations, nanomaterials and nanotechnology, polymers and soft materials, protein engineering and synthetic biology.

Fields emphasized in **civil engineering** include geotechnical engineering and geomechanics, structural mechanics and engineering, construction management and engineering, environmental and geoenvironmental engineering, hydrology, environmental fluid mechanics, civil engineering systems and engineering science.

Strengths in **computer science** include computer architecture, operating systems, networking, mobile computing, computer security, computational biology, robotics, algorithm design, artificial intelligence, software and web engineering, programming languages, database design and data mining, human-computer interaction, computer-supported cooperative work, machine learning, lifelong learning and design, numerical and parallel computation, speech and language processing, scientific computing and theoretical computer science.

Areas of focus in **electrical engineering** include photovoltaic, wind and renewable energy systems, power electronics systems, electromagnetic theory, microwave systems, antennas, remote sensing, bioelectronics and biomedical engineering, communications and signal processing, medical imaging, optoelectronics, nanophotons and nanodevices, biophotonics, man/machine interfaces, controls theory, and complex network systems.

The core curriculum of **Engineering Management** addresses the business basics of project management, finance and accounting, quality management and leadership. Elective courses provide in-depth skills in areas such as Six Sigma, product management, R&D, ethical decision-making, lean and agile management and software management.

The **environmental engineering** program offers study emphasis in several major environmental engineering and science areas: drinking water, wastewater and water reuse treatment using physical, chemical and biological technologies; air, water and sanitation engineering for developing communities; natural water systems—ecology and contaminant fate and transport; air quality and control; and environmental change adaptation.

**Materials Science and engineering** offers tracks of study in electronic, magnetic and photonics materials, soft materials, structural materials, materials for energy, biomaterials and computational materials science.

**Mechanical engineering** core areas of concentration include air quality, bioengineering, design, energy and environment, materials, mechanical engineering fundamentals (e.g., heat transfer, fluid mechanics), mechanics of materials, microsystems and simulation-based mechanical engineering sciences. Within these core areas specific expertise includes air quality measurements and modeling, biomedical devices, mechatronics and robotics, pollution prevention, membrane sciences, combustion sciences, energy conversion, nondestructive structural evaluation, micro-electro-mechanical systems, nanotechnology, computational fluid dynamics, product design and engineering education.

Studies in **Technology, Media and Society** through ATLAS are radically interdisciplinary. The doctoral program caters to highly motivated inventors and investigators whose interests fall outside the scope of traditional disciplinary programs. PhD students hold degrees in electrical engineering, education, journalism, music, computer science, art history, physics, and library science. Attracting similarly diverse students, the master's program includes tracks in Creative Technologies and Design (CTD), and Information and Communication Technology for Development (ICTD). The studio-based CTD track invites artists and designers to gain strong technical skills to realize their creative vision, while supporting engineers and scientists to

pursue their own vision. Bringing together individuals with vastly different backgrounds and expertise, the program prepares students for a wide gamut of careers in design, technologies, and the creative arts. The related ICTD track develops students' technical skills, critical thinking and creative problem solving as they seek to address needs in developing countries and underserved communities such as access, social equity, public policy, sustainability, appropriate design and distribution.

**Telecommunications** offers an interdisciplinary curriculum. Students are able to master not only the latest technologies associated with the Internet, but also the business skills and policy knowledge essential to achieving success in the companies driving today's rapidly changing high-tech world. Within the Interdisciplinary Telecommunications Program (ITP), students can develop expertise in leading-edge specialties such as network engineering, wireless engineering, network security and telecom policy and strategy—by gaining hands-on experience in our world-class labs working with state-of-the-art technologies.

## Graduate Degree for Science Majors

Science graduates who have good academic records and strong backgrounds in mathematics and science may be eligible for admission as graduate students in engineering or may be able to qualify with some extra course work. Information may be obtained from the appropriate academic department office.

## Distance Education and Professional Development Programs

At Be Boulder Anywhere, we've been providing distance education for more than 30 years. Whether online or on campus, students can expect the most current online learning environment, integrated with streaming and other tools that make it easy to interact with faculty and peers.

- Experience the best-in-class online learning environment. Students stream or download digitally recorded classroom lectures when it's convenient for them.
- Pursue a master's degree, a graduate certificate or take individual courses in engineering, including aerospace engineering sciences, computer science, electrical engineering, engineering management or interdisciplinary telecommunications.
- Receive a CU-Boulder degree, the same as main campus students, not an "online degree."
- Deepen expertise in a specific discipline, such as aerospace or computer science; master the skills necessary to transition into leadership in a technical field; or gain interdisciplinary knowledge to target success in the telecom realm.
- Cultivate relationships with CU-Boulder's highly regarded faculty.

For more information, visit [beboulderanywhere.colorado.edu](http://beboulderanywhere.colorado.edu).

## Master of Engineering, Master of Science and Doctor of Philosophy

Students wishing to pursue graduate work in engineering leading to candidacy for advanced degrees should read carefully the requirements for advanced degrees in the Graduate School section. Some departments also have available explanatory material on their advanced degree programs.

**Prerequisites.** To enroll for an advanced degree in any department of the College of Engineering and Applied Science and the interdisciplinary telecommunications program, candidates either must have previously earned a bachelor's degree in a curriculum that includes the necessary prerequisites for that branch of engineering or must qualify for the concurrent BS and MS program. If the candidate's preliminary education was taken at some other institution, the degree of qualification for advanced work is determined by the department concerned and by the dean of the Graduate School.

Graduates of engineering technology programs should note that the equivalent of a BS degree in an appropriate engineering field is required for entry into the Graduate School. Because the goals and orientation of engineering programs differ from those of technology programs, technology graduates should expect to make up deficiencies before being admitted to graduate study in engineering. Students may not be admitted to the Graduate School while making up deficiencies, but can enroll as non-degree students.

For admission as a regular degree student, an undergraduate GPA of at least 3.000 is normally required.

**Course Work.** Graduate work in each department of the College of Engineering and Applied Science falls into two classes:

1. Courses that are offered for candidates who have chosen to major in the particular department
2. Courses that are offered for candidates who have chosen their major in some other department, but who are pursuing a certificate or other complementary course work

Graduate students majoring in any department may not use toward graduate degrees those courses listed as required undergraduate work in the same department. They may, however, use up to 6 hours taken at the 3000–4000 level toward a master's degree. These course must be taken from an engineering department other than that in which they received their bachelor's degree, and must have the approval of the department granting the degree and the dean of the Graduate School.

**Availability of Courses.** All courses are not necessarily offered every year. They are available only if there is sufficient demand.

**Qualifying or Preliminary Examinations.** Graduate students who plan to become candidates for the MS or PhD degree may be required to take a qualifying or preliminary examination. Individual departments should be consulted concerning the timing or requirement of this examination.

## Teaching and Research Assistant English Proficiency and Intelligibility

The College of Engineering and Applied Science requires that all graduate teaching assistants and research assistants be proficient and intelligible in spoken English. In order to ensure that this is the case, all prospective teaching assistants and research assistants whose native language is not English, or others for whom the department graduate program coordinator believes that spoken language intelligibility is a concern, regardless of native language, will be tested for spoken language intelligibility prior to or at the beginning of the semester in which the teaching or research assistantship is awarded. In the event that a prospective teaching or research assistant does not demonstrate a satisfactory level of proficiency, as determined by campus assessment, that student will be required to participate in training designed to improve intelligibility.

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## Programs of Special Interest

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### Active Learning Program

The College of Engineering and Applied Science defines active learning as “enhancing knowledge, skills and understanding through practical experience.” The college’s goal is to provide all students with the opportunity to participate in enrichment experiences and partnerships with individual faculty and professionals in discovery, service and professional learning. Several programs are in place to financially support students engaged in undergraduate research or “discovery learning” with faculty, graduate students and research sponsors. Students seeking professional learning experiences such as internships and co-op assignments with a participating employer also typically earn hourly wages, while those pursuing service learning opportunities in the college, community or beyond could earn wages or course credit. Active learning encompasses domestic and international opportunities such as assisting developing communities through Engineers Without Borders, a national nonprofit organization started at CU-Boulder. For more information about active learning programs and opportunities, visit [www.colorado.edu/engineering/activelearning](http://www.colorado.edu/engineering/activelearning).

### Integrated Teaching and Learning Program

The Integrated Teaching and Learning (ITL) program provides K-16 engineering education initiatives aimed at supporting the teaching and learning of hands-on, minds-on engineering curriculum so that students of all ages can imagine a future in engineering. With a focus on engineering design, undergraduate engineering students have the ability to create what they dream via modern manufacturing and electronics capabilities—reinforced through innovative

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engineering courses, as well as through time set aside for the creation of personal projects to expand one's creative thinking.

Through ITL Program skill-building workshops on tools, machining, soldering, circuits, strain gauges, laser cutters, Arduino microcontrollers, LabVIEW, SolidWorks, spatial visualization and more, students become comfortable with the resources that help them do the engineering that impacts everyday life. The multidisciplinary, hands-on ITL Laboratory features two open and interactive laboratory plazas that support inquiry-based experimentation, data acquisition and analysis capability. The laboratory also hosts design studios, team work areas, active learning spaces—all designed to be used by all disciplines of CU engineering students as they do engineering.

The ITL Program's nationally recognized K–12 engineering education program focuses on attracting and preparing more diverse and well-prepared youth to careers in engineering and technology. K-12 audiences may visit the ITL Laboratory to learn how engineering is an essential part of their lives through myriad hands-on science and engineering exhibits. K-12 teachers and students can also access the TeachEngineering digital library, a free online curricular resource supporting educators to bring engineering into their K-12 classrooms through high quality engineering lessons and hands-on activities aligned to science, mathematics and technological educational standards. Accessed by over 1.6 million unique users in the past year, TeachEngineering has become a key resource to the broad national STEM movement and the growing K-12 engineering community.

The ITL program features an innovative interdisciplinary undergraduate curriculum that includes the retention-building First-Year Engineering Projects course that engages student teams to experience the design process in a hands-on way, culminating in an end-of-semester public design expo. The ITL Program also supports the design courses that distinguish the Engineering Plus degree program.

Visit [itll.colorado.edu](http://itll.colorado.edu) for more information.

## BOLD Center

The college-wide BOLD (Broadening Opportunity through Leadership and Diversity) Center focuses the college's inclusion-centered access, retention and performance initiatives. The BOLD Center creates a vibrant and inclusive community of students from a wide range of backgrounds, preparing engineers with diverse perspectives to be innovative leaders in a global society. Through BOLD-inspired and -led initiatives, the college is dedicated to becoming a leader in attracting, preparing and expanding opportunities for students historically underrepresented in engineering—including women, racial minorities, students from low-income families and those who are the first in their family to attend college. The BOLD Center team focuses deeply on measurable outcomes to significantly improve upon historical student access, retention and performance results.

**BOLDly Moving Forward.** The BOLD Center achieves breakthroughs in attracting, preparing and expanding opportunities for historically underrepresented students in engineering through academic offerings that inspire and motivate student success. Building strong community among students who might otherwise feel isolated is also a BOLD key to student success. BOLD promotes student engagement, achievement and retention in engineering through a focus on community building, leadership and professional development activities, coupled with building strong academics and an expectation for achieving excellence.

**Why be BOLD?** Through the inclusive BOLD community, students meet and work with peers, connect with engineering student societies, tap into internships and mentoring opportunities, explore career services, acquire effective study habits and pursue volunteer opportunities. The

BOLD Center offers free tutoring for all engineering students in the Student Success Center. BOLD participation scholarships are available through an application process. Visit [www.colorado.edu/bold](http://www.colorado.edu/bold).

## Engineering Leadership Program

The Engineering Leadership Program (ELP) provides students with course work and active learning experiences to prepare them to be leaders in their chosen careers, whether it is in an engineering field or another field such as government service, law, medicine, etc. Students in the program have the opportunity to take specialized leadership courses through ELP and other CU programs, attend leadership seminars sponsored by the college and learn from a mentor who has leadership experience relevant to their interests. ELP Students also design and undertake a leadership experience and must produce a portfolio for review prior to graduation. Students apply to the program in their first or second year. See [www.colorado.edu/engineering/leadership](http://www.colorado.edu/engineering/leadership) for more information.

## Pre-Engineering Program

The Pre-Engineering Program is designed to facilitate the successful transition of qualified first-year students in the College of Arts and Sciences into the College of Engineering and Applied Science. The program provides a structured pathway of CU-Boulder course work combined with academic advising support from both the College of Engineering and Applied Science and the College of Arts and Sciences.

The program serves qualified first-time freshmen applicants who initially applied to the College of Engineering and Applied Science, but were alternatively offered admission to the College of Arts and Sciences Pre-Engineering Program. Pre-Engineering students prepare for a transition to the engineering college by successfully completing specific math, science and engineering courses. Through special registration access to select engineering courses, most students can complete engineering admission requirements in three semesters, while some may do so in as few as two semesters. The maximum length of time in the Pre-Engineering Program for any student is four semesters, at which point the student will either be admitted to engineering or will transition into an arts and sciences major. Pre-Engineering students receive dual support from advisors in both the College of Engineering and Applied Science and the College of Arts and Sciences. They are also encouraged to live on campus in engineering-affiliated living communities and actively engage in engineering student societies and organizations. Specific program requirements and further details may be found at [www.colorado.edu/engineering/pre-engineering](http://www.colorado.edu/engineering/pre-engineering).

## Colorado Space Grant Consortium

NASA's Colorado Space Grant Consortium (also known as Space Grant) is part of a national program. CU Space Grant provides students with access to space through innovative courses and real-world, hands-on space hardware programs that include short and long-duration, high altitude balloon payloads, sounding rocket payloads and low-Earth orbiting satellite missions.

Space Grant students interact with engineers and scientists from NASA and industry to develop, test and fly new space technologies. All missions are entirely student run—including students in the roles of team members, team leads, systems engineers, project managers and mission operators. Students participate in programs that aid them in their future academic courses and careers. For more information, visit [spacegrant.colorado.edu](http://spacegrant.colorado.edu).

## Herbst Program of Humanities

The Herbst Program of Humanities enriches and broadens the technical education of engineering students with literature, philosophy, history, social issues and the arts.

Its seminar courses, HUEN 1010 and HUEN 3100, are limited to no more than 15 students; class time is devoted almost exclusively to roundtable discussion of original texts, primarily in literature and philosophy. Both courses also include the arts in some form: painting, architecture, music or film. Students hone their critical thinking skills through reading, discussion and extensive writing. Because of the heavy emphasis on writing, both courses satisfy the College's writing requirement. Note: HUEN 1010 satisfies the writing requirement only when taken in a student's freshman year.

The Herbst Program offers other courses on a rotating basis. HUEN 1850, The History of Engineering, studies technological change and its consequences through time. HUEN 2100, 2120 and 2130 together survey science and technology from the Stone Age to the 20th century. HUEN 2210, Engineering, Science and Society, explores the ethics and social implications of engineering practice. "Special Topics" courses are occasionally offered, either as HUEN 2843 or as HUEN 3843; these address subjects as varied as Meaning and Morality after Darwin, The History of Western Medicine and The Ethics of Bioengineering. The Herbst Program offers summer, study abroad, and Maymester courses. See [www.colorado.edu/engineering/herbst](http://www.colorado.edu/engineering/herbst) for more information.

The Program was initially funded by an endowment established by Clancy and Linda Herbst in 1989. It is sustained by the continuing support of Clancy and Linda Herbst, the Price Foundation, the College of Engineering and Applied Science and friends of the Program.

## Study Abroad

In today's global environment, engineers can expect to work in multilingual and multicultural teams, and to engage in projects with global impact. Therefore, it is essential that students develop global engineering competencies alongside their technical skills, either through careful selection of globally-oriented courses or through international experiences such as study abroad. CU Boulder offers nearly 350 study abroad programs in 65 countries that allow engineering students to complete degree requirements abroad. These programs include a faculty-led summer Global Seminar in Spain, a semester exchange in Singapore and internships around the world, among many other options. Careful planning is required to ensure that the courses taken abroad meet degree requirements and that participants stay on track for graduation. All participants in CU-approved study abroad programs remain enrolled at the university and receive *in-residence credit*; the *pass/fail* grade option is used by this college for course work taken during study abroad (but is exempt from college and major department *pass/fail* limitations). Financial aid from the university can be applied to the program costs in many cases, and special study abroad scholarships may be available for program participants. For more information, contact the Office of International Education: [studyabroad.colorado.edu](http://studyabroad.colorado.edu).

## Mortenson Center in Engineering for Developing Communities

Engineering for Developing Communities (EDC) is an innovative program dedicated to transforming the understanding, application, and evaluation of engineering to address some of the world's most pressing issues. The engineers of today need to work with colleagues in various disciplines from around the world to find locally appropriate solutions to global issues such as climate change, crumbling urban infrastructure, and adequate water and food supplies for a growing world population. By giving students tools in understanding systems perspectives,

development theory, and contexts from local to global, the program helps create global citizen engineers capable of working in many roles in development engineering. The Mortenson Center in Engineering for Developing Communities offers options for both undergraduate and graduate students. More information about the Mortenson Center is available online at [mcedc.colorado.edu](http://mcedc.colorado.edu) (<http://mcedc.colorado.edu>) or by calling **303-735-6708**.

**Undergraduate Program.** The Mortenson Center manages the Undergraduate Certificate in Global Engineering for degree-seeking engineering students. This certificate expands students' understanding of how to operate in an international context from an engineering perspective. This translates to the capacity to work in either an international team from within an office located domestically or internationally. These work environments necessitate that students understand multinational contexts as well as local office and nongovernmental agency contexts. For more details about the undergraduate certificate, please see [mcedc.colorado.edu/education/undergraduate-certificate-global-engineering](http://mcedc.colorado.edu/education/undergraduate-certificate-global-engineering).

**Graduate Program.** At the graduate level, the Mortenson Center offers: (1) a Master of Engineering (ME) Professional Program in EDC and (2) a Graduate Certificate in EDC within a traditional MS or PhD program.

The ME Professional Program in EDC is a 30 credit hour, coursework-only program that is offered through the Civil, Environmental, and Architectural Engineering department and leads to an ME degree. The program combines classroom work with real world, on-the-ground experience to train engineers to work in partnership with organizations in developing communities worldwide. Individuals who are primarily interested in becoming competitive candidates for employment in the field of engineering for development should pursue this option.

The Graduate Certificate in EDC offers students in any engineering degree program within the College of Engineering and Applied Science an opportunity to complete a specialization (via a certificate) in EDC alongside their MS or PhD degree. To earn the certificate, students complete twelve credits of coursework in sustainable community development, fieldwork methods, and a field-based practicum. Under this option, students may take on research or teaching assistantships. Students should complete this option if they are interested in conducting research during their graduate degree or plan to pursue a PhD in the future.

Both the ME Professional Program in EDC and the EDC graduate certificate program are recognized Western Regional Graduate Programs that offer residents of eligible WICHE-participating states a tuition benefit. For more information about the WICHE WRGP, please see [www.wiche.edu/wrgp](http://www.wiche.edu/wrgp).

## Student Organizations

Information about student organizations in the college may be found at [www.colorado.edu/engineering/academics/student-organizations](http://www.colorado.edu/engineering/academics/student-organizations).

## Residential Communities

The Engineering Honors Program, the Global Engineering Residential Academic Program, Sustainable by Design Residential Academic Program and the Quadrangle Engineering and Science Living and Learning Community, are popular community-building options for engineering students. See [housing.colorado.edu/residences/residential-academic-communities](http://housing.colorado.edu/residences/residential-academic-communities) for information.

## Engineering Honors Program

As a Residential College (RC), the Engineering Honors Program provides an educational experience that transcends the classroom and is designed to match the unique abilities, needs and ambitions of the college's best students. The program is for students who want to belong to and contribute to an honors culture that cares more about learning than grades; more about maximizing their opportunities than meeting minimum requirements; more about being thoughtful, critical, engaged and intentional than being passively defined by the vague expectations of others. Central to fulfilling this mission is the Engineering Honors Program Residential College in Andrews Hall, which includes a residential faculty member, classrooms, special study spaces and the highest percentage of upper-division students living on campus.

Being part of EHP means being part of a community that is ambitious without being competitive and committed to a wide range of goals from international development to graduate school, from research to teaching, from industry to service. It means living next to students already doing research, returning from summer internships, working with Engineers without Borders and applying to graduate school.

Incoming first-year students are selected to participate in the Engineering Honors Program via an online application process. For more information regarding program requirements and access to the application, visit [www.cuhonorsengineering.com](http://www.cuhonorsengineering.com).

## Global Engineering Program

The Global Engineering Residential Academic College (<http://cuglobalengineering.org>) opened in Fall 2013 with the mission to provide a four-year educational experience for engineering students invested in foreign languages, culture and geopolitics and well as in global development and international design collaboration. Global Engineering emphasizes those aspects of education that take place outside the traditional classroom: belonging to a strong community, service opportunities, leadership training, peer mentoring and participating in the liberal arts. A Faculty Director in Residence is central to the community and interacts with all community members. Global Engineering is located in Kittredge Central, and includes a kitchen, special classrooms and study spaces, an engineering computer lab and music room and multiple room designs to attract upper-division students. Students in Global Engineering speak Spanish (2013--), French (2015-- ) and/or Russian (2015-- ) in residence.

Incoming students are selected each year via an online application process, both for incoming freshmen and for returning students on the CU-Boulder campus. Further information and the application are available at: <http://cuglobalengineering.org> .

## Sustainable by Design RAP

Located in Williams Village North, the Sustainable by Design Residential Academic Program (SbD RAP) offers a unique educational opportunity in a residential community setting to help develop students into globally focused leaders who are well versed in both the technical and societal aspects of sustainable designs.

The Sustainable by Design RAP helps ease the transition for students into a large university. Most RAP courses are limited to 20 students, so students get to know faculty and peers who have similar interests. RAP courses are taught right in Williams Village North, and co-curricular activities with a sustainability focus are offered throughout the academic year.

Living in one of the "greenest" residence halls in the country, SbD RAP students get to use Williams Village North as a laboratory. WVN has received a LEED platinum rating from the U.S. Green Building Council based on energy efficiency, use of sustainable materials, and novel

methods of water conservation and waste management.

The Sbd RAP is open to students in any major on the University of Colorado Boulder campus. Courses offered by faculty from multiple disciplines fulfill requirements and electives for students in:

- Arts & Sciences Pre-Engineering and Pre-Business
- Engineering
- Environmental Design
- Business

Visit [sbdrap.colorado.edu](http://sbdrap.colorado.edu) for more information.

## Professional Registration

Professional registration is recommended for all fields of engineering in order to protect the health, safety and welfare of the public. Registration is required in all states for the legal right to practice professional engineering. Although there are variations in state laws regarding engineering licensure, there is a general four-step process for licensure candidates: earn a degree from an EAC/ABET-accredited engineering program, pass the FE exam, gain acceptable work experience under the supervision of a PE, and pass the PE exam. Students typically take the FE exam during their senior year in college.

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## Alliance for Technology, Learning and Society (ATLAS)

The ATLAS Institute is a center of interdisciplinary research, learning and collaboration in engineering, creative technologies and design. Sharing a common interest in technology, the ATLAS community includes researchers, instructors and students from the arts, sciences, engineering and humanities. Such diversity creates a vibrant culture of innovation and multidisciplinary collaboration that sustains strong connections with the technology sector in Colorado and beyond.

### Academic Programs

- Technology, Arts and Media program, offering BS, minor and certificate
- Master of Science in Technology, Media and Society with two tracks: Information and Communication Technology for Development (ICTD) and Creative Technologies and Design (CTD)
- Interdisciplinary PhD program in Technology, Media and Society
- Interactive Robotics and Novel Technologies Lab
- BTU Lab hackerspace
- Laboratory for Playful Computation
- Black Box Experimental Studio and Center for Media, Arts and Performance
- National Center for Women and Information Technology.

### Centers and Labs

The ATLAS Institute is affiliated with the University of Colorado Boulder College of Engineering and Applied Science and the Graduate School.

**Course code for this program is ATLS.**

### [Bachelor's Degree Program\(s\)](#)

#### Technology, Arts and Media

Created to equip students with new and adaptable skill sets for the ever-expanding digital landscape, the Technology, Arts and Media (TAM) program offers three undergraduate programs: a bachelor of science and minor for students wishing to pursue research and careers in creative technologies and digital media; and a certificate for students interested in learning the fundamentals.

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# Bachelor of Science in Technology, Arts and Media

## Program Overview

A major in the College of Engineering and Applied Science (CEAS) housed at the ATLAS Institute, the Bachelor of Science in Technology, Arts and Media (BS-TAM) offers a broad transdisciplinary curriculum that integrates technical skills with a critical, theoretical and historical understanding of technology, media and the arts. The BS-TAM curriculum infuses creativity into technology, combining a technically rigorous education with critical thinking, problem solving and creative production. This program will attract designers, makers, tinkerers and builders—those with unorthodox perspectives and unconventional approaches to technology. BS-TAM graduates will have diverse and adaptable skillsets, ready to address the opportunities and challenges of the twenty-first century. The BS-TAM comprises a minimum of 128 and a maximum of 133 total credit hours of coursework in several categories.

## BS-TAM Goals:

- Prepare engineers, technologists, designers and artists for existing and future careers
- Produce students with a mastery of creative technology who are adept at critical problem finding and solving
- Equip students with technical, theoretical and historical perspectives they need to contribute to developing new functionalities, aesthetics and innovations of creative technology
- Encourage investigation at the intersection of technology with other disciplines and practices
- Enable students to think creatively, critically and conceptually about technology and its impacts
- Most TAM classes are small-studio based courses that encourage group work and collaboration
- TAM classes are 58% female, a percentage well above most engineering and computing programs
- TAM stresses knowledge, skills and expertise in technology development with a foundation in engineering and computational thinking, creative technologies and applications and interdisciplinary perspectives on IT and society
- The TAM faculty comprises technologists, designers and artists from diverse fields who are experts in teaching students with varied backgrounds, abilities and interests

## Hallmarks of the TAM Program

### Degree Requirements Overview

Total BS-TAM credit hours: 128–133

### General Coursework (63–68 credit hours)

- Mathematics, Natural Sciences, Engineering and Computation (37–41 credits);
- Humanities and Social Sciences (21 credits; including 6 credits of upper division courses as well as a college-approved writing course); and
- Free Electives (5–6 credits)
- Foundation and Core courses (32 credits; including a two-semester sequence of capstone projects-based courses);
- Critical Perspectives in Technology Electives (12 credits; including 6 credits of upper division courses); and
- Focus electives within one of the possible areas of specialization in Technology, Arts and Media (21 credits)

## BS-TAM Program Coursework (65 credit hours)

- 15 of the 21 credits must be upper division
- At least 12 of the 21 credit hours, and at least four of the seven classes, must be ATLS courses

## Graduation Requirements for Completing the BS in Technology, Arts and Media (BS-TAM)

- Completion of the curriculum, consisting of a minimum of 128 and a maximum of 133 total semester credit hours
- A grade of C or better is necessary in all Foundation and Core Technology, Arts and Media courses
- A grade of C- or better is required for all prerequisite courses.
- Cumulative grade point average of 2.250 or higher, along with other CEAS graduation requirements detailed at [www.colorado.edu/engineering/academics/policies/graduation-requirements](http://www.colorado.edu/engineering/academics/policies/graduation-requirements).

## Required Courses and Semester Credit Hours

First Year Fall Semester: 13 total credit hours

- APPM 1350 Calculus 1 for Engineers (4 credits)
- ATLS 2000 Meaning of Information Technology (3 credits)
- Natural Sciences (4–5 credits)
- COEN 1500 Intro to Engineering (or other CEAS intro-based course) (1 credit)

First Year Spring Semester: 17-18 total credit hours

- APPM 1360 Calculus 2 for Engineers (4 credits)
- Natural Sciences (4–5 credits)
- ATLS 1100 History of Creative Tech (3 credits)
- First-Year Projects course (3 credits)
- CSCI 1300 Intro to Computing (or other CEAS computing-based course) (3–4 credits)

Second Year Fall Semester: 16-18 total credit hours

- Mathematics (3-4 credits)
- ATLS 2100 Image (3 credits)
- ATLS 2200 Web (3 credits)
- CSCI 2270 Computer Science 2: Data Structures (4 credits)
- Natural Sciences (3–4 credits)

Second Year Spring Semester: 15-16 total credit hours

- Mathematics (3–4 credits)
- ATLS 2300 Text (3 credits)
- ATLS 3300 Object (3 credits)
- Humanities and Social Science (3 credits)
- Humanities and Social Science (3 credits)

Third Year Fall Semester: 17-18 total credit hours

ATLS 3100 Form (3 credits)

- ATLS 3200 Sound (3 credits)
- Free Elective (2–3 credits)
- College-approved writing course (3 credits)
- ATLS Focus (3 credits)
- Humanities and Social Science (3 credits)

Third Year Spring Semester: 18 total credit hours

- Critical Perspectives in Technology (3 credits)
- Critical Perspectives in Technology (3 credits)
- ATLS Focus (3 credits)
- ATLS Focus (3 credits)
- Free Elective (3 credits)
- Humanities and Social Science (3 credits)

Fourth Year Fall Semester: 16 total credit hours

- ATLS 4100 Capstone 1 (4 credits)
- Critical Perspectives in Technology (3 upper division credits)
- ATLS Focus (3 credits)
- ATLS Focus (3 credits)
- Humanities and Social Science (3 upper division credits)

Fourth Year Spring Semester: 16 total credit hours

- ATLS 4200, Capstone 2 (4 credits)
- Critical Perspectives in Technology (3 upper division credits)
- ATLS Focus (3 credits)
- ATLS Focus (3 credits)
- Humanities and Social Science (3 upper division credits)

## More About the Program

### Unorthodox Approaches

TAM is unique. The curriculum offers comprehensive technical instruction that is focused on traditional as well as creative, speculative and unorthodox ends. For example, TAM students learn to be skillful full-stack web developers, but they are also encouraged to use those abilities to produce innovative projects that challenge traditional conceptions of what websites can be. Students who complete the program do so with unique, relevant and highly-transferrable technical and creative skills.

### Transdisciplinarity

TAM is discipline-agnostic and encourages students to pursue their interests and passions in ways that conform to, as well as breach traditional disciplinary canons. The TAM faculty helps students discover, explore and expand their tangential and transdisciplinary pursuits. This educational strategy prepares students for rapid shifts and innovations in today's and tomorrow's creative technology landscape.

### Creative Production and Critical Perspectives

TAM students are prolific creators who learn to critically and conceptually assess the works they create. TAM courses are designed on the studio model that integrates faculty and peer critique at every level. Graduates of the TAM program are savvy and resourceful technicians, equal parts creator and critic, artist and theorist.

## A New Type of Student

Students whose interests do not align with traditional degree programs may find the BS-TAM an exciting option, allowing them to simultaneously develop technical and creative abilities while investigating the arts and humanities. The BS-TAM program caters to a new kind of hybrid student—students who might not ordinarily consider an engineering major, but who will eagerly develop technical mastery in service of creative goals.

## Industry and Career Paths

Graduates of the BS-TAM will be well prepared to pursue careers in

- Graphic Design and Visual Communication
- 3D Modeling, Gaming and Simulation
- Information Design and Data Visualization
- Motion Graphics and Animation
- Video and Narrative Media
- Robotics and Physical Computing, Internet of Things
- Interactive Environment Design and Development
- Digital Sound, Production and Electronic Music
- Web Design and Development
- Mobile Application Design and Development

Students who complete the program are also well prepared to pursue graduate or advanced degrees in engineering and technological fields, as well as the arts.

## Minor in Technology, Arts and Media

### Minor Overview

The Minor in Technology, Arts and Media (MTAM) provides a broad multidisciplinary perspective that integrates technological skills with a critical, theoretical and historical understanding of technology, media and the arts. The minor is open to any student at CU-Boulder, though students may not major and minor in TAM. For more information email [tamprogram@colorado.edu](mailto:tamprogram@colorado.edu).

### Minor Goals

- To prepare the next generation of artists, designers and media producers for the future
- To give students theoretical and historical backgrounds needed to contribute to developing new functionalities and aesthetics for computer media
- To facilitate exploration at the intersection of technology and other fields and disciplines
- To produce active and critically aware producers of creative technology
- To enable students to think critically and conceptually about creative technology
- A minimum of 21 credit hours including the following:

### Minor Requirements

A minimum of 21 credit hours including the following:

- ATLS 2000 The Meaning of Information Technology
- ATLS 2100 Image
- ATLS 2200 Web
- ATLS 2300 Text
- TAM Core Elective: Choose from ATLS 2400 Code, ATLS 3100 Form, ATLS 3200 Sound or ATLS 3300 Object
- TAM Upper Division Focus Elective (need not be an ATLS course)\*
- Upper Division Critical Perspectives in Technology Elective (need not be an ATLS course)\*

Courses may be taken concurrently, although some courses may have recommended and/or required pre-requisites. Students must have 2.50 cumulative GPA to be admitted to the TAM Minor. Students must earn a minimum grade of "C" in all courses counted for the minor or certificate. Coursework used to satisfy the minor requirements cannot be taken Pass/Fail. A minimum of 15 credit hours must be taken on the Boulder campus. Failing to meet the minimum grade for any individual ATLS core course twice will result in automatic removal from the TAM program.

## Graduate Degree Program(s)

### Graduate Degree Program

#### MS in Technology, Media and Society (TMS)

The ATLAS Master of Science in Technology, Media and Society (MS-TMS) includes two program tracks: Information and Communication Technology for Development and Creative Technologies and Design.

#### Information and Communication Technology for Development (ICTD)

The Information and Communication Technology for Development (ICTD) track prepares students for careers that leverage technology for human need. Students take an interdisciplinary approach to tackling real-world problems in developing nations and underserved or impoverished regions. Tackling issues such as access, social equity, sustainability, public policy, appropriate design and distribution, students make an impact on people and communities while still working on their degrees.

The two-year program includes three semesters in residence and a one-semester practicum: an internship or service project with a relevant organization. Organizations participating in the practicum may be public or private sector, international development agencies, foundations and/or non-governmental organizations.

#### Creative Technologies and Design (CTD)

The Creative Technologies and Design (CTD) track offers artists and designers (of all kinds) opportunities to gain strong technical skills to realize their creative vision. It also offers technologists (of all kinds) opportunities to gain experience in the creative disciplines. By bringing together individuals with vastly different backgrounds and expertise, the program forges a new anti-disciplinary synthesis, preparing graduates for a wide gamut of careers in design, technologies, and the creative arts.

Learning in the Creative Technologies and Design track is studio-based. Throughout the program, students devise personal portfolios of project work. In keeping with the self-directed spirit of the ATLAS Institute, students build their own curriculum, choosing from courses across

CU-Boulder's campus that best match their interests. Those with an arts background may select courses to build technical strength. Those with a technical background may select courses that develop more creative, conceptual, and speculative expertise.

## PhD in Technology, Media and Society

The interdisciplinary ATLAS PhD program in Technology, Media and Society attracts highly motivated inventors and investigators whose interests at the intersections of technology, media and society are not met by traditional disciplinary PhD programs. Students come from all fields, including electrical engineering, education, journalism, music, computer science, art history, physics and library science. The ATLAS PhD program is research based: each student must pass a qualifying examination, propose a field of study and carry out a research project and defend the resulting dissertation.

Students in the PhD program select an advisory committee from among the university faculty, chaired by an ATLAS faculty member or faculty fellow. Students work with their committees to devise a program of study appropriate to their research interests. The program has no specific required courses other than a seminar each semester that brings together all PhD students, and a requirement that each student learn the methods of investigation needed to conduct their research. This varies; for example, students working in human-computer interaction may need qualitative and quantitative methods, whereas students working on robotics hardware and software will need more engineering-oriented methods.

The program emphasizes out-of-the-box invention and radical investigation. We are looking for people who want to improve the world through technology, who aren't afraid to think beyond conventional wisdom, and who have or are prepared to gain the technical expertise to carry out their vision.

## Certificate Program(s)

### Certificate in Technology, Arts and Media

#### Certificate Overview

The Certificate in Technology, Arts and Media (CTAM) provides a fundamental understanding of information technology and digital media production. The program motivates students to think critically about technology and its impacts upon society. The certificate program is open to any student at CU-Boulder, though students may not earn the certificate in TAM along with either the TAM major or minor. For more information email [tamprogram@colorado.edu](mailto:tamprogram@colorado.edu).

#### Certificate Goals

- To equip students with a basic digital media skill-set
- To transform students from passive users of technology into active producers of technology
- To introduce students to critical thinking and theories relevant to digital media
- A minimum of 12 credit hours including:

#### Certificate Requirements

- ATLS 2000 The Meaning of Information Technology
- ATLS 2100 Image
- ATLS 2200 Web
- ATLS 2300 Text

Students must have 2.50 cumulative GPA to be admitted to the TAM Certificate program. Students must earn a minimum grade of "C" in all courses counted for the

certificate. Coursework used to satisfy CTAM requirements cannot be taken Pass/Fail. Failing to meet the minimum grade for any individual ATLS core course twice will result in automatic removal from the TAM program.

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## Aerospace Engineering Sciences

The mission of the Department of Aerospace Engineering Sciences is to provide quality education, including hands-on learning, and to conduct foremost research in aerospace engineering sciences. These goals are accomplished through fundamental and multidisciplinary research and by preparing aerospace engineering students to meet the needs of 21st-century society through the conception, design and application of aerial and spacecraft systems.

The department is uniquely characterized by:

- blending aeronautics, astronautics and science applications;
- providing an undergraduate experience characterized by rigorous preparation in mathematics and engineering sciences, a hands-on experiential approach to learning and an extensive emphasis on design in a systems context;
- emphasizing in our graduate education and research programs forefront aerospace technology development and the integration of engineering and science activities to solve critical problems in the Earth and space sciences; and
- creating graduates who are broadly educated, interdisciplinary, agile, team-oriented engineers and scientists, with end-to-end mission and systems perspectives.

### Program Educational Objectives

During their first three to five years after graduation, Aerospace Engineering Sciences graduates will have:

- established themselves in professional careers or received a graduate degree;
- demonstrated ethical leadership, project management and/or innovation; and
- played significant roles in the research and development of engineering systems and products.

### Student Outcomes

Students completing the undergraduate degree in aerospace engineering sciences will be knowledgeable in the following areas:

- the professional context of the practice of aerospace engineering and expectations of new graduates in aerospace engineering organizations, including an awareness of ethics issues, economics and the business environment;
- the history of aerospace engineering, providing a perspective on current events;
- aerospace engineering as a highly multidisciplinary endeavor, requiring a systems perspective to integrate technologies and manage complexity; and
- major principles and scientific methods underlying the technologies comprising aerospace

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- Electrical, Computer and Energy Engineering

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- Materials Science and Engineering

vehicles and systems.

Upon graduation, students will have developed the following general skills and abilities:

- strong written, oral and graphical communication skills;
- an ability to quantitatively estimate, model, analyze and compute;
- an ability to define and conduct experiments using modern laboratory instruments, and to interpret experimental results;
- an ability to seek out and gather information, enabling independent and lifelong learning;
- interpersonal and organizational skills that enable individuals to work effectively in teams and assume leadership positions;
- an ability to identify needs, requirements and constraints, and to design appropriate reliable engineering solutions;
- an ability to formulate technical problems clearly, and to correctly apply appropriate methods and procedures for their solution;
- an ability to program computers, and skills in the use of modern engineering analysis, simulation software and operating systems; and
- an ability to understand societal needs, business issues and the ethical concerns and responsibility of the industry.

**Course code for this program is ASEN.**

## Bachelor's Degree Program(s)

### Bachelor's Degree in Aerospace Engineering Sciences

#### Degree Requirements

The undergraduate curriculum is designed to prepare students to advance to a distinguished professional career in the aerospace industry or for graduate school, consistent with our stated Program Educational Objectives. In particular, this involves providing students with an interdisciplinary systems perspective of aerospace engineering. The curriculum accomplishes these goals by:

- providing a strong basis in mathematics, science and engineering fundamentals;
- extending these fundamentals to advanced topics in aerospace engineering;
- complementing the engineering education with sufficient exposure to the humanities and social sciences; and
- beginning and ending in major design experiences that stress an interdisciplinary systems perspective.

AES students are also encouraged to consider a technical minor or double major in electrical engineering, computer science, applied math, engineering physics, astrophysical and planetary sciences or atmospheric and oceanic sciences. In most cases, the junior- and senior-level courses required for the above-mentioned minors can be applied to the professional area elective requirements.

For students having sufficient ability and interest, planning for graduate study should begin by the start of the junior year. Such a plan should consider the foreign language requirements of appropriate graduate schools and an advanced mathematics program. Students who wish to combine the business and aerospace engineering sciences curricula are advised to consider obtaining the BS degree in aerospace and a master's degree in business rather than a

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combined BS degree.

## Bioengineering Option/Premedical Curriculum

Courses can be specifically designed for students who wish either to attend medical school or to enter graduate work in bioengineering after receiving the BS degree. Students should consult their academic advisor, as well as their prehealth advisor, regularly to assure the adequacy of their curricula.

## Curriculum for BS in Aerospace Engineering Sciences

The BS curriculum in aerospace engineering sciences is revised annually to keep up with new advances in technology, to make use of new educational methodologies and to satisfy updated program accreditation criteria. A total of 128 semester credit hours is required.

### *Required Courses and Semester Credit Hours*

#### **Freshman Year**

##### ***Fall Semester—15***

- APPM 1350 Calculus 1 for Engineers—4
- First-Year Projects course—3
- COEN 1500 Introduction to Engineering—1
- Humanities or social science elective—3
- CSCI 1320 Computer Science I—4

##### ***Spring Semester—17***

- APPM 1360 Calculus 2 for Engineers—4
- ASEN 1022 Material Science for Aerospace Engineers—3
- PHYS 1110 General Physics 1—4
- Humanities or social science elective—6

#### **Sophomore Year**

##### ***Fall Semester—16***

- APPM 2350 Calculus 3 for Engineers—4
- ASEN 2001 Introduction to Statics, Structures and Materials—4
- ASEN 2002 Introduction to Thermodynamics and Aerodynamics—4
- ASEN 2012 Experimental and Computational Methods in AES—2
- Free elective—2

##### ***Spring Semester—17***

- APPM 2360 Introduction to Differential Equations with Linear Algebra—4
- ASEN 2003 Introduction to Dynamics and Systems—5
- ASEN 2004 Aerospace Vehicle Design and Performance—5
- Humanities or social science elective (upper division)—3

#### **Junior Year**

##### ***Fall Semester—16***

- ASEN 3111 Aerodynamics—4
- ASEN 3112 Structures—4
- ASEN 3113 Thermodynamics and Heat Transfer—4
- PHYS 1120 General Physics 2—4

### **Spring Semester—16**

- ASEN 3128 Aircraft Dynamics—4
- ASEN 3200 Orbital Mechanics/Attitude Determination and Control—4
- ASEN 3300 Electronics and Communications—4
- Professional area electives—3
- Free elective—1

### **Senior Year**

#### **Fall Semester—16**

- ASEN 4013 Foundations of Propulsion—3
- ASEN 4018 Senior Projects 1: Design Synthesis—4
- College-approved writing course—3
- Professional area electives—6

#### **Spring Semester—15**

- ASEN 4028 Senior Projects 2: Design Practicum—4
- Professional area electives—6
- Humanities or social science elective (upper-division)—3
- Free elective—2

Courses selected must meet humanities and social science requirements as detailed at [www.colorado.edu/engineering/academics/policies/hss](http://www.colorado.edu/engineering/academics/policies/hss).

Students who are unsure of their major selection are advised to take CHEN 1211/CHEM 1221 Chemistry for Engineers in the fall of the freshman year in case the student decides to change their major. The 5 credit hours earned for this course may then apply as free electives for ASEN majors who take the class.

#### Professional Area Electives

- Any ASEN course at the 4000 level or above that is not a required course can be used as a professional area elective.
- A professional area elective (PAE) is generally a course in math, engineering or science at the 3000-level or above. Elective courses most likely to help an aerospace engineer's career development are ASEN, APPM, CSCI, ECEN and PHYS courses. It is suggested that students secure advance approval for professional area elective courses from their advisor.
- Upper-division independent study from technical areas (math, science and engineering) is acceptable for up to 6 credit hours of professional area elective credit. The upper-division ROTC courses AIRR 3010, NAVR 3030 and NAVR 3040 are acceptable for 3 hours of professional area elective credit.

A full listing of approved PAE courses can be found in the degree audit.

## Prerequisites and Passing Grades

The minimum passing grade for a course that is a prerequisite for another required course is C. If a grade of C- or lower is received in a course which is a prerequisite to another, the student may not register for the subsequent course until the first grade has been raised to a C or higher.

The minimum passing grade for a course that is not specifically a prerequisite for another required course is D-.

The AES department reserves the right to drop students enrolled in ASEN courses who have not met the minimum prerequisite requirements. It is the student's responsibility to communicate with the department if summer course work and/or transfer credit will be used to meet the prerequisite requirement.

Aerospace engineering students are expected to take APPM courses for the required mathematics courses (APPM 1350, 1360, 2350, 2360) once they have matriculated into the program.

## Concurrent Bachelor's/Master's Program

### BS/MS Program

The concurrent BS/MS program in Aerospace Engineering Sciences (ASEN) enables the program's top BS students to be admitted to the MS program during the junior or senior year, and to work thereafter toward both the BS and MS degrees in ASEN. This program allows for early planning of the MS portion of the student's education, taking graduate courses as part of the BS degree requirements, more flexibility in the order in which courses are taken and more efficient use of what would otherwise be a final semester with a light credit hour load. Up to 6 credit hours may be counted toward both the BS and MS degree programs. Therefore, in theory, the minimum number of credit hours required for the concurrent BS/MS degrees will be 152. Current CU-Boulder Aerospace students are eligible to apply after they have completed eight core ASEN courses and have a minimum CU-Boulder cumulative and ASEN major GPA of 3.25. For more information, visit [www.colorado.edu/aerospace/current-students/undergraduates/bsms-degree](http://www.colorado.edu/aerospace/current-students/undergraduates/bsms-degree).

## Graduate Degree Program(s)

### Graduate Degrees in Aerospace Engineering Sciences

The Department of Aerospace Engineering Sciences at the University of Colorado Boulder is one of the top aerospace engineering departments in the nation. Aerospace engineers work on Earth and in space not only to extend frontiers but also to understand more fully and to preserve our terrestrial environment. Few fields offer more exciting and diverse careers: becoming an astronaut (15 graduates to date have become astronauts), designing the next generation of aircraft and spacecraft, monitoring our global habitat via remote sensing from space, *in situ* sensing with unmanned vehicles and helping to develop environmentally clean energy and transportation systems.

Aerospace graduate students often formulate degree plans on the basis of their interests and needs. Portions of the program are designed to promote the student's engineering and professional development. Graduate students are admitted into a specific focus area that provides research advising, financial support and sets specialized admission and program requirements and recommendations for course work within and outside the department. The four focus areas are:

- Aerospace Engineering Systems

- Astrodynamics and Satellite Navigation Systems
- Bioastronautics
- Remote Sensing, Earth and Space Sciences

Each focus area has defined the required characteristics of its successful graduates at the MS and PhD level, and defined the required and elective courses that support its educational program.

Aerospace-related research centers in the college include the Colorado Center for Astrodynamics Research, the Center for Aerospace Structures, the Research and Engineering Center for Unmanned Vehicles and BioServe Space Technologies. Other research centers within the university that are involved in space-related research activities are the Center for the Study of Earth from Space, the Center for Astrophysics and Space Astronomy, the Laboratory for Atmospheric and Space Physics, JILA and the Cooperative Institute for Research in Environmental Sciences.

## Requirements for Advanced Degrees

Graduate students applying for admission to aerospace engineering sciences are required to submit the results of the analytical, quantitative and verbal sections of the general examination, Graduate Record Examination (GRE).

The department offers graduate programs leading to the MS and PhD degrees in aerospace engineering sciences. Portions of the program are designed to promote the student's engineering and professional development.

Courses below the 5000 level in aerospace engineering cannot count toward graduate degree requirements; up to 6 credits of 4000 level relevant courses from approved departments outside aerospace may be accepted for master's degree credit if they fit with the student's degree plan. Such courses must have academic content consistent with graduate study in aerospace engineering sciences.

**Advising.** Once students have selected a research area for the thesis, academic advising is done by their thesis advisor.

## Master of Science Degree (Plan I/II)

- A total of 30 semester hours (including both course and thesis hours), at least 24 semester hours of which must be completed at the 5000 level or above, and at least 18 semester hours of ASEN courses.
- Two to four required courses (6–12 semester hours) must be taken in the student's primary focus or thrust area and one course (3 hours) must be taken in a second focus or thrust area.
- One graduate level math course (3 hours) in ASEN, APPM or MATH.
- Seminar credits do not count toward the MS degree.
- Students must complete 6 semester hours consisting of either (1) MS thesis (Plan I), (2) approved certificate program (Plan II) or (3) a two-semester team projects course (Plan II). The Plan I project culminates with an oral presentation and/or written report or oral examination.
- Completion of all degree requirements within four years of the date of commencing course work, normally completed in one to two years.
- Master's degree residence requirements can be met only by residence on the CU-Boulder campus for two semesters or three summer sessions, or a combination of at least one

semester and two summer sessions.

- Pass all courses with a grade of *B-* or better and a cumulative GPA of at least 3.0.

## Professional Master of Engineering

The Professional Master of Engineering offers an affordable option for international and non-resident students, and for students who are interested in a more flexible coursework-only program.

- A total of 30 semester hours, at least 24 semester hours of which must be completed at the 5000 level or above, and at least 18 semester hours of ASEN courses
- One graduate level math course (3 hours) in ASEN, APPM or MATH
- No focus area curriculum is required

## Doctoral Degree

**Course Requirements.** A minimum of 36 semester credit hours of courses numbered 5000 or above (at least 18 of these must be in ASEN) with a minimum of 3.25 GPA, and 30 credit hours of thesis credit are required for the degree. A maximum of 18 credit hours may be transferred from another accredited institution and applied toward a PhD degree if approved by the graduate committee of the department and the Graduate School. All courses taken for the master's degree at the 5000 level or above at the University of Colorado may be applied toward the doctoral degree at the university. The formal course work must include a minimum of 18 hours of courses or their equivalent in aerospace engineering sciences.

**Preliminary Examination.** Students must pass a preliminary examination by no later than the end of the third semester if the student already has an aerospace master's degree upon entry to the program, or the fifth semester if the student does not have an aerospace master's degree. The exam is administered by a committee consisting of three regular or research aerospace faculty members, two of whom must be from the student's main focus or thrust area and the third from a secondary focus or thrust area. The exam will include a written and an oral element, as determined, prepared and evaluated by the exam committee.

**Comprehensive Examination.** By no later than the fifth semester, or seventh semester, students must also pass an oral examination before the student's doctoral committee of five or more graduate faculty members chosen by the student and approved by the department and the Graduate School. This should be preceded by individual examinations or interviews, either written or oral or both, by every committee member. The oral examination before the committee is based primarily on a written proposal for the thesis research provided by the student to committee members in advance.

**PhD Thesis.** Students must write a thesis based on original research conducted under the supervision of a graduate faculty member. The thesis must fulfill all Graduate School requirements. After the thesis is completed, an oral final examination on the thesis and related topics is conducted by the student's doctoral committee.

## Certificate Program(s)

### Graduate Certificate in Astrodynamics and Satellite Navigation Systems

The certificate recognizes student accomplishments at the graduate level in successfully completing a specialized program of study in Astrodynamics and Satellite Navigation (ASN). It is essentially a specialization of the aerospace engineering sciences master of science (MS) degree in the ASN focus area with additional requirements for breadth and depth in the ASN

area.

The certificate will make students more desirable to future employers looking for astrodynamics and satellite navigation specialists.

## Certificate Requirements

Complete all four core area subjects in ASN, plus two advanced ASN courses of the student's choosing.

## Core Requirements

- ASEN 5010 Spacecraft Attitude Dynamics and Control
- ASEN 5050 Astrodynamics (can be satisfied by taking an additional 6000-level course that has ASEN 5050 as a prerequisite.)
- ASEN 5070 Statistical Orbit Determination
- ASEN 5090 Introduction to Global Navigation Satellite Systems

## Advanced Requirements

Select ANY two 6000-level courses in ASN including, but not limited to:

- ASEN 6010 Advanced Spacecraft Dynamics and Control
- ASEN 6080 Advanced Statistical Orbit Determination
- ASEN 6090 GNSS Software and Applications
- ASEN 6091 Satellite Navigation Receiver and Architectures
- ASEN 6519 Advanced Spacecraft Attitude and Control
- ASEN 6519 Spacecraft Formation Flying
- ASEN 6519 Optimal Trajectories
- ASEN 6519 Advanced Astrodynamics and Celestial Mechanics

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## Applied Mathematics

The Department of Applied Mathematics in the College of Arts and Sciences offers a BS degree in applied mathematics through the College of Engineering and Applied Science. The BS degree is designed to prepare graduates for exciting and diverse professional careers, and for graduate study in a wide variety of disciplines. The department also offers a five-year BS/MS, as well as an MS degree and a PhD degree through the Graduate School.

The objectives of the Department of Applied Mathematics at CU-Boulder are summarized below:

- provide undergraduate and graduate students with high-quality education and training in applied mathematics, and prepare them for careers in industry, laboratories and the academic professions;
- offer and monitor degree programs leading to BS, MS and PhD degrees in applied mathematics;
- nourish and maintain a professional environment in which excellence in teaching, learning, scholarship and creativity are of central importance;
- assure teaching and research expertise in a number of key areas of applied mathematics including the methodology of applied mathematics, computational mathematics and algorithms, industrial applications, mathematical biology, applied probability and statistics.

Courses at the undergraduate level provide training in a broad range of mathematical techniques and problem-solving strategies. These courses teach the concepts and methods central to applications of linear algebra, ordinary and partial differential equations, numerical analysis, probability and statistics, complex variables and nonlinear dynamics. Since applied mathematicians often are involved in interdisciplinary work, the BS degree requires an in-depth knowledge of some area of science or engineering where mathematics is used. This knowledge prepares graduates to successfully communicate and cooperate with engineers and scientists. The BS degree also requires knowledge of a programming language and skill in using the computer.

### Desired Outcomes

The undergraduate degree in applied mathematics emphasizes knowledge and awareness of:

- differential and integral calculus in one and several variables;
- vector spaces and matrix algebra;
- ordinary and partial differential equations;
- at least one programming language;
- at least one application software package in either mathematics or statistics;

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- methods of complex variables as used in applications; and
- numerical solutions of linear and nonlinear problems.

In addition, students completing a degree in applied mathematics acquire:

- an in-depth knowledge of an area of application (an engineering discipline or a natural science field or one of the quantitative areas of business and economics);
- knowledge of problem-formulation, problem-solving and modeling techniques and strategies central to applications; and
- the ability to communicate analytic arguments clearly and concisely in oral and written forms.

**Course code for this program is APPM.**

## Minor Programs

The department offers a minor in applied mathematics that is available to all undergraduate students. A minor in applied mathematics indicates that a student has received in-depth training in mathematical techniques and computational methods well beyond the training usually received by science and engineering majors.

The department also offers a minor in statistics was developed to provide in-depth training in statistical methods and techniques well beyond the training usually received by science and engineering majors. The ability to understand, visualize, and analyze data is becoming an increasingly important skill in many disparate fields. This minor offers undergraduate students from any major the opportunity to develop their statistical knowledge.

## Bachelor's Degree Program(s)

### Bachelor's Degree in Applied Mathematics

The BS degree in applied mathematics requires the satisfactory completion of a minimum of 128 credit hours as follows:

- Three semesters of calculus (APPM 1350, 1360 and 2350) with a minimum grade of C- in each course.
- Computing experience (CSCI 1300/1310/1320 or CHEN 1310 or ECEN 1310).
- Science requirement: completion of PHYS 1110, 1120 and 1140. Completion of at least 5 additional credits of chemistry or biology (including 2 credits of laboratory science), chosen from one of the following: CHEM 1221 and CHEN 1211; CHEM 1351; EBIO 1210, 1220, 1230 and 1240; or MCDB 1150, 1151, 2150 and 2151.
- Completion of the following required applied mathematics courses: APPM 2360; APPM 3310; APPM 4350 and 4360; APPM 4650; and APPM 4440 or MATH 3001 or 3140.
- A two-semester course sequence of applied mathematics or mathematics courses numbered 4000 or above in addition to APPM 4350 and 4360 (for example, APPM 4380 and 4390, APPM 4440 and 4450, APPM 4570 and 4580, APPM 4560 and 4520, APPM 4650 and 4660, or APPM 3570 and either APPM 4520 or 4560). Note: APPM 3570 is the only 3000-level course that can be used to satisfy this requirement.
- A minimum of 24 credit hours in applied mathematics or mathematics courses numbered 3000 or above (including the required courses). No more than 3 credits of APPM 4840 may count toward these 24. No more than 6 credits of independent study are allowed for credit toward the BS degree in applied mathematics.

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Other Academic Programs

- A minimum of 24 credit hours in engineering courses (or approved courses with a significant mathematical content in arts and sciences or business) with at least 15 credit hours in courses numbered 2000 or above and at least 6 credit hours in courses numbered 3000 or above. These 24 credit hours are in addition to those required credit hours listed in numbers 2 and 3 (mentioned above). HUEN 3100, 3200, 4100 and 4200 may not be used to fulfill this requirement, although they may be used as social and humanistic electives. Several possible options are listed separately.
- The general bachelor's degree requirements of the College of Engineering and Applied Science require 18 credit hours of social science/humanities/writing electives. See details at [www.colorado.edu/engineering/academics/policies/hss](http://www.colorado.edu/engineering/academics/policies/hss)

### Recommended Options For Applied Math Majors

In order to fulfill their degree requirements, Applied Mathematics majors are required to take 24 credits in engineering or approved courses with significant mathematical content in A&S or Business courses, with at least 6 credits in courses numbered 3000 or above and at least 15 credits in courses numbered 2000 or above. Here are several possible options. It should be stressed that the listed courses and options are **suggestions** and not **requirements**. Final course selection should be made in consultation with an Applied Math advisor.

#### I. Aerospace Engineering Sciences

- ASEN 2001 Intro to Statics, Structures, and Materials—4
- ASEN 2002 Intro to Thermodynamics and Aerodynamics—4
- ASEN 2003 Intro to Dynamics and Systems—5
- ASEN 2004 Aerospace Vehicle Design and Performance—5
- ASEN 2012 Experimental and Computational Methods in AES—2
- Take at least 6 credits of ASEN courses at the 3000-level or above.

**Advising Note:** Students wishing to enroll in ASEN courses must register through an Aerospace advisor.

#### II. Chemical Engineering Option

- CHEN 1211 Gen. Chemistry for Eng.—3 & CHEM 1221 Eng. Gen. Chem Lab—2

Recommended courses (total of 23 credits):

- CHEN 2120 Material & Energy Balances—3
- CHEN 3200 Fluid Mechanics—3
- CHEN 3210 Heat Transfer—3
- CHEN 3220 Separations and Mass Transfer—3
- CHEN 3320 Thermodynamics—3
- CHEM 4521 Physical Chemistry for Engineers—3
- CHEN 4330 Reaction Kinetics—3
- CHEM 3311 Organic Chemistry 1—4

Students choosing this option must take CHEN 1310 as part of their Applied Math major. CHEN 1310 is a prerequisite for CHEN 2120.

#### III. Computer Science Option

Required Course (total of 4 credits):

- CSCI 2270 Data Structures—4 (Note: CSCI 1300 is a prerequisite)

Additional courses to bring the total number of credits to 24; at least two of these must be at the 3000 level. Possible choices include:

- CSCI 3104 Algorithms—4\*
- CSCI 3155 Principles of Programming Languages—4
- CSCI 3287 (Database and Information Systems—3
- CSCI 3753 (Operating Systems—4
- Additional CSCI courses to bring the total number of credits to at least 24

**Advising note:** Students completing the computer science option should have a minor in computer science. Check with the Computer Science Department.

\* CSCI 3104 has APPM 3170 or CSCI 2824 as a prerequisite.

#### IV. Technology, Arts & Media Option

Required Courses

- ATLS 2000 Meaning of Info Tech.—3\*
- ATLS 3010 Digital Media 1—3
- CSCI 2270 Data Structures—4 (Note: CSCI 1300 is a prerequisite for CSCI 2270)
- CSCI 3104 Algorithms—4
- CSCI 4229 Computer Graphics—3
- CSCI 4448 Object Orientated Analysis and Design—3

\* This course may be used to satisfy EITHER 3 credits of H&SS requirement or the Applied Math area of emphasis, but not both

Recommended additional courses to bring the total to at least 24 credits:

- Advisor approved technical electives to complete the ATLAS/TAM Certificate in Digital Media
- CSCI 3202 (Intro to Artificial Intelligence—3
- CSCI 4202 (Artificial Intelligence 2—3
- Students are advised to take APPM 3570, 4560, and 4660 as part of their Applied Math coursework.

**Advising Note:** More information on the ATLAS/TAM Certificate in Digital Media, as well as the ATLS Minor in Technology, Arts & Media may be found at <http://tam.colorado.edu>

#### V. Electrical & Computer Engineering Option

**The Department of Electrical and Computer Engineering offers two separate minor programs.**

A. Students interested in this option should consult with an advisor as several areas are available (computer engineering, electrical engineering, signals and systems, and electrical

renewable energy systems.) A minimum of 24 credits is required.

B. Student choosing this option should plan on taking CSCI 1300 and CSCI 2270.

**Advising Note:** Students interested in the ECE Option should contact the ECE department and visit <http://www.colorado.edu/engineering/academics/degrees-minors-certificates/minors>

## VI. Engineering Physics / Physics Option

Recommended courses after first-year Physics (23 or 24 credits):

- PHYS 2130 or 2170 Foundations of Modern Physics—3
- PHYS 2150 Experimental Physics—1
- PHYS 2210 Classical Mechanics and Mathematical Methods 1—3
- PHYS 3210 Classical Mechanics and Mathematical Methods 2—3
- PHYS 3220 Quantum Mechanics & Atomic Physics 1—3
- PHYS 3310 Principles of Electricity & Magnetism 1—3
- PHYS 3320 Principles of Electricity & Magnetism 2—3
- PHYS 3330 Electronics for the Physical Sciences—2 **OR**
- PHYS 4230 (Thermodynamics & Statistical Mechanics – 3 cr.)
- Additional physics courses to total at least 24 credits.

Students choosing this option are advised to take APPM 3570 (Applied Probability – 3 cr.) **AND** MATH 3140 (Abstract Algebra 1 – 3 cr.) as part of their Applied Math major.

**Advising Note:** Students completing the Physics Option should have a minor in Physics. Check with the Physics Department.

## VII. Mechanical Engineering Option

Recommended courses:

- MCEN 2023 Statics & Structures—3
- MCEN 2063 Mechanics of Solids—3
- MCEN 3012 Thermodynamics—3
- MCEN 3021 Fluid Mech.—3
- MCEN 3022 Heat Transfer—3
- MCEN 3025 Component Design—3
- MCEN 2043 Dynamics—3
- MCEN 4043 System Dynamics—3

Students choosing this option are advised to take APPM 4570 (Statistical Methods – 3 cr.) or APPM 3570 (Applied Probability) and APPM 4520 (Introduction to Math Statistics) as part of their Applied Math major.

## VIII. Civil, Environmental and Architectural Engineering Option

Recommended basic courses (total of 12 credits):

- CVEN 2121 Analytical Mechanics 1—3

- AREN 2110 Thermodynamics—3
- CVEN 3161 Mechanics of Materials 1—3
- CVEN 3313 Theoretical Fluid Mechanics—3

Students also take 2 courses from any one of the following groups plus additional courses to bring the total credits to 24:

- CVEN 3414 Fundamentals of Environmental Eng.—3
- CVEN 4333 Engineering Hydrology—3
- CVEN 3525 Structural Analysis 1—3
- CVEN 3708 Geotechnical Engineering 1—3
- CVEN 4545/4555 Steel Design/ Reinforced Concrete Design—3
- AREN 2406 Introduction to Building Construction—3
- AREN 3010 Mechanical Systems for Buildings—3
- AREN 3540 Illumination 1—3

Students wishing to enroll in CVEN courses that are restricted to majors only must do so through the CVEN advisor.

#### **IX. Actuarial Option**

BCOR 1025, Data Analysis in Business, is a prerequisite for BCOR 2200 and BCOR 2002. Students are advised to substitute an Applied Math prob/stats course for this prerequisite.

The following courses should be taken:

- BCOR 2002 Principles of Accounting and Finance—3
- ECON 2010\* Principles of Microeconomics—4
- ECON 2020\* Principles of Macroeconomics—4
- ECON 3070+Intermediate Microeconomic Theory—3
- ECON 3080+Intermediate Macroeconomic Theory—3
- ECON 4070 Topics in Microeconomics—3
- FNCE 3010+Corporate Finance—3

\* ECON 2010 and 2020 may not count toward the 24 credits of the option requirement; however, they can be used to meet the 18-credit social science/humanities requirement of the College of Engineering.

+ The Society of Actuaries requires students to take certain college courses that will earn the Validation by Educational Experiences (VEE) credit. Courses marked with a + satisfy this requirement, provided a grade of B- or better is obtained. These courses are also required for students completing the Actuarial Certificate Program. VEE credit is granted for both BCOR 220 and FNCE 3010. We will apply for VEE credit for BCOR 2002 and FNCE 3010, but this has not yet been granted.

Some (or all) of the following courses should be taken:

- FNCE 3030 (Investment and Portfolio Management—3
- FNCE 4040 (Derivative Securities—3

- ECON 4818 (Intro to Econometrics)—3

Students are required to take APPM 3570, APPM 4520+, and APPM 4540+ for the Actuarial Option. Students are strongly advised to take APPM 4560.

Additional courses that may be useful include ACCT 3220, 3230, and BCOR 3000. These courses can be taken only if space is available on the first day of the semester.

## X. Finance Option

BCOR 1025, Data Analysis in Business, is a prerequisite for BCOR 2200 and BCOR 2002. Students are advised to substitute an Applied Math prob/stats course for this prerequisite.

### **Recommended basic courses (14 - 16 credit hours):**

- BCOR 2002 Principles of Accounting and Finance—3
- FNCE 3010 Corporate Finance—3
- ECON 2010\*\*, 2020\*\*, 3070 and 3080.
- ECON 4818 (Econometrics)—3

\*\* ECON 2010, 2020 may not count toward the 24 credits of the option requirement; however, they can be used to meet the 18-credit social science/humanities requirement of the College of Engineering.

A minimum of two of the following courses must be taken in order to meet the 24 credit requirements of the option. All of them must be taken to complete the requirements of the Quantitative Finance Certificate Program:

- ACCT 3220 Corporate Financial Reporting 1—3
- FNCE 3030 Investment and Portfolio Management—3
- FNCE 4040 Derivative Securities—3
- FNCE 4820 Topics in Finance: Mathematical Finance—3
- FNCE 4070 Financial Markets and Institutions—3

Students are required to take APPM 3570 and APPM 4520 for the Finance Option. Students are advised to take APPM 4560 and APPM 4540 if time permits.

Additional courses that may be taken as time permits:

ACCT 3230 Corporate Financial Reporting 2—3

FNCE 4000 Financial Institutions Management—3

FNCE 4020 Applied Business Finance—3

FNCE 4050 Capital Investment Analysis—3

FNCE 4060 Special Topics in Finance—variable

**Advising note: Students wishing to take College of Business courses cannot register until the first day of classes.** However, students can register for BCOR/FNCE courses in summer sessions. Alternatively, students can apply for admittance to the Actuarial Studies and Quantitative Finance Certificate Program. Students accepted into this program receive preferential treatment with respect to other non-business students when registering for

business courses. For more information, please see your Applied Math advisor and visit <http://www.colorado.edu/asqf/>.

## XI. Computational Biology and Bioinformatics Option

The following concentration of selected courses from computer science, biology, and chemistry provide the foundation for work in mathematical biology, computational biology, and/or bioinformatics.

### Required courses

- CSCI 2270 Data Structures—4 (Note: CSCI 1300 is a prerequisite for CSCI 2270)
- CHEM 3311 & 3321 Organic Chemistry 1 and Lab—5)
- MCDB 1150 & 1151 Introduction to Cellular and Molecular Biology and Lab—4
- MCDB 2150 & 2151 Principles of Genetics and Lab—4
- MCDB 3135 & 3140 Molecular Cell Biology 1 and Lab—5
- CSCI 4314 Algorithms for Molecular Biology—3

**Advising Note:** Students selecting this option are advised to take APPM 3570, 4520, 4540, and 4390 as part of their Applied Math coursework. Other recommended courses include CSCI 3104 (Algorithms) and CSCI 3287 (Database and Information Systems).

## Concurrent Bachelor's/Master's Program

### Concurrent BS/MS Degree in Applied Mathematics

The concurrent BS/MS program in applied mathematics enables well-qualified and motivated students to experience graduate-level course work earlier in their education and to obtain an MS degree in a reduced time period. Applied math majors may apply for this program during their junior year. Minimum requirements for admission include completion of at least two APPM courses numbered 3000 or higher, an overall GPA of 3.40 or higher, a minimum GPA of 3.40 in APPM and MATH courses and two letters of recommendation from APPM faculty. Students interested in this program are encouraged to consult with an applied mathematics faculty advisor early in their undergraduate career.

## Graduate Degree Program(s)

### Graduate Study in Applied Mathematics

The Department of Applied Mathematics offers [MS and PhD programs](#) through the College of Arts and Sciences.

## Dual Degree Programs

### Double Major with Civil Engineering

As an exceptional opportunity for talented students who are interested in analytical and computational methods related to civil engineering and general engineering science, the applied mathematics and civil engineering departments offer a streamlined track by which a student can earn a baccalaureate degree from both programs with a minimum of 15 extra credit hours. Consult faculty advisors in applied mathematics and civil engineering for information and admission.

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## Architectural Engineering

Architectural engineering has many elements in common with civil, mechanical and electrical engineering, but is specifically directed toward the building industry. It focuses on building systems, which include design of systems such as heating, ventilating and air conditioning (HVAC) systems; illumination and electrical systems; structural building systems; and construction methods applied to buildings. The program is administered by the Department of Civil, Environmental and Architectural Engineering. Students also take courses in architectural history and architectural design from the Program in Environmental Design.

### Program Educational Objectives

The educational objective of the architectural engineering program is to develop graduates who acquire the broad knowledge and skills necessary to successfully begin and sustain a career, and to become leaders who advance the state-of-the art, in one of four core disciplines of the building industry:

- construction engineering and management
- electrical and lighting systems
- heating, ventilating and air conditioning (HVAC) systems
- structural systems

### Educational Outcomes

The outcomes that students are expected to have attained upon graduation with the bachelor of science degree in architectural engineering are:

- the ability to apply knowledge of mathematics, science and engineering
- the ability to design and conduct experiments
- the ability to analyze and interpret data
- the ability to design a system or component to meet desired needs
- the ability to function on multidisciplinary teams
- the ability to identify, formulate and solve engineering problems
- an understanding of professional and ethical responsibilities
- the ability to communicate effectively through writing and/or drawing
- the ability to communicate effectively through oral presentations
- an understanding of the impact of engineering on society
- an understanding of the necessity to engage in life-long learning
- a knowledge of contemporary issues in civil, environmental and architectural engineering

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- Civil Engineering
- Computer Science
- Electrical, Computer and Energy Engineering
- Engineering Management
- Engineering Physics
- Environmental Engineering
- Engineering Plus
- Materials Science and Engineering

- the ability to use modern engineering techniques, skills and tools

## Areas of Knowledge

The areas of knowledge that define these objectives include both technical and non-technical areas.

Technical areas are:

- **elementary**—the fundamentals for architectural engineering, including basic science and mathematics, building design and construction processes; overview of building systems; elementary principles and processes of architecture; and laboratory measurement and data analysis;
- **intermediate**—introduction to building systems and their components, with corresponding analysis of electrical, HVAC and lighting systems as well as structural elements and components;
- **proficiency**—design, integration and advanced analysis of electrical, HVAC, lighting and structural systems; as well as the codes and recommended practices that govern these building systems; and
- **specialization**—advanced design, coupled with industry experience via internships, for building lighting and electrical system design, building HVAC systems design, building structural system design and construction engineering and management.

Non-technical areas include:

- professional life, including methods of time and resource management, and professional ethics;
- processes and requirements of written and oral communication; and
- broad areas in the humanities and social sciences, including architectural history and language.

**Course code for this program is AREN.**

## Bachelor's Degree Program(s)

### Bachelor's Degree in Architectural Engineering

There is a broad core of requirements for all students. Students are also expected to choose, in consultation with faculty advisors, elective courses to add depth in one or more specialty areas. Such specialty areas include structural analysis and design, construction engineering, building energy and mechanical systems, and illumination engineering. A list of recommended electives is available to help students select a coherent academic program that enhances one of these areas.

## Curriculum for BS

### *Required Courses and Semester Credit Hours*

#### **Freshman Year**

##### ***Fall Semester***

- APPM 1350 Calculus 1 for Engineers—4
- AREN 1027 Engineering Drawing—3
- AREN 1316 Introduction to Architectural Engineering—2

- Mechanical Engineering
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Other Academic Programs

- CHEM 1221 Engineering Chemistry Lab—1
- CHEN 1211 General Chemistry for Engineers—4

### ***Spring Semester***

- APPM 1360 Calculus 2 for Engineers—4
- CVEN 2012 Introduction to Geomatics—3
- First-Year Projects course—3
- PHYS 1110 General Physics 1—4
- Humanities or social science elective—3

### **Sophomore Year**

#### **Fall Semester**

- AREN 2050 Building Materials and Systems—3
- AREN 2110 Thermodynamics—3
- APPM 2350 Calculus 3 for Engineers—4
- CVEN 2121 Analytical Mechanics 1—3
- PHYS 1120 General Physics 2—4

#### ***Spring Semester***

- APPM 2360 Introduction to Differential Equations with Linear Algebra—4
- AREN 2120 Fluid Mechanics and Heat Transfer—3
- CVEN 3161 Mechanics of Material 1—3
- CVEN 3246 Introduction to Construction—3
- CHEN 1310 Introduction to Engineering Computing—3

### **Junior Year**

#### **Fall Semester**

- AREN 3010 Mechanical Systems for Buildings—3
- AREN 3540 Illumination 1—3
- CVEN 3525 Structural Analysis—3
- ECEN 3030 Electrical Circuits—3
- Free elective—3

#### ***Spring Semester***

- AREN Proficiency I—3
- AREN Proficiency II—3
- AREN Concentration I—3
- College-approved writing course—3
- Technical elective—3

### **Senior Year**

#### **Fall Semester**

- ENVD 3114 History and Theory of ENVD at the Small Scale: Buildings—3
- ARCH 4010 Architectural Appreciation and Design—5
- AREN Concentration II—3
- Humanities or social science elective—3
- Technical elective—3

### ***Spring Semester***

- ENVD 3134 History and Theory of ENVD at the Medium Scale: Precincts—3
- AREN 4317 Architectural Engineering Design—5
- Humanities or social science elective—3
- Technical electives—6

Minimum hours for degree—128

## **Courses Available for Specialization**

Students select two proficiency-level courses from different subdisciplines and two concentration-level courses from one subdiscipline. Upon consultation with their advisors, students are expected to select technical elective courses applicable to their areas of interest and specialization. The areas of specialization are construction engineering and management, mechanical systems, lighting and electrical systems and structural systems.

In addition to the courses listed below, other courses not listed may be proposed by a student and approved by the advisor if they are found to be applicable

- AREN 4010 HVAC System Modeling and Control
- AREN 4110 HVAC Design
- AREN 4130 Optical Design
- AREN 4315 Design of Masonry Structures
- AREN 4506 Project Management 1
- AREN 4530 Advanced Lighting Design
- AREN 4540 Exterior Lighting Systems
- AREN 4550 Illumination 2
- AREN 4560 Luminous Radiative Transfer
- AREN 4570 Electrical Systems
- AREN 4580 Daylighting
- AREN 4606 Project Management 2
- AREN 4890 Sustainable Building Design
- AREN 4990 Computational Fluid Dynamics Analysis for Built and Natural Environments
- AREN 5020 Building Energy Audits
- AREN 5050 Advanced Solar Design
- AREN 5080 Computational Simulation of Building Energy Systems
- CVEN 3256 Construction Equipment and Methods
- CVEN 4161 Advanced Mechanics of Materials 1

- CVEN 4525 Analysis of Framed Structures
- CVEN 4545 Steel Design
- CVEN 4555 Reinforced Concrete Design
- CVEN 4565 Timber Design
- AREN 5020 Building Energy Audits
- CVEN 5050 Advanced Solar Design

## Concurrent Bachelor's/Master's Program

### Concurrent BS/MS in Architectural Engineering

A concurrent BS/MS degree program in architectural engineering is available. Students may apply to the program when they have completed 75-110 credit hours toward the undergraduate BS degree. Once accepted into the program, students are allowed to count 6 credit hours taken at the graduate level for both the BS and MS degrees (if certain grade and GPA requirements are met); this allows a student to obtain both degrees in a five-year curriculum.

## Graduate Degree Program(s)

### Graduate Study in Architectural Engineering

Graduate studies in architectural engineering are offered through the Department of Civil, Environmental and Architectural Engineering. Information on the requirements for graduate study in architectural engineering is available from the departmental website at [ceae.colorado.edu](http://ceae.colorado.edu). The Graduate Record Examination (GRE), consisting of the aptitude tests and advanced test in engineering, is used to evaluate master of science and doctor of philosophy candidates. Candidates who submit GRE scores may be more likely to be considered for financial assistance.

The department offers master of science and doctor of philosophy degrees in architectural engineering with study emphasis in building systems engineering (sustainable building design and operation, illumination engineering, energy efficient and renewable energy technologies) and construction engineering and management.

### Master of Science Degree

Requirements for this master's degree can be fulfilled in three ways. Under Plan I, the candidate completes 30 credit hours of course work including thesis (maximum of 6 credit hours). Under Plan IIa, 30 credit hours of course work are required, including 3 credit hours of Master's Report credit. Under Plan IIb, 30 credit hours of course work are required with a final exam; however, not all disciplines offer the course work master's option.

### Doctor of Philosophy Degree

This degree requires a minimum of 30 credit hours of graduate-level work (5000 level or above). Up to 21 credit hours of previous graduate-level work may be transferred with advisor and Graduate School approval. The doctoral dissertation requires 30 credit hours. The applicant for this degree must demonstrate the capability for both rigorous academic accomplishments and independent research.

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## Chemical and Biological Engineering

The Department of Chemical and Biological Engineering offers degrees at the bachelor's, master's and doctoral levels. The department offers two distinct BS degree programs, one in **chemical engineering** and one in **chemical and biological engineering**. The Regents of the University of Colorado and the Colorado Commission on Higher Education approved the new BS program in the combined fields of chemical and biological engineering during the summer of 2006. The first graduates of the new program graduated in the spring of 2009 and the program is accredited by the Engineering Accreditation Commission of ABET ([www.abet.org](http://www.abet.org)).

### Other Opportunities in the Department of Chemical and Biological Engineering

At the BS, MS and PhD levels, there are opportunities to specialize via electives, independent study and research. The BS in chemical engineering also offers optional variations to the core curriculum that allow students to specialize in environmental, computer, microelectronic and materials aspects of chemical engineering. If a student has an interest that is not included in the following information, special arrangements can usually be made.

Students may carry out part of their studies in another country (see the Office of International Education section), and are encouraged to consider this opportunity, given the international nature of most large chemical and engineering corporations and international cooperation in scientific and engineering research. Many faculty members have significant international experience.

**Cooperative Education and Internships.** The Department of Chemical and Biological Engineering offers a formal Co-Op Program, where students obtain a BS in chemical engineering or chemical and biological engineering and significant industrial experience in five years.

**Senior Thesis.** The department offers this program for undergraduates with a strong interest in research. The student carries out a year-long project under the direction of a faculty member in lieu of taking CHEN 4130 Chemical Engineering Laboratory 2 (for ChE students) or CHEN 4810 Biological Engineering Lab (for ChBE students). Students must apply at the end of their junior year.

### Research Facilities

Chemical and biological engineering research facilities are extensive and modern. Nearly all research equipment is interfaced to computers for automated data collection, monitoring and control. A full description of chemical engineering research facilities can be found in the graduate section below.

**Course code for this program is CHEN.**

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- **Chemical and Biological Engineering**

- Civil Engineering

- Computer Science

- Electrical, Computer and Energy Engineering

- Engineering Management

- Engineering Physics

- Environmental Engineering

- Engineering Plus

- Materials Science and Engineering

## Bachelor's Degree Program(s)

### BS in Chemical Engineering

Chemical engineers are responsible for producing products based on chemical processing and chemical transformations. They carry out basic research; they design, build, operate and manage chemical processes and plants; and they supply petroleum products, renewable resources, plastics, detergents, agricultural chemicals, pharmaceuticals, biological compounds, photographic materials, microelectronic devices and various food and other products. Today's processes must be energy efficient, nonpolluting and profitable. Thus, students must master inorganic, organic and physical chemistry, mathematics, statistics, computers, physics and often biology and biochemistry. Students must learn to apply these fundamentals in the process industries. Paralleling the technical courses are studies in the humanities and the social sciences.

#### Program Educational Objectives

The department prepares its graduates to make significant contributions in many diverse areas. Specifically, within a few years of graduation our graduates will have achieved one or more of the following attributes:

- In their chosen field, be established in a professional career, be pursuing an advanced degree or be seeking advanced certification.
- Be recognized as academic, industrial or entrepreneurial leaders.
- Be successfully working and communicating in a variety of technical fields.
- Be adapting to new technologies and changing professional environments.

#### Program Outcomes

At the time of graduation, graduates will demonstrate:

- an ability to apply knowledge of mathematics, science and engineering
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability
- an ability to function on multidisciplinary teams
- an ability to identify, formulate and solve engineering problems
- an understanding of professional and ethical responsibility
- the appropriate written and verbal communication skills required to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context
- a recognition of the need for, and an ability to engage in, lifelong learning
- a knowledge of contemporary issues
- an ability to use the techniques, skills and modern engineering tools necessary for engineering practice

#### Options in the Bachelor of Science in Chemical Engineering Curriculum

- Mechanical Engineering
- Telecommunications
- Certificate Programs
- Faculty: Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

Curricular options have been established in fields of major importance and particular interest. To follow one of these options requires careful planning and course selection by student and advisor.

**Bioengineering Option.** Since all biological and medical systems involve complex chemical and physical processes, chemical engineering is a natural professional basis for biotechnology research. The department has a strong undergraduate program tailored to meeting the needs of students who are preparing for careers in biomedical engineering, biochemical engineering or biotechnology. Modern biotechnology has been defined as “applied genetic engineering” and is of considerable importance due to recent advances in molecular biology and genetic engineering. The successful industrial application of these advances will, in large part, depend on new chemical engineering initiatives in the development of high-rate bioreactors, efficient separation and purification techniques for bioproducts and computer-interfaced instrumentation for optimal bioprocess control.

The courses available for this option are Pharmaceutical Biotechnology, Bioprocess Engineering and Biochemical Separations. In addition, bioengineering option students are required to complete two semesters of general biology and one semester of biochemistry.

The department also offers graduate bioengineering technology research programs at both the MS and PhD levels. These programs are oriented toward specialization in various aspects of biochemical engineering, biomedical engineering, biotechnology and sensory physiology.

**Environmental Option.** Chemical engineers can make major contributions in the fields of pollution prevention and control, resource utilization and environmental improvement. The environmental engineering option is designed to emphasize biological and environmental sciences, the effects of chemicals on the environment and chemical engineering applications in environmental problems.

The courses taken by students following this option include electives in environmental science and engineering. A capstone course in environmental engineering processes or environmental separations is taken in the senior year.

**Materials Option.** The need to develop new materials for a rapidly broadening spectrum of applications is one of the major technological challenges confronting applied science. Chemical engineers have the required background in chemistry and transport theory to contribute significantly in this area. This option focuses on polymeric and ceramic materials by complementing the chemical engineering curriculum with elective courses stressing the interrelationship between materials fabrication, structure, properties and performance.

**Premedicine Curriculum Track.** This track is offered for students preparing for medical school. Since chemical engineering already requires most of the premed courses, it is a logical choice for students who desire an engineering degree and the opportunity to pursue a medical profession.

## Curriculum for BS in Chemical Engineering

### *Required Courses and Semester Credit Hours*

#### **Freshman Year**

##### ***Fall Semester***

- APPM 1350 Calculus 1 for Engineers—4
- CHEM 1221 General Chemistry Laboratory for Engineers—1
- CHEN 1211 General Chemistry for Engineers—4

- CHEN 1310 Introduction to Engineering Computing—3
- Humanities or social science elective (Note 2)—3

### **Spring Semester**

- APPM 1360 Calculus 2 for Engineers—4
- CHEN 1300 Introduction to Chemical Engineering (Note 1)—1
- CHEN 2810 Biology for Engineers—3
- PHYS 1110 General Physics 1—4
- Humanities or social science elective (Note 2)—3

### **Sophomore Year**

#### ***Fall Semester***

- APPM 2350 Calculus 3 for Engineers—4
- CHEM 3311 Organic Chemistry 1—4
- CHEM 3321 Laboratory in Organic Chemistry—1
- CHEN 2120 Material and Energy Balances—3
- PHYS 1120 General Physics 2—4
- PHYS 1140 Experimental Physics—1

#### ***Spring Semester***

- APPM 2360 Introduction to Differential Equations with Linear Algebra—4
- CHEM 3331 Organic Chemistry 2—4
- CHEM 3341 Laboratory in Organic Chemistry 2—1
- CHEN 3200 Chemical Engineering Fluid Mechanics (Note 1)—3
- CHEN 4521 Physical Chemistry for Engineers (Note 1)—3
- Humanities or social science elective (Note 2)—3

### **Junior Year**

#### ***Fall Semester***

- CHEN 3320 Chemical Engineering Thermodynamics (Note 1)—3
- CHEN 3010 Applied Data Analysis (Note 1)—3
- CHEN 3210 Chemical Engineering Heat Transfer (Note 1)—3
- College-approved writing course—3
- Elective (Note 3)—4

#### ***Spring Semester***

- CHEN 3130 Chemical Engineering Laboratory 1 (Note 1)—2
- Chemistry Elective (Note 4)—3
- CHEN 4330 Chemical Engineering Reaction Kinetics (Note 1)—3
- CHEN 3220 Chemical Engineering Separations and Mass Transfer (Note 1)—3
- Elective (Note 3)—3

- Humanities or social science elective (Note 2)—3

## Senior Year

### *Fall Semester*

- CHEN 4130 Chemical Engineering Laboratory 2 (Note 1)—2
- CHEN 4090 Undergraduate Seminar (Note 1)—1
- CHEN 4520 Chemical Process Synthesis (Note 1)—3
- Elective (Note 3)—3
- Elective (Note 3)—3
- Humanities or social science elective (Note 2)—3

### *Spring Semester*

- CHEN 4530 Chemical Engineering Design Project (Note 1)—2
- CHEN 4570 Instrumentation and Process Control (Note 1)—4
- CHEN 4440 Chemical Engineering Materials (Note 1)—3
- Elective (Note 3)—3
- Elective (Note 3)—3

Minimum total hours for degree—128

#### *Notes:*

1. Course is offered only in the semester indicated.
2. Courses must meet humanities and social science requirements. Students should consult their advisor, the current ChBE Advising Guide and [www.colorado.edu/engineering/academics/policies/hss](http://www.colorado.edu/engineering/academics/policies/hss).
3. Electives must meet specific requirements. See the current ChBE Advising Guide.
4. Students should consult the current ChBE Advising Guide about chemistry electives.

## BS in Chemical and Biological Engineering

The chemical engineering field has traditionally had a natural affinity and synergy with the fields of molecular and cellular biology including biotechnology, pharmaceutical sciences, tissue engineering and medicine. These synergies have led the Department of Chemical and Biological Engineering to establish this new degree track in the combined fields of chemical and biological engineering. Graduates of this new program will be trained in the traditional field of chemical engineering with foci on chemical transformations and separations; however, they will have further knowledge and ability in applying these skills to the emerging areas in biological engineering such as biotechnology, metabolic engineering and pharmaceutical sciences. In contrast to the traditional BS in chemical engineering, students must master additional skills in biology, medicine, bioseparations, biological laboratory skills and biological transformations.

### Program Educational Objectives

The department prepares its graduates to make significant contributions in many diverse areas. Specifically, within a few years of graduation our graduates will have achieved one or more of the following attributes:

- In their chosen field, be established in a professional career, be pursuing an advanced

degree or be seeking advanced certification.

- Be recognized as academic, industrial or entrepreneurial leaders.
- Be successfully working and communicating in a variety of technical fields.
- Be adapting to new technologies and changing professional environments.

## Program Outcomes

At the time of graduation, graduates will demonstrate:

- an ability to apply knowledge of mathematics, science and engineering
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability
- an ability to function on multidisciplinary teams
- an ability to identify, formulate and solve engineering problems
- an understanding of professional and ethical responsibility
- the appropriate written and verbal communication skills required to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context
- a recognition of the need for, and an ability to engage in, lifelong learning
- a knowledge of contemporary issues
- an ability to use the techniques, skills and modern engineering tools necessary for engineering practice
- an ability to apply engineering to biological systems
- a knowledge of advanced biological concepts

## Options in the BS in Chemical and Biological Engineering Curriculum

**Premedicine Curriculum Track.** This track is offered for students preparing for medical school. Since chemical and biological engineering already requires most of the premed courses, it is a logical choice for students who desire an engineering degree and the opportunity to pursue a medical profession.

## Curriculum for BS in Chemical and Biological Engineering

### *Required Courses and Semester Credit Hours*

#### **Freshman Year**

##### ***Fall Semester***

- APPM 1350 Calculus 1 for Engineers—4
- CHEN 1211 General Chemistry for Engineers—4
- CHEM 1221 General Chemistry Laboratory for Engineers—1
- CHEN 1310 Introduction to Engineering Computing—3
- Humanities or social science elective (Note 2)—3

## **Spring Semester**

- APPM 1360 Calculus 2 for Engineers—4
- CHEN 1300 Introduction to Chemical Engineering (Note 1)—1
- CHEN 2810 Biology for Engineers—3
- PHYS 1110 General Physics 1—4
- Humanities or social science elective (Note 2)—3

## **Sophomore Year**

### ***Fall Semester***

- APPM 2350 Calculus 3 for Engineers—4
- CHEM 3311 Organic Chemistry 1—4
- CHEM 3321 Laboratory in Organic Chemistry—1
- CHEN 2120 Material and Energy Balances—3
- PHYS 1120 General Physics 2—4
- PHYS 1140 Experimental Physics—1

### ***Spring Semester***

- APPM 2360 Introduction to Differential Equations with Linear Algebra—4
- CHEM 3331 Organic Chemistry 2—4
- CHEM 3341 Laboratory in Organic Chemistry 2—1
- CHEN 3200 Chemical Engineering Fluid Mechanics (Note 1)—3
- CHEN 4521 Physical Chemistry for Engineers (Note 1)—3
- Humanities or social science elective (Note 2)—3

## **Junior Year**

### ***Fall Semester***

- CHEN 3320 Chemical Engineering Thermodynamics (Note 1)—3
- CHEN 3010 Applied Data Analysis (Note 1)—3
- CHEN 3210 Chemical Engineering Heat Transfer (Note 1)—3
- College-approved writing course—3
- Elective (Note 3)—4

### ***Spring Semester***

- CHEM 4611 Survey of Biochemistry (Note 4)—3
- CHEN 3130 Chemical Engineering Laboratory 1 (Note 1)—2
- CHEN 3220 Chemical Engineering Separations and Mass Transfer (Note 1)—3
- CHEN 4805 Biomaterials (Note 1)—3
- CHEN 4830 Biokinetics (Note 1)—3
- Humanities or social science elective (Note 2)—3

## **Senior Year**

**Fall Semester**

- CHEN 4090 Undergraduate Seminar (Note 1)—1
- CHEN 4520 Chemical Process Synthesis (Note 1)—3
- CHEN 4810 Chemical and Biological Engineering Laboratory 2 (Note 1)—2
- CHEN 4820 Biochemical Separations (Note 1)—3
- Elective (Note 3)—3
- Elective (Note 3)—3

**Spring Semester**

- CHEN 4530 Chemical Engineering Design Project (Note 1)—2
- CHEN 4570 Instrumentation and Process Control (Note 1)—4
- Elective (Note 3)—3
- Focus Tech elective (Note 5)—3
- Humanities or social science elective (Note 2)—3

Minimum total hours for degree—128

*Notes:*

1. Course is offered only in the semester indicated.
2. Courses must meet humanities and social science requirements. Students should consult their advisor, the current ChBE Advising Guide and [www.colorado.edu/engineering/academics/policies/hss](http://www.colorado.edu/engineering/academics/policies/hss).
3. Electives must meet specific requirements. See the current ChBE Advising Guide.
4. Alternate is CHEM 4711.
5. One of the following courses must be taken as the focus technical elective: CHEN 4801 (Pharmaceutical Biotechnology), CHEN 4802 (Tissue Engineering/Biomedical Devices) or CHEN 4803 (Metabolic Engineering). These courses will be taught in alternating years and should be taken in the junior or senior year as available.

**Graduate Degree Program(s)****Graduate Study in Chemical and Biological Engineering**

Major areas of current research interest in the Department of Chemical and Biological Engineering are biomaterials and tissue engineering, biosensing, biotechnology and pharmaceuticals, catalysis and surface science, computational science and engineering, energy, fluids and flows, interfaces and self-assembly, membranes and separations, nanomaterials and nanotechnology, polymers and soft materials, protein engineering and synthetic biology.

**Master of Science Degree Requirements**

**Admission.** General criteria for regular admission to the master's program include a bachelor's degree with a 3.25 or better overall GPA from a college or university of recognized standing, equivalent to the degree given at this university (or college work equivalent to that required for such a degree, at least 96 semester hours of which must be acceptable toward a degree at this university); promise of ability to pursue advanced study and research, as judged by previous scholastic record or otherwise; and adequate preparation to begin graduate study in the chosen

field.

A candidate for the master of science degree in chemical engineering must fulfill the following departmental requirements:

- Thirty semester hours of graduate work, including a satisfactory thesis. Maximum credit of 6 semester hours is allowed for the completion of the master's thesis. A nonthesis master's degree is available and requires completion of 30 semester hours of course work.
- A final examination as required by the Graduate School on the thesis.

It is expected that a qualified student can complete the master's degree in less than two calendar years. A graduate student with a bachelor's degree in a field related to chemical engineering can obtain the master's degree in chemical engineering but may be required to make up deficiencies in background. Programs are arranged on an individual basis.

**Course Requirements.** The following courses are required for any MS degree plan:

- CHEN 5090 Seminar in Chemical and Biological Engineering
- CHEN 5210 Transport Phenomena
- CHEN 5740 Analytical Methods
- And one of the following:  
CHEN 5370 Intermediate Chemical Engineering Thermodynamics  
CHEN 5390 Chemical Reaction Engineering
- Additionally, 15 of the total required credit hours must be chemical and biological engineering courses, and *pass/fail* courses do not count toward the degree.

A degree plan must be prepared at the beginning of the academic program in consultation with an advisory committee. The student is urged to maintain close contact with this advisory committee during the entire course of study.

The MS thesis committee must consist of three members, including at least two graduate faculty members from the Department of Chemical and Biological Engineering.

## Master of Engineering Degree Requirements

**Admission.** (The standards of admission to the MS program also apply to ME degree applicants.) A 3.25 overall undergraduate GPA is required for regular admission.

**ME Degree Advisor.** All ME candidates should see the chemical engineering master of science degree advisor for counseling.

**Requirements for Graduation.** Students orally defend their written reports as specified in the ME degree description, and a comprehensive examination is administered by the student's advisory committee on the report and course work.

## Doctor of Philosophy Admission Requirements

- The applicant must have achieved academic competence equivalent to a bachelor of science degree from an accredited college or university, with a GPA substantially above the minimum normally required for the degree.
- The applicant must show the ability to perform independent research.
- The applicant must indicate a field of specialization and obtain an advisor in the chemical engineering graduate faculty.

The applicant must pass the PhD preliminary examination administered by the Department of Chemical and Biological Engineering.

A candidate for the doctor of philosophy degree must meet the requirements as described under requirements for advanced degrees in the Graduate School section. A minimum of 30 semester hours of courses numbered 5000 or above is required for the degree, including those applied toward an MS degree. These must include all five core courses listed previously.

All PhD students in chemical engineering must satisfy a communication skills requirement. This includes performing an advanced teaching assistantship and demonstrating satisfactory communication skills on the PhD comprehensive examination. Students whose primary language is English may choose to demonstrate foreign language proficiency instead of being judged on their communications skills on the comprehensive exam.

The PhD dissertation committee must consist of five members, including at least three from the Department of Chemical and Biological Engineering and at least one from within CU-Boulder, but outside the department. A graduate faculty member of the department must serve as chair of the committee.

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## Civil Engineering

The curriculum in civil engineering within the Department of Civil, Environmental and Architectural Engineering has been designed to prepare students for entry-level positions in professional practice or for graduate study in the following subdisciplines of civil engineering:

- construction engineering and management;
- environmental engineering;
- geotechnical engineering and geomechanics;
- structural engineering and structural mechanics; and
- water resource engineering and management.

For undergraduates who want additional preparation for graduate study and careers in research and development within civil engineering, a theoretically-based Engineering Science track is also available.

### Program Educational Objectives

The overall objectives of the bachelor of science program in civil engineering are:

- Graduates will be successfully employed in engineering, science or technology careers.
- Graduates will be assuming management or leadership roles.
- Graduates will engage in continual learning by pursuing advanced degrees or additional educational opportunities through course work, professional conferences and training and/or participation in professional societies.
- Graduates will pursue professional registration or other appropriate certifications.
- Graduates will be engaged in activities that provide benefit to communities.

### Educational Outcomes

The outcomes that students are expected to have attained upon graduation with a bachelor of science degree in civil engineering are:

- the ability to apply knowledge of mathematics, science and engineering
- the ability to design and conduct experiments
- the ability to analyze and interpret data
- the ability to design a system or component to meet desired needs
- the ability to function on multidisciplinary teams
- the ability to identify, formulate and solve engineering problems

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**Civil Engineering**

- Computer Science
- Electrical, Computer and Energy Engineering
- Engineering Management
- Engineering Physics
- Environmental Engineering
- Engineering Plus
- Materials Science and Engineering

- an understanding of professional and ethical responsibilities
- the ability to communicate effectively through writing and/or drawing
- the ability to communicate effectively through oral presentations
- an understanding of the impact of engineering on society
- an understanding of the necessity to engage in lifelong learning
- a knowledge of contemporary issues in civil, environmental and architectural engineering
- the ability to use modern engineering techniques, skills and tools
- the ability to explain basic concepts in management, business, public policy and leadership

Before their graduation, students in civil and environmental engineering will take a capstone design course in addition to receiving training in structural and foundation design, civil engineering systems, construction, engineering geology, engineering materials, geotechnical engineering, soil mechanics, water quality, environmental engineering, fluid mechanics, computer-aided and manual engineering drawing, mechanics and dynamics, computer modeling, professional practice and ethics seminars, structural analysis and design, surveying and transportation systems via required and elective courses.

## Research Interests and Facilities

The department has a wide variety of research facilities, including a 15g-ton centrifuge for geotechnical and structural model studies and a large 440g-ton geotechnical centrifuge for use in model testing. Also available is an instructional computing facility, the Bechtel Laboratory and the M.Y. Leung Computational Laboratory for Soils and Structures, both equipped with Windows and Linux high-performance workstations. In addition, extensive structural engineering, engineering mechanics and geotechnical capabilities exist such as a one-million-pound universal testing machine and several cubical cells for multi-axial testing of materials. A 40 ft. by 80 ft. structural strong floor with associated equipment permits the testing of a wide variety of structural configurations under controlled, both static and dynamic loading. The hydraulics and water resources research laboratories include excellent facilities in water quality and environmental engineering. A unique workstation laboratory for advanced decision support systems is available. Programs in construction management and building energy are well supported. A building mechanical and energy laboratory is capable of testing full-scale, commercial building systems and their controls using a one-of-a-kind data acquisition and experimental control system.

The Environmental Engineering program maintains approximately 12,000 sq. ft. of laboratories in the areas of process research, environmental microbiology, environmental chemistry, water quality, air quality, molecular biology, toxicology and field ecology. The Environmental Sustainability cluster and the Center for Environmental Mass Spectrometry offer formal collaborations between the CU-Boulder Environmental Engineering Group, Mechanical Engineering air research group, the US Geological Survey and industry partners, providing state-of-the-art facilities for research and teaching.

The Center for Advanced Decision Support for Water and Environmental Systems (CADSWES) is an interdisciplinary center of excellence, housed within the Department of Civil, Environmental and Architectural Engineering. CADSWES focuses on applying advanced computing techniques to provide decision makers with decision support systems (DSSs) to help them more effectively manage water and environmental systems.

Current research covers such topics as water and wastewater treatment, surface and subsurface contaminant transport, decision support systems, hydraulic research, land treatment, rapid infiltration and activated sludge processes. Cost prediction in construction, construction management, energy conservation in buildings, solar applications and lighting

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systems are included. Advances in soil mechanics, rock mechanics, soil dynamics and geotechnical earthquake engineering, foundation engineering, computational geomechanics, centrifugal modeling, geosynthetics and glacier flows have been produced. Research in structures includes stability, damage and fracture, material microstructures, durability, finite element modeling, reinforced concrete, earthquake responses, reinforced masonry structures, prestressed concrete and dynamic control.

**Course code for this program is CVEN.**

## Bachelor's Degree Program(s)

### Bachelor's Degree in Civil Engineering

The central curriculum requires students to obtain a background in the humanities and a broad knowledge of the basic engineering sciences of chemistry, mathematics (including differential equations), physics, mechanics (including fluid mechanics and soil mechanics), and thermodynamics. Social-humanistic hours may be devoted to the social sciences, the humanities or to approved communication courses.

Advanced technical courses are selected in the senior year. Random selection is not allowed as the objective is to prepare a graduate to enter the engineering profession with a firm groundwork in fundamental engineering science as well as adequate technical fluency in selected areas. Students should consult with their advisors on their choices.

Students are required to take the Fundamentals of Engineering (FE) exam when they are within 32 credit hours of graduation.

### Curriculum for BS

#### *Required Courses and Semester Credit Hours*

#### **Freshman Year**

##### ***Fall Semester***

- APPM 1350 Calculus 1 for Engineers—4
- CHEM 1221 General Chemistry Laboratory for Engineers—1
- CHEN 1211 General Chemistry for Engineers—4
- CVEN 1317 Introduction to Civil and Environmental Engineering—2
- First-Year Engineering Projects course—3

##### ***Spring Semester***

- APPM 1360 Calculus 2 for Engineers—4
- CHEN 1310 Introduction to Engineering Computing—3
- PHYS 1110 General Physics 1—4
- AREN/CVEN Combined drawing geomatics course—3
- Humanities or social science elective—3

#### **Sophomore Year**

##### ***Fall Semester***

- APPM 2350 Calculus 3 for Engineers—4
- CVEN 2121 Analytical Mechanics 1—3

- CVEN 3698 Engineering Geology or basic science elective—3
- PHYS 1120 General Physics 2—4
- PHYS 1140 Experimental Physics—1

### ***Spring Semester***

- APPM 2360 Introduction to Differential Equations with Linear Algebra—4
- AREN 2110 Thermodynamics—3
- CVEN 3161 Mechanics of Materials 1—3
- CVEN 3313 Theoretical Fluid Mechanics—3
- Humanities or social science elective—3

### **Junior Year**

#### ***Fall Semester***

- CVEN 3246 Introduction to Construction—3
- CVEN 3323 Hydraulic Engineering—3
- CVEN 3414 Fundamentals of Environmental Engineering—3
- CVEN 3525 Structural Analysis—3
- CVEN 3708 Geotechnical Engineering 1—3
- Humanities or social science elective—3

#### ***Spring Semester***

- CVEN 3111 Analytical Mechanics 2—3
- CVEN 3227 Probability, Statistics and Decision for Engineers—3
- CVEN Proficiency I—3
- College-approved writing course—3
- Free elective—3

### **Senior Year**

#### ***Fall Semester***

- CVEN Proficiency II—3
- CVEN 4897 Professional Issues—2
- Free elective—3
- Upper-division Humanities and social science elective—3
- CEAE technical elective—6

#### ***Spring Semester***

- CVEN 4899 Civil Engineering Senior Design—4
- CVEN Proficiency III—3
- Upper-division Humanities or social science elective—3
- Technical electives—6

## Concurrent Bachelor's/Master's Program

### Concurrent BS/MS in Civil Engineering

A concurrent BS/MS degree program in civil engineering is available. Students may apply to the program when they have completed 75-110 credit hours toward the undergraduate BS degree. Once accepted into the program, students are allowed to count 6 credit hours taken at the graduate level for both the BS and MS degrees (if certain grade and GPA requirements are met); this allows a student to obtain both degrees in a five-year curriculum.

## Graduate Degree Program(s)

### Graduate Study in Civil Engineering

Graduate studies in civil engineering are offered through the Department of Civil, Environmental and Architectural Engineering. Information on the requirements for graduate study in civil engineering is available from the departmental website at [ceae.colorado.edu](http://ceae.colorado.edu). The Graduate Record Examination (GRE), consisting of the aptitude tests and advanced test in engineering, is used to evaluate master of science and doctor of philosophy candidates. Candidates who submit GRE scores may be more likely to be considered for financial assistance.

The department offers master of science and doctor of philosophy degrees with study emphasis in several major areas: construction engineering and management, environmental engineering, civil systems, geotechnical engineering and geomechanics, geoenvironmental engineering, structural engineering and structural mechanics, hydrology, water resources and environmental fluid mechanics and general engineering science.

### Master of Science Degree

Requirements for this master's degree can be fulfilled in three ways. Under Plan I, the candidate completes 30 credit hours of course work including thesis (maximum of 6 credit hours). Under Plan IIa, 30 credit hours of course work are required, including 3 credit hours of Master's Report credit. Under Plan IIb, 30 credit hours of course work are required with a final exam; however, not all disciplines offer the course work master's option.

### Doctor of Philosophy Degree

This degree requires a minimum of 30 credit hours of graduate-level work (5000 level or above). Up to 21 credit hours of previous graduate-level work may be transferred with advisor and Graduate School approval. The doctoral dissertation requires 30 credit hours. The applicant for this degree must demonstrate the capability for both rigorous academic accomplishments and independent research.

## Dual Degree Programs

### Double Major with Applied Mathematics

As an exceptional opportunity for talented students who are interested in analytical and computational methods related to civil engineering and general engineering science, the civil engineering and applied mathematics departments offer a streamlined track by which a student can earn a baccalaureate degree from both programs with a minimum of 15 extra credit hours. Consult the faculty program advisors in civil engineering and applied mathematics for information and admission.

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University of Colorado **Boulder**

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## Computer Science

Computer science is an exciting and challenging field that has impact on many parts of our lives. Computer scientists craft the technologies that enable the digital devices we use every day. They develop the large-scale software that powers business and industry, and advance the computational techniques and write the software that supports scientists in their study of the world around us. Many new applications of computing technology remain to be discovered. Indeed, computing will be at the heart of future revolutions in business, science and society. Students who study computer science now will be at the forefront of those important advances.

Computer science is concerned with how computers are constructed, how they store and process data, how they are used in problem-solving and how the quality of those solutions is assessed. It is about the science of creating software for a variety of users, It is about understanding how that software interacts with the hardware on which it is run and goes well beyond the machine to the study of how people interact with the technologies around them. Applications of computer science reach far and wide.

### Career Possibilities

Computer science graduates from the University of Colorado Boulder are engaged in a wide variety of jobs with many different companies in locations all over the world. They produce the software and systems that touch lives every day in fields ranging from scientific exploration, communication, finance, publishing and research. Many are software developers, but other become teachers, writers, doctors, lawyers, scientists, military leaders and entrepreneurs. They work at some of the largest, most influential companies in the world, at research institutions, non-profits and at the smallest start-ups of every type imaginable. And many lead highly successful companies that they themselves have founded.

### Program Objectives

Within three to five years after graduation, computer science graduates:

- are valued individual contributors in a software-oriented organization, are programmers, are designers in an entrepreneurial pursuit, are leading small projects and generally beginning preparation for a management career, or to succeed in rigorous postgraduate programs.
- are able to focus their careers on pure computer science technology or to bring computer science expertise to a companion discipline.
- are prepared, where appropriate, to specialize in a broad spectrum of computer science sub-disciplines, ranging across formal computer science (e.g., computational science, bioinformatics and theory), cognitive science (e.g., human/machine learning, human-computer interaction, collaborative work and human language technologies), and core computing (e.g., systems, networks and software engineering).

### Program Outcomes

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- Architectural Engineering

- Chemical and Biological Engineering

- Civil Engineering

- **Computer Science**

- Electrical, Computer and Energy Engineering

- Engineering Management

- Engineering Physics

- Environmental Engineering

- Engineering Plus

- Materials Science and Engineering

Students completing the undergraduate degree in computer science will possess:

- an ability to apply knowledge of computing and mathematics appropriate to the discipline
- an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- an ability to design, implement and evaluate a computer-based system, process, component or program to meet desired needs
- an ability to function effectively on teams to accomplish shared computing design, evaluation or implementation goals
- an understanding of professional, ethical, legal, security and social issues and responsibilities for the computing profession
- an ability to communicate effectively about computing topics with a range of audiences
- an ability to analyze impacts of computing on individuals, organizations and society
- a recognition of the need for and ability to engage in continuing professional development
- an ability to use current techniques, skills and tools necessary for computing practice
- an ability to apply mathematical foundations, algorithm principles and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices
- an ability to apply design and development principles in the construction of software systems of varying complexity

### Facilities, Programs and Opportunities

The Department of Computer Science maintains a modern computing infrastructure that supports its research and educational missions. This include general purpose computing labs provided by the university, additional instructional labs and administrative computing resources provided by the department and specialized labs dedicated to the work of individual research groups. A wide variety of computing resources are available so that students have the opportunity to learn about and use cutting-edge equipment and software. The University research computing service maintains a supercomputer, high-speed networking and advanced computing infrastructure for the campus. While not required, the Computer Science educational culture emphasizes the use of individual laptop computers, including their use in courses and group work.

The department provides students networking opportunities throughout the year with companies offering paid internships. Boulder's tech start-up community, national research labs and traditional tech companies such as Google, IBM, Oracle and Microsoft, gives students with computer science skills many employment opportunities while earning their degrees. There are also extensive opportunities for undergraduate students to participate in research projects across the campus.

**Course code for this program is CSCI.**

## Minor Program

The department offers a minor in computer science that is available to undergraduates on the Boulder campus. The minor offers a basic introduction to the field of computer science; requirements may be found at [www.colorado.edu/cs/bsms-degree/minor](http://www.colorado.edu/cs/bsms-degree/minor).

## Bachelor's Degree Program(s)

|  |
|--|
| <ul style="list-style-type: none"> <li>• Mechanical Engineering</li> <li>• Telecommunications</li> <li>• Certificate Programs</li> <li>• Faculty: Engineering &amp; Applied Science</li> </ul> |
| <input type="checkbox"/> Environmental Design  |
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| <input type="checkbox"/> Graduate School   |
| <input type="checkbox"/> Other Academic Programs   |

# Bachelor's Degree in Computer Science

## Requirements

Requirements for the BS degree in computer science include course work in computer science, mathematics, natural science and the humanities and social sciences, as well as free elective course work. The degree provides considerable freedom in the selection of specific courses to fulfill these requirements, allowing students to tailor the degree to their individual needs and interests. A student may not earn both the BS in computer science and the BA in computer science degrees from CU-Boulder. A student may not earn both the bachelor's degree in computer science and the minor in computer science from CU-Boulder.

The department's goal is to prepare students for an intriguing and satisfying career in computer science either in industry, research or academia. The huge number of technical jobs and the continuing shortage of people to fill them mean that opportunities are great for today's computer science graduates when seeking career options or to continue on to graduate school.

## Suggested Plans of Study for BS in Computer Science Curriculum

Suggested plans of study are geared toward a variety of specializations. These plans of study reflect the fact that computer science is transforming such disciplines as medicine, the sciences and social science. The plans also illustrate various software and hardware themes within the field of computer science. In addition to the more general degree requirements for all computer science majors, majors should choose one of the following plans of study to guide them to completing additional degree requirements:

**Self-Directed.** The self-directed plan provides a broad-based background drawing from the entire spectrum of computing. Depending on the courses selected, students can be exposed to the design and architecture of computers, the development of software and the theory and techniques used in designing efficient computer programs. Students can also learn about application of computers to problems in science, in human-computer interaction and in data management. This plan prepares students for careers in many different areas of computer science.

**Computational Science and Engineering.** Problems considered by computational scientists include climate and weather prediction, spacecraft design, video game construction and the discovery of new medicines and treatments among many others. This plan emphasizes courses in numerical computation, high-performance scientific computing and supporting areas of science and computer science. It provides exposure to leading-edge computing systems.

**Human-Centered Computing.** Students in this plan will learn how to design, build and evaluate socio-technical systems of the future that will tie together technology with communication, collaboration and other social processes to address the challenges and opportunities of our world. The learning opportunities in this track draw on and integrate research in human computer interaction, design of interactive systems, computer supported cooperative work, computer supported collaborative learning, educational technology, tools that support creativity, user-developed knowledge collections and gaming.

**Networked Devices and Systems.** It is the role of networked systems professionals to select, design, deploy, integrate, evaluate and administer network and communication infrastructures. This plan emphasizes courses in deployment of networks with specific design and protocol requirements, applying networking to deploy services in multimedia, information storage and distribution, security and services on the Internet such as the Web and email and operating systems analysis and management.

**Software Engineering.** Software permeates the very fabric of modern society. This plan emphasizes courses in core software engineering concepts, methods and tools, the

understanding of user requirements and user interface design, the ability to design programming languages and software tools that support software development and working in teams to achieve complex objectives. The position of software engineer is consistently ranked as one of the "best jobs" in the USA.

**Systems.** Computers benefit almost every part of our lives—from entertainment to cars to phones to medical devices. Computer systems engineers work with hardware and software to help application developers make these devices a reality. This plan emphasizes courses in direct control of hardware through low-level software, the design and implementation of operating systems and programming languages, networking and performance analysis, as well as embedded system design.

Additional information about the department's programs is available at [www.colorado.edu/cs/current-students/undergraduates](http://www.colorado.edu/cs/current-students/undergraduates) or by contacting the department at 303-492-7514.

## Curriculum for BS

### *Suggested 4 Year Plan*

#### First Year

##### ***Fall Semester (16 credit hours)***

- Intro Computer Science:
  - CSCI 1000 Computer Science as a Field of Work and Study—1 or
  - CSCI 3112-Human-Centered Computing Professional Development-1
- Computing:
  - CSCI 1300 Computer Science 1: Starting Computing-4 or
  - CSCI 1310 Computer Science 1: Starting Computing - Experienced—4 or
  - CSCI 1320 Computer Science 1: Starting Computing-Engineering Applications
- APPM 1350 Calculus 1 for Engineers—4
- Natural science—4
- Humanities and social sciences—3

##### ***Spring Semester (16 credit hours)***

- CSCI 2270 Computer Science 2: Data Structures—4
- APPM 1360 Calculus 2 for Engineers—4
- Natural science—5
- Humanities and social sciences—3

#### Second Year

##### ***Fall Semester (16 credit hours)***

- CSCI 2400 Computer Systems—4
- CSCI 2824 Discrete Structures—3 ( or other approved course)
- CSCI 2820 Linear Algebra with Computer Science Applications-3 (or other approved course)

- CSCI 3308 Software Development Methods and Tools—3
- Core — From approved Core list (1 of 6)—3

***Spring Semester (15 credit hours)***

- CSCI 3104 Algorithms—4
- Core — From approved Core list (2 of 6)—4
- Computer science elective-1
- Humanities and social sciences—3
- Probability or statistics—3 (from approved list of courses)

**Third Year**

***Fall Semester (16 credit hours)***

- CSCI 3155 Principles of Programming Languages—4
- Core — From approved Core list (3 of 6)—3
- Humanities and social sciences—3
- College-approved writing course—3
- Free elective-3

***Spring Semester (16 credit hours)***

- Core — From approved Core list (4 of 6) —3
- Computer Science elective—3
- Computer Science elective—3
- Free elective—3
- Natural science—4

**Fourth Year**

***Fall Semester (17 credit hours)***

- CSCI — Capstone—4
- Core — From approved Core list (5 of 6) —3
- Natural science—4
- Humanities and social sciences—3
- Free elective—3

***Spring Semester (16 credit hours)***

- CSCI — Capstone—4
- Core — From approved Core list (6 of 6)—3
- Upper-division humanities and social sciences—3
- Humanities and social sciences—3
- Free elective—3

Total credit hours—128

For detailed information about the Computer Science Bachelor of Science requirements, refer to: [www.colorado.edu/cs/undergraduates/bs-degree-program](http://www.colorado.edu/cs/undergraduates/bs-degree-program).

## Graduate Degree Program(s)

### Graduate Study in Computer Science

#### General Admission Requirements

Graduate students should consider a major in computer science if they are primarily interested in the general aspects of computational processes, both theoretical and practical, e.g., methods by which algorithms are implemented on a computer, techniques for using computers accurately and efficiently, design of computer systems and languages and interfaces. A student who is primarily interested in the results of a computer process and its relation to a particular area of application should major in another field and consider a minor in computer science.

Applicants are considered for graduate study in computer science if they hold at least a bachelor's degree or its equivalent from an institution comparable to the University of Colorado. They should have considerable programming experience, sufficient mathematical maturity to understand pure mathematics courses at the upper-division level and a number of academic computer science courses.

Applicants should satisfy the following requirements for mathematics courses: at least three semesters of mathematics at the level of sophistication of calculus or above, courses such as: differential equations, linear algebra, probability, statistics and abstract algebra. These courses need not be in a mathematics department; however, they should require mathematical maturity expected of a junior or senior mathematics undergraduate.

In computer science, applicants should have the equivalent of the following University of Colorado courses: CSCI 1300 Computer Science 1: Programming; CSCI 2400 Computer Systems; one course out of CSCI 3155 Programming Languages or CSCI 3753 Operating Systems; CSCI 2270 Computer Science 2: Data Structures; and either CSCI 3104 Algorithms or CSCI 3434 Theory of Computation; and one other upper-division computer science course. Upper-division courses in areas such as artificial intelligence, databases, numerical computation, operating systems, parallel processing, software engineering and others can be substituted for courses on the above list. However, courses on the list are prerequisites to many of the graduate-level offerings and admitted students lacking their equivalent are usually required to make them up, without graduate credit. Students who lack this computer science background but who have exceptionally strong credentials in another field should contact the department for individual consideration.

Applicants should have a GPA of at least 3.00 (on a scale of 4.00). Applicants having the listed qualifications are, if accepted, classified as regular degree students. Applicants with an average below 3.00 and above 2.75 and/or lacking certain of the prerequisites listed above are sometimes considered for admission as provisional students.

These requirements apply to both the master's and PhD programs. Applicants should be aware that admission to both programs is very competitive, and meeting the requirements does not ensure admission. Admission to the PhD program is especially competitive, and successful applicants, in general, have records considerably stronger in breadth and quality than these minimum standards suggest.

PhD applicants are required to submit scores from the aptitude portion of the Graduate Record Examination (GRE). GRE scores are optional for master's applicants but are required if the undergraduate GPA is less than 3.00 (but above a 2.75). These scores are encouraged if

previous study was at an institution lacking a strong national reputation.

Financial aid is available to PhD students in the form of teaching and research assistantships and fellowships. Aid is sometimes available for master's students as teaching assistants or graders, but positions are assigned only at the beginning of a semester.

Admission to the graduate programs (both master's and PhD) is offered only for fall semester. Applications from both domestic and U.S. students and international students should be received by December 15.

## Master's Degree

Admission requirements for this program are given above under General Admission Requirements. Plan I (thesis) or Plan II (no thesis) may be followed. In either plan, students must complete 30 credit hours of course or thesis work. The requirements for Plan I are as stated under the general requirements of the Graduate School section in this catalog. Students in Plan I receive 6 credit hours for thesis work and are examined orally on their thesis. Under either plan a student may take 6 hours in a minor field. Students are expected to work out an acceptable program of course work with their advisor. Specific courses depend on the student's background and field of specialization, but four of the courses must satisfy a breadth requirement.

## Doctor of Philosophy Degree

Admission requirements for this program are listed under General Admission Requirements. Students in this program must pass a preliminary examination in one subarea of computer science to be eligible for admission to PhD candidacy. A minimum of 30 semester hours in courses numbered 5000 or above is required for the degree, but the number of hours in formal courses are ordinarily greater than that total. Specific courses depend on the student's background and field of specialization.

Following the formal course work, a student must pass a comprehensive examination aimed primarily at determining whether the student is adequately prepared to begin doctoral thesis work.

Finally, students who have completed a minimum of 30 semester hours are expected to prepare a doctoral thesis based on original research in the field of computer science. After the thesis has been completed, an oral final examination on the thesis and related topics is conducted by a committee of at least five graduate faculty members.

Further details on either the master or doctoral degree programs are available at [www.colorado.edu/cs/current-students/graduates](http://www.colorado.edu/cs/current-students/graduates).



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# Electrical, Computer and Energy Engineering

Electrical, computer and energy engineering is about the science and technology of information and energy. Two undergraduate curricula lead to bachelor's degrees: one in electrical engineering, and another in electrical and computer engineering. These curricula are revised frequently to keep pace with changes in this dynamic field.

Up-to-date curricula and policies are contained in the department's *HELP! Guide*, available through the department and on the Web at [ecee.colorado.edu](http://ecee.colorado.edu).

## Career Opportunities

A degree in electrical engineering or electrical and computer engineering provides graduates the opportunity to enter the profession of engineering and to engage in work as a design, production, testing, consulting, research, teaching or management professional in a wide variety of careers in the computer industry, telecommunications, instruments, the power and renewable energy industry, the biomedical industry, aerospace and academia. Some graduates also go on to develop careers in other professions like law and medicine.

Examples of career opportunities include development of new electrical or electronic devices, instruments or products; design of equipment or systems; production and quality control of electrical products for private industry or government; sales or management for a private firm or government; and teaching and research in a university.

## Research Centers

**Colorado Power Electronics Center (CoPEC).** Since it was founded in 1983, the power electronics group at the University of Colorado has maintained a tradition of innovative design-oriented and application-driven research. Colorado Power Electronics Center (CoPEC) activities now span the range of applications from high-efficiency milliwatt converters for portable battery-operated systems, to hundreds or thousands of watts for computer, aerospace, telecommunications, medical and automotive power conversion, to hundreds of kilowatts for wind generation systems.

Our current research activities include projects in high-efficiency, high-power converter technology, power electronics for portable, battery-operated systems, converter modeling and computer-aided analysis, low harmonic rectifier technology for single-phase and three-phase applications and advanced control techniques and their mixed-signal ASIC implementation. We collaborate with other research groups at the University of Colorado, including those in machines and power systems, microelectronics packaging, EMI, control and semiconductor devices. For more information call **303-492-7327** or visit [ecee.colorado.edu/~pwrelect](http://ecee.colorado.edu/~pwrelect).

**The University of Colorado Center for Environmental Technology (CET).** Understanding and managing the environment—whether for agriculture, health, water resources, disaster

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- **Electrical, Computer and Energy Engineering**

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- Engineering Plus

- Materials Science

mitigation, energy generation, transportation, weather forecasting, climate modeling or biodiversity—requires accurate knowledge of many variables on a wide range of time and space scales. Measurements for environmental purposes are made either using in situ or remote sensors, and rely upon a variety of different means, including acoustic and electromagnetic waves, point measurements and wide-area imaging and active and passive systems. A variety of different types of platforms can be used for environmental observation, including ships and submersibles, aircraft (both manned and unmanned), spacecraft and stationary sites.

Research and educational activities at the CU Center for Environmental Technology are focused on developing sensors, systems of sensors and associated hardware and algorithms for environmental observation with a focus on new remote and in situ techniques to meet contemporary scientific and applications goals. This is accomplished by direct involvement of CU faculty, CET engineering staff and undergraduate and graduate students on the development of sensing systems to meet the observational needs of a number of government and industry sponsors. CET training involves close interaction between students and experienced professional engineers, practicing scientists and CU faculty.

The CET was established in 2006 with a major donation of equipment from the NOAA Earth System Research Laboratory, and has members, associates and students from within the broad earth science and engineering communities of Colorado. For further information contact the CET director at **303-492-9688** or visit [cet.colorado.edu](http://cet.colorado.edu).

**Center for Research and Education in Wind (CREW).** Launched in 2009, CREW is a consortium of over 70 wind energy researchers and educators from four institutions—the University of Colorado Boulder (lead institution), the National Renewable Energy Laboratory, the Colorado School of Mines and Colorado State University. In CREW, faculty and researchers from the four institutions have come together to work to address the research and operational issues of wind energy in a coordinated manner as well as train a new generation of scientists, engineers and managers. The center has also formed partnerships with the National Center for Atmospheric Research and the National Oceanic and Atmospheric Administration. Its research thrusts include atmosphere sciences, wind turbine and wind farm model development and validation, control of wind energy systems, electrical systems and turbine testing, and a center-wide thrust on education and outreach. For more information visit [www.coloradocollaboratory.org/crew.html](http://www.coloradocollaboratory.org/crew.html).

## Research and Instructional Equipment

The department's special equipment and facilities include a class 1000 clean room facility for epitaxial growth and fabrication of microwave and optical devices; an anechoic chamber; high-vacuum and vacuum deposition equipment for thin-films research; an integrated circuits laboratory; ion implantation equipment; crystal growing facilities; a modern systems laboratory; a laboratory for data storage research; a digital system design laboratory; a power electronics research laboratory; undergraduate laboratories in circuits, electronics; power electronics; digital signal processing and communications; embedded systems; microwaves; a holography and optics laboratory; an advanced optical metrology lab; numerous special purpose computers; a computer system development laboratory; a roof-mounted antenna range; a special microscope for laser manipulation of microorganisms in vivo; a bio-microwave laboratory; a solar power lab; photovoltaic device fabrication and characterization facilities; and bioelectronics fabrication and integration capabilities.

The Colorado Nanofabrication laboratory (CNL) is an open user facility at the University of Colorado Boulder campus. Our mission is to provide expertise, facilities, infrastructure and teaming environments to enable and facilitate interdisciplinary research in microelectronics, optoelectronics and MEMS.

and Engineering

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Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

The Department of Electrical, Computer and Energy Engineering has a large variety of computing equipment to support its research and instructional activities. In addition to specialized computing equipment, this includes several hundred PCs, Macs, a department server and a student server. These machines are connected to the campuswide ethernet network.

**Course code for this program is ECEN.**

## Minors

The following minors provide training in electrical, computer or energy engineering beyond the training usually received by science, mathematics and applied mathematics majors. These minors also can broaden the training of students majoring in other engineering and applied science fields. For more information, contact the department's office or visit [www.colorado.edu/engineering/academics/degrees-minors-certificates/minors](http://www.colorado.edu/engineering/academics/degrees-minors-certificates/minors).

- Computer Engineering Minor
- Electrical Engineering Minor
- Electrical Renewable Energy Systems Minor
- Signals and Systems Minor

## Bachelor's Degree Program(s)

### Bachelor's of Science in Electrical, Computer and Energy Engineering

#### Bachelor's Degree Requirements

A minimum of 128 semester hours must be completed for either the BS in electrical engineering (EE) or the BS in electrical and computer engineering (ECE).

Students in both undergraduate degree programs take the same courses in their freshman year. In the sophomore year they begin the sequence of core courses that covers the sophomore and junior years. With this background, students are then able to specialize—or diversify—beginning in the second semester of the junior year or in the senior year. EE majors take three advanced core courses as juniors that prepare them for two senior EE theory and lab elective tracks/concentrations. These senior track courses may be chosen from the following areas with each area comprised of two specific courses: biomedical engineering; communication and digital signal processing; electromagnetic fields; optics; power and power electronics; renewable energy/energy conversion; nanostructures, solid-state materials and devices; or systems and controls. For ECE majors, the requirement is for two of the three advanced core courses plus the Computer Engineering core: Discrete Math, Data Structures and Computer Organization. In addition, ECE majors must take one EE track and a software elective.

Students in both majors are required to take the two-semester Capstone Senior Design Lab class. Students may only earn the BS in EE or ECE, not both, and may not earn any of the departmental minors.

Practical experience in well-equipped laboratories augments the theoretical approach throughout the program. Students are encouraged to develop interests outside their electrical engineering specialties by enrolling in nontechnical courses in other colleges of the university. They are encouraged to participate in college and university activities, as well as in meetings of the two very active electrical engineering technical societies (IEEE and HKN).

In just four years it is impossible to study all areas in detail. Qualified students may specialize further by pursuing a graduate program or by taking continuing education courses after completing the BS degree requirements. A graduating senior with high scholarship can finish a master's degree in electrical engineering with about one additional full year of work at any of the nation's major universities. Another option for especially well-qualified students is the department's BS/MS program, which allows early admission to the MSEE program during the junior year. This option is described below under Concurrent BS/MS Program in Electrical and Computer Engineering.

## Biomedical Engineering Option and Premedical Studies in ECEE

The biomedical engineering option, available to both EEEN and ECEN majors, focuses on the application of engineering concepts to the improvement and protection of health. Successful completion of this option is noted on a student's transcript, and may meet medical school requirements. Course work in the ECEN/EEEN curriculum is coupled with specialized courses linking electrical engineering to such biomedical applications as bioeffects of electromagnetic fields, and therapeutic and diagnostic uses of bioelectric phenomena. Undergraduates may also undertake independent study in these areas.

Students interested in biomedical engineering may receive elective credit for two semesters of biology if they also complete two bioengineering courses from the ECEN/EEEN offerings. The two ECEN/EEEN courses can also be used to satisfy an EE track requirement. The basic biomedical engineering option is thus composed of two semesters of biology and two ECEN/EEEN bioengineering courses.

Students who wish to complete course requirements for medical (or dental, veterinary, etc.) school should add two semesters of organic chemistry to the ECEN/EEEN biomedical engineering option. Premedical ECEN/EEEN students may petition to have these courses substituted for other electives.

Interested students are urged to contact the departmental biomedical engineering advisor for additional information.

## Bachelor of Science in Electrical Engineering

### Program Objectives

- **Graduates will be situated in growing careers involving the design, development or support of electrical or electronic systems, devices, instruments or products, or will be successfully pursuing an advanced degree.**

Graduates attaining the EE degree will have comprehensive knowledge and experience in the concepts and design of electrical and electronic devices, circuits and systems. This is achieved through a sequence of required courses in these areas, culminating in a major design project incorporating realistic engineering constraints. Moreover, graduates will have advanced, specialized knowledge and skills in elective areas such as communications and digital signal processing, control systems, analog and digital integrated circuit design, semiconductor devices and optoelectronics, electromagnetics and wireless systems, power electronics, renewable energy, bioelectronics and digital systems.

EE graduates will have attained other professional skills that will be useful throughout their careers, including verbal and written communication and the ability to function on multidisciplinary teams.

The EE curriculum is rich in laboratory work. EE graduates will have achieved extensive practical experience in the laboratory techniques, tools and skills that provide a bridge between theory and practice.

- **Graduates will have advanced in professional standing based on their technical accomplishments and will have accumulated additional technical expertise to remain globally competitive.**

EE graduates experience a curriculum that contains a broad core of classes focused on mathematical and physical principles that are fundamental to the field of electrical engineering. Hence, they understand the physical and mathematical principles underlying electrical and electronic technology, and are able to analyze and solve electrical engineering problems using this knowledge. In addition to basic classes in mathematics, science and computing, the EE curriculum includes a sequence of courses in analog and digital electronic circuits and systems, and electromagnetic fields.

- **Graduates will have demonstrated professional and personal leadership and growth.**

To lay the foundation for a long career in a rapidly changing field, a broad background of fundamental knowledge is required. This is achieved in the EE curriculum through a sequence of required courses in mathematics, physics, chemistry and the EE core. In addition, the graduate must be capable of lifelong learning; this is taught through assignments and projects that require independent research and study.

The curriculum includes a significant component of electives in the humanities and social sciences. EE graduates will have knowledge of the broader contemporary issues that impact engineering solutions in a global and societal context. They will have the verbal and written communication skills necessary for a successful career in industry or academia. Graduates also understand the meaning and importance of professional and ethical responsibility.

## Curriculum for BS in Electrical Engineering

The following information may be changed by the time this catalog is posted. Up-to-date policies are contained in the department's *HELP! Guide*, which is given to students who enter the program.

### *Required Courses and Semester Credit Hours*

#### **Freshman Year**

##### ***Fall Semester***

- APPM 1350 Calculus 1 for Engineers—4
- ECEN 1100 Freshman Seminar—1
- First-Year Engineering Projects course—3
- PHYS 1110 General Physics 1—4
- Lower-division humanities/social science—3

##### ***Spring Semester***

- APPM 1360 Calculus 2 for Engineers—4
- ECEN 1310 C Programming for EE/ECE —4
- PHYS 1120 General Physics 2—4
- PHYS 1140 Experimental Physics—1
- Lower-division humanities/social science—3

#### **Sophomore Year**

##### ***Fall Semester***

- APPM 2360 Differential Equations with Linear Algebra—4
- ECEN 24-- Sophomore Elective 1—3
- ECEN 2250 Introduction to Circuits and Electronics—3
- ECEN 2350 Digital Logic—3
- Lower-division humanities/social science—3

### ***Spring Semester***

- APPM 2350 Calculus 3 for Engineers—4
- ECEN 24-- Sophomore Elective 2—3
- ECEN 2260 Circuits as Systems—3
- ECEN 2270 Electronics Design Lab—3
- General science elective —3

### **Junior Year**

#### ***Fall Semester***

- ECEN 3350 Programming of Digital Systems—3
- ECEN 3810 Probability—3
- ECEN 3--- Analog Elective 1—3
- ECEN 3--- Analog Elective 2—3
- Lower-division humanities/social science—3

#### ***Spring Semester***

- ECEN 3--- Analog Elective 3—3
- ECEN 3360 Digital Design Lab—3
- College-approved writing course—3
- Technical electives—6
- Free elective—3

### **Senior Year**

#### ***Fall Semester***

- Capstone, Part 1—3
- Technical electives—8
- Upper-division humanities/social science—3
- Free elective—3

#### ***Spring Semester***

- Capstone, Part 2—3 (minimum grade of C- required)
- Technical electives—9
- Upper-division humanities/social science—3

**Minimum total hours for degree—128**

# Bachelor of Science in Electrical and Computer Engineering

## Program Objectives

- **Graduates will be situated in growing careers involving the design, development or support of electrical, electronic and computer hardware and software systems, software engineering, devices instruments or products, or will be successfully pursuing an advanced degree.**

Graduates attaining the ECE degree will have comprehensive knowledge and experience in the concepts and design of electrical, electronic and computer devices, circuits and systems. Besides emphasizing computer hardware and software, the ECE curriculum also emphasizes design, integration, implementation and application of computer systems, as well as experience in software development. This is achieved through a sequence of required courses in these areas, culminating in a major design project incorporating realistic engineering constraints. The curriculum also provides opportunities for specialization in areas such as compiler design, embedded systems, software engineering and VLSI design, as well as in the electrical engineering specialties.

ECE graduates will have attained other professional skills that will be useful throughout their careers, including verbal and written communication and the ability to function on multidisciplinary teams.

The ECE curriculum is rich in laboratory work. ECE graduates will have achieved extensive practical experience in the laboratory techniques, tools and skills that provide a bridge between theory and practice.

- **Graduates will have advanced in professional standing based on their technical accomplishments and will have accumulated additional technical expertise to remain globally competitive.**

ECE graduates experience a curriculum that contains a broad core of classes focused on mathematical and physical principles that are fundamental to the fields of electrical and computer engineering. Hence, they understand the physical and mathematical principles underlying electrical and electronic technology and computer systems, and are able to analyze and solve electrical and computer engineering problems using this knowledge. In addition to basic classes in mathematics, science and computing, the ECE curriculum includes a sequence of courses in analog and digital electronic circuits and systems, electromagnetic fields, probability, computer software and computer design and architecture.

- **Graduates will have demonstrated professional and personal leadership and growth.**

To lay the foundation of a long career in a rapidly changing field, a broad background of fundamental knowledge is required. This is achieved in the ECE curriculum through a sequence of required classes in mathematics, physics, chemistry and the ECE core. In addition, the graduate must be capable of lifelong learning; this is taught through assignments and projects that require independent research and study.

The curriculum includes a significant component of electives in the humanities and social sciences. ECE graduates will have knowledge of the broader contemporary issues that impact engineering solutions in a global and societal context. They will have the verbal and written communications skills necessary for a successful career in industry or academia. Graduates also understand the meaning and importance of professional and ethical responsibility.

## Curriculum for BS in Engineering and Computer Engineering

The following information may be changed by the time this catalog is printed and distributed. Up-to-date policies are contained in the department's *HELP! Guide*, which is given to students who enter the program.

***Required Courses and Semester Credit Hours***

**Freshman Year**

***Fall Semester***

- APPM 1350 Calculus 1 for Engineers—4
- ECEN 1100 Freshman Seminar—1
- First-Year Engineering Projects course—3
- PHYS 1110 General Physics 1—4
- Lower-division humanities/social science—3

***Spring Semester***

- APPM 1360 Calculus 2 for Engineers—4
- ECEN 1310 C Programming for EE/ECE—4
- PHYS 1120 General Physics 2—4
- PHYS 1140 Experimental Physics—1
- Lower-division humanities/social science—3

**Sophomore Year**

***Fall Semester***

- APPM 2360 Differential Equations with Linear Algebra—4
- ECEN 2250 Introduction to Circuits and Electronics—3
- ECEN 24-- Sophomore Elective 1—3
- ECEN 2703 Discrete Math for Computer Engineers—3
- Lower-division humanities/social science—3

***Spring Semester***

- APPM 2350 Calculus 3 for Engineers—4
- ECEN 2260 Circuits as Systems—3
- ECEN 2270 Electronics Design Lab—3
- ECEN 2350 Digital Logic—3
- General science elective—3

**Junior Year**

***Fall Semester***

- CSCI 2270 Data Structures—4
- ECEN 3350 Programming of Digital Systems—3
- ECEN 3810 Probability—3
- ECEN 3---Analog Elective—3
- Lower-division humanities/social science—3

### ***Spring Semester***

- ECEN 3360 Digital Design Lab—3
- ECEN 4593 Computer Organization—3
- ECEN 3--- Analog Elective—3
- Technical electives—6
- College-approved writing course—3

### **Senior Year**

#### ***Fall Semester***

- Capstone, Part 1—3
- Technical electives—7
- Upper-division humanities/social science—3
- Free elective—3

#### ***Spring Semester***

- Capstone, Part 2—3 (minimum grade of C- required)
- Software elective—3
- Technical elective—3
- Upper-division humanities/social science—3
- Free elective—3

**Minimum total hours for degree—128**

## **Concurrent Bachelor's/Master's Program**

### **BS/MS Program in Electrical and Computer Engineering**

The concurrent BS/MS program in electrical and computer engineering enables especially well qualified EEEN and ECEN majors to be admitted to the MS program during the junior year of their BS program, and to work simultaneously towards BS and MS degrees in electrical engineering. This program allows for early planning of the MS portion of the student's education, taking graduate courses as part of the BS degree, more flexibility in the order in which courses are taken and more efficient use of what would otherwise be a final semester with a light credit-hour load.

## **Graduate Degree Program(s)**

### **Graduate Study in Electrical, Computer and Energy Engineering**

Electrical engineering graduate programs leading to ME, MS and PhD degrees include the areas of biomedical engineering; communications and signal processing; computer engineering (including computer-aided synthesis and verification, software defined networks and embedded systems); dynamics and controls; electromagnetics; RF and microwaves; optics and photonics; power electronics and renewable energy systems; remote sensing; and nanostructures and devices.

Close cooperation with the National Institute of Standards and Technology (NIST), the National

Oceanographic and Atmospheric Administration (NOAA), the National Renewable Energy Laboratory (NREL), the National Nanotechnology Infrastructure Network (NNIN) and Colorado Front Range industrial organizations in communications, computers and instrumentation enhances the graduate program, and both teaching and research capabilities are strengthened by the addition of adjunct faculty members from these institutions.

## Master's and Doctoral Degrees

A minimum undergraduate GPA of 3.00 is required for application to the master's program. Minimum requirements for admission to the PhD program include a 3.50 undergraduate GPA, good GRE scores and demonstration of research ability. Students who are interested in the PhD degree should apply directly to the PhD program. Information and application forms may be obtained by going to [ecee.colorado.edu/academics/grad/admission.html](http://ecee.colorado.edu/academics/grad/admission.html). Qualified students in their senior year at the University of Colorado and within 18 hours of graduation may be admitted into the graduate program and apply graduate-level credit hours above the 128-semester-hour BS requirement toward an advanced degree. Students formally accepted into the graduate program are assigned to program advisors.

Master's students may choose either an MS thesis option under Plan I or a non-thesis option of 30 hours under Plan II. The ME program is discussed in the College of Engineering and Applied Science general section on graduate study.

All students accepted into the PhD program must take the PhD preliminary examination the first time it is offered. PhD students are subject to a foreign language requirement. Further information is available in the ECEE graduate office.

## Certificate Program(s)

### Professional Certificate Programs

Professional certificate programs are offered in embedded systems, and power electronics. For more information, see [www.colorado.edu/engineering/academics/degrees-minors-certificates/certificates](http://www.colorado.edu/engineering/academics/degrees-minors-certificates/certificates).

### Professional Certificate in Embedded Systems

In the last few years, commercially available digital systems (microprocessors, microcontrollers, memory chips, interface systems and systems that handle image, voice, music and other types of signals) have experienced explosive growth in the electronics industry. These devices are increasingly powerful, cheap and flexible as design components.

The certificate in embedded systems, which is offered by the Department of Electrical, Computer and Energy Engineering and the Center for Advanced Engineering and Technology Education, with support of the Division of Continuing Education, offers students the hardware and software knowledge and skills needed to design and implement these systems. The curriculum consists of two core courses and one elective course from an approved list. The two core courses are:

- ECEN 4613/5613 Embedded System Design
- ECEN 4623/5623 Real-Time Embedded Systems or ECEN 4033/5033 Real-time Digital Media Systems

The list of approved electives is periodically updated and currently includes:

- ECEN 4573 ECE Capstone (course number is now 4033, but students may still apply with old course number)

## ECEN 4033/5543 Software Engineering of Stand-Alone Programs

- ECEN 4532/5532 DSP Lab

Applicants for the certificate program must have been or currently be enrolled for a baccalaureate degree from an accredited institution and have satisfied the prerequisites for each course through course work or work experience. They need not be enrolled in a degree-granting program at CU-Boulder. A grade of *B-* or better is required for each course applied toward the certificate. For more information, visit [ecee.colorado.edu/academics/cert\\_programs/overview.html](http://ecee.colorado.edu/academics/cert_programs/overview.html).

## Professional Certificate in Power Electronics

Power electronics is a key enabling technology in essentially all electronic systems ranging from wireless communication devices, portable and desktop computers, to telecommunication infrastructure systems, renewable energy systems and industrial systems. The necessity for power electronics technology in these rapidly expanding areas creates a rising need for design engineers equipped with knowledge and skills to follow sound engineering principles and actively participate in multidisciplinary teams. The power electronics field has evolved rapidly with the advances in technology and introduction of many new application areas. As a result, it is likely that the required knowledge and skills were not in the curricula when many of today's professionals were in college. This creates a strong ongoing demand for continuing education of the workforce in the area of power electronics. The certificate program addresses the ongoing demand for skilled power electronics design engineers.

This program offers an opportunity for electrical engineers to obtain the specialized knowledge required to practice power electronics. It is intended for students and engineers having a BS degree in electrical engineering or equivalent.

The courses required for the professional certificate in power electronics are:

- ECEN 5797 Introduction to Power Electronics
- ECEN 5807 Modeling and Control of Power Electronic Systems
- ECEN 5817 Resonant and Soft-Switching Techniques in Power Electronics

The certification program was initiated by the Colorado Power Electronics Center, and is operated through the Department of Electrical, Computer and Energy Engineering and through the Center for Advanced Engineering and Technology Education (CAETE). A grade of *B-* or better is required for each course applied toward the certificate. For more information, go to [ecee.colorado.edu/academics/cert\\_programs/overview.html](http://ecee.colorado.edu/academics/cert_programs/overview.html).



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# Engineering Management

The Engineering Management curriculum focuses on the business basics of project management, finance and accounting, quality management and leadership in engineering settings. Visit [emp.colorado.edu](http://emp.colorado.edu) for more information.

**Course code for this program is EMEN.**

## Bachelor's Degree Program(s)

The Engineering Management Program offers courses and a certificate in Engineering Management for undergraduate students in the College of Engineering and Applied Science. The Certificate in Engineering Management is designed for Junior and Senior level engineering students who seek to develop business and industry acumen to complement their engineering majors. Courses are offered on campus with many virtual distance sections.

### Undergraduate Certificate Program

The undergraduate certificate in Engineering Management is open to all Juniors and Seniors in the College of Engineering and Applied Science. The certificate consists of 12 credit hours with one core (required) course and 3 elective courses. The undergraduate certificate in Engineering Management will be listed on the student's transcript after completion of the requirements.

### Undergraduate Engineering Management Certificate

12 credit hours

This undergraduate certificate program prepares junior and senior engineering students for success in entry-level positions by providing business knowledge and skills in an engineering context. Courses are available on-campus and some are available online (distance). Customize your program by choosing from seven different electives. Many majors count these credits toward technical electives.

The Engineering Management Certificate gives you the tools to understand the business framework in an engineering and technology environment increases your potential job opportunities and accelerates career development. Refine your interpersonal skills, develop your leadership skills and increase your confidence in working with others.

Required Course:

- EMEN 4030: Project Management Systems or CVEN 3246: Intro to Construction

Elective Courses (choose three):

- EMEN 4830: Introduction to Engineering Management

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- Architectural Engineering

- Chemical and Biological Engineering

- Civil Engineering

- Computer Science

- Electrical, Computer and Energy Engineering

- **Engineering Management**

- Engineering Physics

- Environmental Engineering

- Engineering Plus

- Materials Science and Engineering

- EMEN 4100: Business Methods and Economics for Engineers
- EMEN 4200: Engineering & Entrepreneurship for the Developing World
- EMEN 4050: Leadership & Professional Skills
- EMEN 4800: Technology Ventures and Marketing
- EMEN 4825: Business Plan Preparation EMEN 4830: Systems Engineering

### Undergraduate Engineering Entrepreneurship Certificate

12 credit hours

The Engineering Entrepreneurship certificate program prepares junior and senior engineering students with the knowledge, understanding, and skills to essential entrepreneurship in a start-up venture or within a larger corporation. Courses are available on-campus and some are available online (distance). Customize your program by choosing from three different electives. Many majors count these credits toward technical electives.

The Engineering Entrepreneurship certificate develops your entrepreneurial and leadership skills while introducing you to the multiple facets of entrepreneurship, innovation, creative development, and the overall entrepreneurial process.

Required Courses:

- EMEN 4825 - Entrepreneurial Business Plan Preparation
- EMEN 4800 - Technology Ventures and Marketing

Elective Courses (choose two):

- EMEN 4100 - Business Methods and Economics for Engineers
- EMEN 4050 - Leadership & Professional Skills
- EMEN 4200 - Engineering Entrepreneurship for the Developing World

### Graduate Degree Program(s)

The Lockheed Martin Engineering Management Program (EMP) provides advanced education for engineers and technical professionals who want to take the next step into first or second level of management. Attend classes on-campus, or online via our distance program—participate in our live online classes or on-demand, anytime and anywhere.

### ME in Engineering Management

The Master of Engineering is an excellent alternative to an MBA for engineers, scientists, and technical professionals who want to move into management. The program facilitates technically minded people to learn and practice data-driven management, develop leadership capabilities and apply proven principles for business performance improvement.

The core curriculum addresses the business basics of project management, finance and accounting, quality management and leadership. Elective courses provide in-depth skills in areas such as Six Sigma, product management, R&D, ethical decision-making, lean and agile management and software management. This curriculum ensures your success. As a graduate from the Lockheed Martin Engineering Management Program, you will be prepared to lead people and organizations and respond to the challenges that go along with managing engineering and technology businesses.

The master of engineering degree in engineering management is 30 credit hours, consisting of

- Mechanical Engineering
- Telecommunications
- Certificate Programs
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six core courses, and four elective courses.

## Dual Degree Programs

Five engineering dual-degrees are offered within the Engineering Management Program:

- MS Aerospace Engineering Sciences & ME Engineering Management
- ME Computer Science & ME Engineering Management
- ME Electrical Engineering & ME Engineering Management
- ME Mechanical Engineering & ME Engineering Management
- MS Telecommunications & ME Engineering Management

For more information, visit [beboulderanywhere.colorado.edu/emp/craft-your-own-study/dual-degrees](http://beboulderanywhere.colorado.edu/emp/craft-your-own-study/dual-degrees).

## Certificate Program(s)

Earning an EMP graduate certificate offers you a foundation of knowledge and skills focusing on specific technical and management methods, as well as best practices and tools that is immediately applicable to the work environment. Graduate certificates are critical to the process of developing or enhancing a specialized expertise. They signify that a student has successfully completed a series of three to four strategically designed graduate level courses in select fields of study. Certificates also provide the flexibility to allow course credits to be applied toward a Master's degree.

### Graduate Certificate in Engineering Entrepreneurship

12 credit hours

Whether forming a brand new company, or being part of a larger organization, this certificate will help students learn to launch, lead and manage a viable new business. Taught by faculty with expertise who have successfully launched start-ups. This certificate culminates with the "launch" of a new business for a project of the student's choice, pitched by the student to business leaders and investors.

- EMEN 5020: Finance and Accounting for Engineers
- EMEN 5090: Marketing and Technology Ventures
- EMEN 5400: Product Development
- EMEN 5825: The New Venture Experience

### Graduate Certificate in Engineering Management

12 credit hours

This certificate is ideal for the student who already has a master's degree in a technical discipline, but wants to gain business management skills. Students learn high-level components of finance, accounting, quality management and managing people in a technical or engineering environment. This certificate will help students move into mid-career management positions, or excel in their current position.

- EMEN 5010: Introduction to Engineering Management
- EMEN 5020: Finance and Accounting for Engineering Managers
- EMEN 5030: Project Management or EMEN 5031: Software Project Management

- EMEN 5040: Quality, Strategy and Value Creation
- EMEN 5050: Authentic Leadership

### **Graduate Certificate in Leadership and Management**

12 credit hours

Gain an in-depth understanding of management, leadership and strategy deployment to improve performance quality. Discover how to use natural strengths to become the best leader possible. Learn to navigate ethical decisions and maintain integrity as a leader. Find the leverage points in an organization for delivering exceptional results.

- EMEN 5030: Project Management
- EMEN 5040: Quality, Strategy and Value Creation
- EMEN 5050: Authentic Leadership
- EMEN 5080: Ethical Decision Making

### **Graduate Certificate in Managing Applied Research in Technology**

12 credit hours

This certificate is ideal for students who aspire to lead improvement projects in complex systems and to gain problem-solving tools and strategies. Delve deeper into statistical analysis; gain expertise in quality improvement, problem solving and cost-reduction analysis. To begin this certificate, students need to have a foundation in applied statistics. EMEN 5005 – Introduction to Statistics is required (or passing the online statistics proficiency exam).

- EMEN 5042: Methods for Quality Improvement
- EMEN 5900: Research Methods
- EMEN 5610: Advanced Statistical Methods for Engineering Research
- EMEN 5620: Data Mining and Screening Experiments for Engineering Research

### **Graduate Certificate in Performance Excellence in Technology Management**

12 credit hours

This certificate is ideal for students who aspire to enhance strategic planning skills for managing processes and people. Learn the cutting-edge Business Performance Excellence system to drive cost reduction, identify revenue-generating “sweet spots” and develop leadership skills that improve performance quality.

- EMEN 5040: Quality, Strategy and Value Creation
- EMEN 5041: Advanced Topics in Value Creation
- EMEN 5042: Methods for Quality Improvement
- EMEN 5050: Authentic Leadership

### **Graduate Certificate in Project Management**

9 credit hours

This certificate is ideal for students who aspire to develop management capabilities that build on technical expertise. Gain the skills and management savvy to take any project from beginning to end. This certificate fulfills both the in-class requirement for PMP Certification and project

requirements for other CU-Boulder degree programs.

- EMEN 5030: Project Management
- EMEN 5032: Advanced Topics in Project Management
- EMEN 5050: Authentic Leadership

### **Graduate Certificate in Quality Systems for Product and Process Engineering**

12 credit hours

This certificate is ideal for students who aspire to lead projects for continuous process improvement in their workplace. Gain technical expertise to successfully manage initiatives in quality control, problem solving and reliability improvement. To begin this certificate, students need to have a foundation in applied statistics. EMEN 5005 – Introduction to Statistics, is required (or passing the online statistics proficiency exam).

- EMEN 5040: Quality, Strategy and Value Creation
- EMEN 5042: Methods for Quality Improvement
- EMEN 5043: Advanced Topics in Quality Systems/Engineering
- EMEN 5900: Research Methods

### **Graduate Certificate in Six Sigma Statistical Practitioner**

12 credit hours

This certificate is ideal for students who aspire to become a statistical facilitator, applied researcher or plant statistician, designing and conducting experiments to improve performance quality. Learn advanced statistical tools that support the Define, Measure, Analyze, Improve and Control methodology. This satisfies final project requirements for some engineering MS disciplines.

- EMEN 5005: Introduction to Statistics or APPM 5570: Introduction to Statistics EMEN 5900: Research Methods or APPM 5580: Research Methods
- EMEN 5610: Advanced Statistical Methods for Engineering Research
- EMEN 5620: Data Mining and Screening Experiments for Engineering Research

### **Graduate Certificate in Technology Ventures & Product Management**

12 credit hours

This certificate is ideal for the engineer in any size company (start-up to Fortune 500) who aspires to manage strategy and implementation of technology-based product development. Case studies and business simulation exercises allow hands-on practice with technology evaluation and product development management. Gain the skills needed to successfully lead a product development team.

- EMEN 5020: Finance and Accounting for Engineering Managers or, via a waiver, EMEN 5050: Authentic Leadership (if a student has a strong finance background already)
- EMEN 5090: Marketing and Technology Ventures
- EMEN 5400: Product Development
- EMEN 5710: Applied Business Decisions

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## Engineering Physics

The engineering physics program focuses on the foundations of modern technology. The program prepares students for research, development and entrepreneurial careers in many frontier areas of engineering, including quantum devices, ultra fast lasers, adaptive optics, cryogenic electronics, computer simulation of physical systems, solar cells, magnetic storage technology, micro-mechanical systems and molecular electronics. All students study the core theoretical subjects of mechanics, electricity and magnetism, thermal physics and quantum mechanics, supplemented by courses in mathematics, computation and laboratory technique. The program can be tailored to a student's interests through electives in engineering, physics or other sciences.

**Course code for this program is PHYS.**

### Minor Program

The Department of Physics offers a minor in physics. A detailed plan can be found at [www.colorado.edu/physics](http://www.colorado.edu/physics).

### Bachelor's Degree Program(s)

#### Bachelor's Degree in Engineering Physics

The bachelor of science majoring in engineering physics is granted by the College of Engineering and Applied Science through the Department of Physics in the College of Arts and Sciences. Students may not earn a BS in Engineering Physics along with a BA in Physics, only one or the other. Neither student may earn a minor in Physics.

#### Requirements

During the freshman and sophomore years, students receive a broad introduction to physics, chemistry, applied mathematics and mathematical methods in physics. Starting in the sophomore year, students take electrodynamics, quantum mechanics, classical mechanics, mathematical methods, thermodynamics and statistical mechanics and advanced mathematics. In addition, there is a core of four laboratory courses that students take. Laboratory courses emphasize student-developed and student-designed independent projects in which students use the knowledge acquired to build apparatus of their own choosing. The capstone lab course, PHYS 4430 Advanced Laboratory, provides students with hands-on experience with optical spectroscopy, nuclear magnetic resonance, scanning tunneling microscopy and laser cooling and trapping of atoms, among other experiments. The program encourages the formation of student research collaborations with faculty in the pursuit of senior thesis projects. Recent projects include research in pulsed laser deposition of high-temperature superconductors, electron diffraction studies of protein structure and lattice distortion theory of colossal magnetoresistance materials.

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- Chemical and Biological Engineering

- Civil Engineering

- Computer Science

- Electrical, Computer and Energy Engineering

- Engineering Management

- **Engineering Physics**

- Environmental Engineering

- Engineering Plus

- Materials Science

For more information about the bachelor's degree in engineering physics, contact the Department of Physics, Duane Physics E-1B32; **303-492-6953**; or by visiting [www.colorado.edu/physics](http://www.colorado.edu/physics).

Students who plan to become registered professional engineers should check the requirements for registration in their state before choosing their engineering major.

In order to earn a bachelor's degree in engineering physics, students must complete the curriculum in the undergraduate major programs available through the Department of Physics. (Some variations may be possible; see an engineering physics faculty mentor.) In addition, students must meet the general undergraduate degree requirements of the College of Engineering and Applied Science.

## Curriculum for BS in Engineering Physics

Below is a suggested schedule only. For a complete description of the engineering physics course requirements, go to [www.colorado.edu/physics](http://www.colorado.edu/physics).

### *Required Courses and Semester Credit Hours*

#### **Freshman Year**

##### ***Fall Semester (15 credit hours)***

- APPM 1350 Calculus 1 for Engineers—4
- CSCI 1300 or 1310 Computer Science 1 (Note 1)—4
- PHYS 1110 General Physics 1—4
- Humanities or social science elective (Note 2)—3

##### ***Spring Semester (15 credit hours)***

- APPM 1360 Calculus 2 for Engineers—4
- AREN 1027 or MCEN 1025 or CSCI 2270 (Note 1)—3
- PHYS 1120 General Physics 2—4
- PHYS 1140 Experimental Physics—1
- Humanities or social science elective (Note 2)—3

#### **Sophomore Year**

##### ***Fall Semester (17 credit hours)***

- APPM 2350 Calculus 3 for Engineers—4
- CHEM 1113 General Chemistry 1—4
- CHEM 1114 General Chemistry 1 Lab—1
- PHYS 2150 Experimental Physics—1
- PHYS 2170 Foundations of Modern Physics—3
- Engineering elective (Note 3)—4

##### ***Spring Semester (16 credit hours)***

- APPM 2360 Introduction to Differential Equations with Linear Algebra—4
- PHYS 2210 Classical Mechanics and Math Methods 1—3

and Engineering

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- Telecommunications
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Engineering Elective (Note 3)—3

- Free elective—3
- Humanities or social science elective (Note 2)—3

### Junior Year

#### **Fall Semester (16 credit hours)**

- CHEM 1133 General Chemistry II—4
- CHEM 1134 General Chemistry II Lab—1
- PHYS 3210 Classical Mechanics and Math Methods 2—3
- PHYS 3310 Principles of Electricity and Magnetism 1—3
- PHYS 3330 Electronics for the Physical Sciences—2
- Free elective—3

#### **Spring Semester (18 credit hours)**

- PHYS 3220 Quantum Mechanics and Atomic Physics 1—3
- PHYS 3320 Principles of Electricity and Magnetism 2—3
- PHYS 4230 Thermodynamics and Statistical Mechanics—3
- Upper Division Math or Applied Math—3
- Physics elective (Note 4)—3
- Humanities or social science elective (Note 2)—3

### Senior Year

#### **Fall Semester (15 credit hours)**

- PHYS 4410 Quantum Mechanics and Atomic Physics 2—3
- Engineering elective (Note 3)—3
- Physics elective (Note 4)—3
- Free elective—3
- College-approved writing course—3

#### **Spring Semester (16 credit hours)**

- Engineering electives (Note 3)—8
- Physics electives (Note 4)—3
- Free elective—3
- Humanities or social science elective (Note 2)—2

### **Minimum total hours for the degree—128**

#### *Notes:*

1. Engineering physics computer science/drafting requirement (6–8 hours) is as follows: CSCI 1300-4 or CSCI 1310-4, along with CSCI 2270—4 or AREN 1027-3 or MCEN 1025-4.
2. A total of 18 credit hours of humanities/social science/writing courses is required. See [www.colorado.edu/engineering/academics/policies/hss](http://www.colorado.edu/engineering/academics/policies/hss) for specific requirements.
3. Engineering electives: 17–19 engineering elective hours above and beyond the required courses for engineering physics plan 4, including one upper-division laboratory course. Total hours required in engineering electives plus

the required computer science drafting hours: 25.

4. Nine hours of physics electives are required. For details, see [www.colorado.edu/physics](http://www.colorado.edu/physics).

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## Environmental Engineering

Environmental engineers play a vital role in maintaining the quality of both public health and the natural environment. Environmental engineering encompasses the scientific assessment and development of engineering solutions to environmental problems impacting the biosphere, land, water and air quality. Environmental issues affect almost all commercial and industrial sectors, and are a central concern for the public, for all levels of government and in international relations. These issues include safe drinking water, wastewater processing, solid and hazardous waste disposal, outdoor air pollution, indoor air pollution and transfer of infectious diseases, human health and ecological risk management, prevention of pollution through product or process design and renewable and sustainable energy sources.

To address these challenges, environmental engineers often encounter challenging problems that must be solved in data-poor situations as members of multidisciplinary teams.

Environmental problems require creative solutions blended with contributions from scientists, lawyers, business people and the public. Good communication skills, as well as technical proficiency, are essential for success in this arena. In addition, technology designed to address environmental problems is marketed globally, opening up increasing opportunities for international work in the environmental engineering field.

The faculty of the Environmental Engineering Program (EVEN) is drawn from the Departments of Civil, Environmental and Architectural Engineering; Mechanical Engineering; Chemical and Biological Engineering; and Aerospace Engineering. The EVEN faculty, its Professional Advisory Board (representing prospective employers of its graduates), and EVEN alumni and current students have contributed to the creation of the program's mission and the educational objectives of the EVEN BS degree.

### Mission

The mission of the EVEN Program is to provide a multidisciplinary undergraduate environmental engineering education that emphasizes mastery of principles and practices, inspires service for the global public good, endows a desire for lifelong learning and prepares students for broad and dynamic career paths in environmental engineering.

### Educational Objectives

The educational objective of the environmental engineering bachelor of science degree is to produce graduates who reach the following achievements three to five years after graduation:

- become established in professional careers and/or earn advanced degrees;
- apply multidisciplinary approaches to manage the unique challenges and balance the competing social, political, economic and technical goals of environmental problems and solutions; and
- serve the needs of our society and protect the future of our planet in an ethical manner.

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- Engineering Physics

- **Environmental Engineering**

- Engineering Plus

- Materials Science and Engineering

## Program Outcomes

The outcomes that students are expected to have attained upon graduation with a bachelor of science degree in environmental engineering are:

- the ability to apply knowledge of math, science and engineering
- the ability to design and conduct experiments
- the ability to analyze and interpret data
- the ability to design a system, component or process to meet desired needs within realistic constraints
- the ability to function on multidisciplinary teams
- the ability to identify, formulate and solve engineering problems
- an understanding of professional and ethical responsibility
- the ability to communicate effectively through writing
- the ability to communicate effectively through oral presentations
- an understanding of the impact of engineering on society
- a recognition of the need for and an ability to engage in life-long learning
- a knowledge of contemporary issues in environmental engineering
- the ability to use modern engineering techniques, skills and tools

**Course code for this program is EVEN.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Environmental Engineering

### Requirements

The bachelor of science degree in environmental engineering (EVEN) at the University of Colorado provides preparation for professional proficiency or graduate training in environmental engineering in a four-year curriculum. The curriculum includes courses in engineering fundamentals and applications, advanced mathematics, chemistry, physics, microbiology and earth science, along with courses in the arts, humanities and social sciences.

Courses specific to environmental engineering practice include water chemistry, environmental microbiology and air pollution control. In addition, environmental engineering requires hands-on laboratory experiences, up-to-date skills in the use of computers for modeling and data analysis and experience in the design of environmental engineering systems. Many of the required engineering courses in the bachelor of science curriculum are culled from civil, environmental and architectural engineering; chemical and biological engineering; and mechanical engineering.

The curriculum also includes three technical electives, three environmental engineering sequence courses and one free elective. Technical elective courses include a broad range of science and engineering courses, and must include an earth sciences course.

The environmental engineering sequence courses are selected by the student beginning in the junior year. The sequence consists of one environmental engineering design course and two environmental engineering technical elective courses. See the Environmental Engineering Program Office for a list of acceptable courses.

Students in the program are also encouraged to participate in research through independent

- Mechanical Engineering
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Law

Media, Communication and Information

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study or senior thesis projects, the Undergraduate Research Opportunities Program (UROP) or as undergraduate research assistants in sponsored research programs. Students are required to take the Fundamentals of Engineering (FE) exam when they are within 32 credit hours of graduation.

## Curriculum for the BS in Environmental Engineering

### ***Required Courses and Semester Credit Hours***

#### **Freshman Year**

##### ***Fall Semester***

- APPM 1350 Calculus 1 for Engineers—4
- CHEM 1221 Engineering General Chemistry Laboratory—1
- CHEN 1211 General Chemistry for Engineers—4
- EVEN 1000 Introduction to Environmental Engineering (Note 4)—1
- First-Year Engineering Projects course—3
- Humanities and social science elective (Note 1)—3

##### ***Spring Semester***

- APPM 1360 Calculus 2 for Engineers—4
- CHEN 1310 Introduction to Engineering Computing—3
- PHYS 1110 General Physics 1—4
- Humanities and social science elective (Note 1)—3
- Technical elective (Note 2)—3

#### **Sophomore Year**

##### ***Fall Semester***

- APPM 2350 Calculus 3 for Engineers—4
- PHYS 1120 General Physics 2—4
- PHYS 1140 Experimental Physics 1—1
- **Solid mechanics:** CVEN 2121 Analytic Mechanics, GEEN 2851 Statics for Engineers or MCEN 2023 Statics and Structures—3
- Humanities and social science elective (Note 1)—3

##### ***Spring Semester***

- APPM 2360 Introduction to Differential Equations with Linear Algebra—4
- CHEN 2120 Material and Energy Balances—3
- CVEN 4834 Sustainability Principles for Engineers—3
- CVEN 3414 Fundamentals of Environmental Engineering—3
- Humanities and social science elective (Note 1)—3

#### **Junior Year**

##### ***Fall Semester***

- EVEN 4404 Water Chemistry (Note 4)—3

- EVEN 4414 Water Chemistry Lab (Note 4)—1
- **Engineering Economics** (Note 4): CVEN 4147 Civil Engineering Systems or EMEN 4100 Business Methods and Economics for Engineers or BUSM 3002 Business and Financial Analytics (only for students earning a business minor)—3
- **Fluid Mechanics:** CHEN 3200 Chemical Engineering Fluid Mechanics, CVEN 3313 Theoretical Fluid Mechanics, GEEN 3853 Fluid Mechanics for Engineers or MCEN 3021 Fluid Mechanics—3
- **Thermodynamics:** AREN 2110 Thermodynamics, CHEN 3320 Chemical Engineering Thermodynamics, GEEN 3852 Thermodynamics for Engineers or MCEN 3012 Thermodynamics—3
- College-approved writing course (Note 1)—3

### **Spring Semester**

- EVEN 4484 Introduction to Environmental Microbiology (Note 4)—3
- EVEN 4424 Environmental Organic Chemistry—3
- **Heat Transfer:** CHEN 3210 Chemical Engineering Heat Transfer or MCEN 3022 Heat Transfer—3
- **Probability and Statistics:** APPM 4570 Statistical Methods; CHEN 3010 Applied Data Analysis; or CVEN 3227 Probability, Statistics and Decision—3
- Environmental engineering design/technical elective I (Note 3)—3

### **Senior Year**

#### **Fall Semester**

- EVEN/CVEN 4464 Environmental Engineering Processes (Note 4)—3
- Humanities and social science elective (Note 1)—3
- Air or earth science laboratory or field course—3
- Environmental engineering design/technical elective II (Note 3)—3
- Technical elective II (Note 2) or Senior Thesis (Note 5) or Environmental engineering design/technical elective III (Note 3)—3
- Free elective—2

#### **Spring Semester**

- CVEN 4333 Engineering Hydrology (Note 4)—3
- MCEN 4131 Air Pollution Control (Note 4)—3
- CVEN 4434 Environmental Engineering Design (Note 4)—4
- Environmental engineering design/technical elective III (Note 3) or Technical Elective II (Note 2)—3
- Technical elective III (Note 2) or Senior Thesis (Note 5)—3

**Minimum total semester hours —128**

#### *Notes:*

1. A total of 15 credit hours of humanities and social sciences electives, along with 3 credit hours of an approved writing course, is required. See [www.colorado.edu/engineering/academics/policies/hss](http://www.colorado.edu/engineering/academics/policies/hss) for specific requirements.

2. A total of 9 credit hours of technical electives is required. Three technical elective credits may be lower-division

(1000-2000-level). Three technical elective credits must be in the earth sciences, either lower or upper division.

Remaining technical elective credits must be upper division in engineering, mathematics or sciences. Independent study (EVEN 4840) or senior thesis (EVEN 4980 and 4990) may be completed as technical electives for up to 6 credits.

3. A nine-credit-hour (three-course) sequence in environmental engineering – one environmental engineering design course and two environmental engineering technical electives.

4. Only offered in the semester shown (not including summer offerings).

5. A senior thesis can be completed on a single research topic, with faculty approval and direction, and can apply toward technical elective requirements.

## Concurrent Bachelor's/Master's Program

### Concurrent BS in Environmental Engineering/MS in Civil Engineering

A concurrent EVEN BS/CVEN MS degree program is available in cooperation with the Department of Civil, Environmental and Architectural Engineering. Students may apply to the program when they have completed 75–110 credit hours toward the undergraduate EVEN degree. Once accepted into the program, students may be allowed to count 6 credit hours taken at the graduate level for both the environmental engineering BS and the civil engineering MS degrees, thus allowing them to obtain both degrees in a five-year curriculum.

## Graduate Degree Program(s)

### Graduate Study in Environmental Engineering

Graduate studies in environmental engineering are offered through the Environmental Engineering (EVEN) Program. Information on the requirements for graduate study in environmental engineering is available from the Program website at [www.colorado.edu/even](http://www.colorado.edu/even). The Graduate Record Examination (GRE), consisting of the aptitude tests and advanced test in engineering, is used to evaluate master of science and doctor of philosophy candidates.

The EVEN Program offers master of science and doctor of philosophy degrees with study emphasis in several major environmental engineering and science areas: drinking water, wastewater, and water reuse treatment; engineering for developing communities; natural waters; air quality; and climate and environmental change.

#### Master of Science Degree

Requirements for this master's degree can be fulfilled in two ways. Under Option I (thesis option), the candidate completes at least 30 semester hours of course work. This includes 24 semester hours of courses, including Environmental Engineering and Science core (6 hours), emphasis area (9 – 18 hours), and elective (0 - 9 hours) courses. A maximum of 6 semester hours of thesis credit, with the successful completion and defense of a M.S. thesis is also required. Under Option II (non-thesis option), 30 credit hours of course work are required and follows the course work requirements of the thesis option except the thesis credit hours are replaced with elective courses or independent study.

#### Doctor of Philosophy Degree

This degree requires a minimum of 30 credit hours of graduate-level work. Up to 21 credit hours of previous graduate-level work from another institution may be transferred with advisor and Graduate School approval. The doctoral dissertation requires 30 credit hours. The applicant for this degree must demonstrate the capability for both rigorous academic accomplishments and

independent research. Satisfactory completion of a preliminary examination, and completion and defense of a PhD dissertation are required.

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## Engineering Plus

The Engineering Plus Program offers a BS degree designed to prepare graduates for exciting, diverse and innovative professional careers, and for graduate study in a wide variety of disciplines. The degree program provides a pathway through engineering for students interested in interdisciplinary hands-on engineering design coupled with an engineering emphasis, plus the flexibility to explore another concentration of the students' choice within, or external to, engineering.

The educational mission of the Engineering Plus Program at CU-Boulder is to:

- offer undergraduate students a high-quality, technical education through a design-rich curriculum in engineering, and prepare them for careers in various industries, technical disciplines, teaching, professional degrees or graduate study;
- nourish and maintain a professional environment in which excellence in teaching, learning, innovation, and creativity are of central importance.

### *Program Objectives*

The Engineering Plus Program prepares its graduates to make significant contributions in many diverse areas. Specifically, within five years of graduation our graduates will have achieved one or more of the following attributes:

- established themselves as excellent secondary science or math teachers, utilizing hands-on engineering design content in their curriculum;
- established themselves in professional careers, received a graduate or professional degree, or be enrolled in a graduate or professional degree program;
- played significant roles in an engineering or technical enterprise, including research and development of engineering systems and products, technical sales, technical training, and organizational education;
- advanced in professional standing based on their technical accomplishments and accumulated additional technical expertise to remain globally competitive;
- demonstrated professional and personal leadership and growth.

### *Desired Outcomes*

The undergraduate degree in Engineering Plus prepares students to meet the following outcomes upon graduation:

- an ability to identify, formulate, and solve engineering problems
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

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an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

- an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- the knowledge of a specified and approved concentration area to allow meaningful contribution to the discipline
- an ability to apply knowledge of engineering, science and mathematics
- an ability to function on multidisciplinary teams
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- an ability to design and conduct experiments, as well as to analyze and interpret data
- a recognition of the need for, and an ability to engage in life-long learning
- a knowledge of contemporary issues in engineering and technology

**Course code for this program is GEEN.**

## Bachelor's Degree Program(s)

### Bachelor's Degree in Engineering Plus

The BS degree in Engineering Plus requires the satisfactory completion of the *Foundational Coursework*, the *Engineering Core*, one disciplinary *Emphasis*, *plus a Concentration*. This entails a minimum of 128 credit hours as follows, with details below:

Foundational Coursework: 46-48 credits

Engineering Core: 28-35 credits

Disciplinary Emphasis: 19-28 credits

Concentration: 12-15 credits (except CU Teach Concentration: 26 credits, plus subject matter courses as required)

**Foundational Coursework** – Foundational Coursework is common to all Engineering Plus majors. All foundational courses require a minimum grade of C in each course.

- **Math requirement (16 credits)** – completion of three semesters of calculus (APPM 1350, 1360, and 2350), and differential equations (APPM 2360).
- **Science requirement (12-14 credits)** – completion of PHYS 1110, 1120 and 1140. Completion of at least 4 additional credits of physics, chemistry or biology, chosen from one of the following: PHYS 2130; PHYS 2170; MCEN 1024; CHEM 1113 and 1114; CHEN 1211 and CHEM 1221; CHEM 1251; CHEM 1351; EBIO 1210 and 1220; EBIO 1230 and 1240; MCDB 1150 and 1151; or MCEN 2150 and 2151.
- The general bachelor's degree requirements of the College of Engineering & Applied Science require 18 credit hours of **social science/humanities/writing electives**. See details at [engineering.colorado.edu/hss](http://engineering.colorado.edu/hss).

**Engineering Core Coursework** – Core Coursework is common to all Engineering Plus majors. Core courses require a minimum grade of C in each course. Course titles within disciplines may vary; see disciplinary emphases for discipline-specific core courses:

- Mechanical Engineering
- Telecommunications
- Certificate Programs
- Faculty: Engineering & Applied Science

Environmental Design

Law

Media, Communication and Information

Music

Graduate School

Other Academic Programs

- **Computing experience** – CSCI 1300, CSCI 1310, CSCI 1320, CHEN 1310 or ECEN 1310.
- **Statics** – GEEN 2851, ASEN 2001, CVEN 2121 or MCEN 2023.
- **Thermodynamics** – GEEN 3852, ASEN 2002, ASEN 2110 or MCEN 3012.
- **Materials Science** – ASEN 1022, CVEN 3161 or MCEN 2024.
- **Basic Electronics** – ASEN 3300 or ECEN 3010.
- **Processes for Taking and Analyzing Measurement Data** – ASEN 2012 (with ASEN 2001 and 2002); CVEN 3227; or MCEN 3047.
- **Hands-on Design Courses** – GEEN 1400, GEEN 2400 and GEEN 3400.
- **Introduction to Engineering** – COEN 1500 or MCEN 2000

**Disciplinary Emphasis Coursework** – Disciplinary Emphasis Coursework depends on the engineering emphasis chosen by the student, and the detailed curricula are listed below. Emphasis courses require a minimum grade of C in each course for every disciplinary emphasis.

## *Aerospace Engineering Sciences Emphasis*

### **Aerospace-specific Core Coursework (35)**

- ASEN 1022: Material Science for Aerospace Engineers (3)
- CSCI 1320: Computer Science 1: Starting Computing Engineering Applications (4)
- GEEN 1400: First-Year Engineering Projects (3)
- COEN 1500: Introduction to Engineering (1)
- ASEN 2001: Introduction to Statics, Structures, and Materials (4)
- ASEN 2002: Introduction to Thermodynamics and Aerodynamics (4)
- ASEN 2012: Experimental and Computational Methods in AES (2)
- GEEN 2400: Engineering for the Community (3)
- ASEN 3113: Thermodynamics and Heat Transfer (4)
- ASEN 3300: Electronics and Communications (4)
- GEEN 3400: Invention and Innovation (3)

### **Courses Required for Aerospace Emphasis (22)**

#### ***Required Courses (10):***

- ASEN 2003: Introduction to Dynamics and Systems (5)
- ASEN 2004: Aerospace Vehicle Design and Performance (5)

#### ***Plus, students choose one course from the four below (4):***

- ASEN 3111: Aerodynamics (4)
- ASEN 3112: Structures (4)
- ASEN 3128: Aircraft Dynamics (4)
- ASEN 3200: Orbital Mechanics/Attitude Determination and Control (4)

#### ***And Capstone Design is required (8):***

ASEN 4018: Senior Projects 1, Design Synthesis (4)

- ASEN 4028: Senior Projects 2, Design Practicum (4)

*Advising Note: Students seeking to enroll in ASEN courses must register through an Aerospace advisor.*

## ***Architectural Engineering Emphasis***

### **Architectural Engineering-specific Core Coursework (28)**

- CHEN 1310: Introduction to Engineering Computing (3)
- GEEN 1400: First-Year Engineering Projects (3)
- COEN 1500: Introduction to Engineering (1)
- GEEN 2400: Engineering for the Community (3)
- GEEN 2851: Statics for Engineers (3) or CVEN 2121 Analytical Mechanics I (3)
- ECEN 3010: Circuits and Basic Electronics (3)
- CVEN 3161: Mechanics of Materials I (3)
- CVEN 3227: Probability, Statistics and Decision (3)
- GEEN 3400: Invention and Innovation (3)
- GEEN 3852: Thermodynamics for Engineers (3) or AREN 2110: Thermodynamics (3)

### **Courses Required for Architectural Emphasis (28)**

#### ***Required Courses (9):***

- AREN 1027 Engineering Drawing (3)
- CVEN 2012: Introduction to Geomatics (3)
- AREN 2050: Engineering Systems for Buildings (3)

#### ***Plus, Students choose a focus (three courses) from the options below (9):***

- **Electrical/Lighting** – AREN 3540: Illumination 1 (3); AREN 4550: Illumination 2 (3); AREN 4570: Building Electrical Systems Design 1 (3)
- **Mechanical Systems** – AREN 2120: Fluid Mechanics & Heat Transfer (3); AREN 3010: Mechanical Systems for Buildings (3); AREN 4110: HVAC Design I (3)
- **Construction** – CVEN 3246: Introduction to Construction (3); AREN 4506: Project Management 1 (3); AREN 4606: Project Management 2 (3)
- **Structures** – CVEN 3525: Structural Analysis (3); CVEN 4545: Steel Design (3); CVEN 4555: Reinforced Concrete Design (3)

#### ***And, Capstone Design is required (10):***

- ARCH 4010: Architectural Appreciation and Design (5)
- AREN 4317: Architectural Engineering Design (5)

Architectural emphasis students are required to take the Fundamentals of Engineering (FE) exam when they are within 32 credit hours of graduation.

## ***Civil Engineering Emphasis***

### **Civil-specific Core Coursework (31)**

- CHEN 1310: Introduction to Engineering Computing (3)
- GEEN 1400: First-Year Engineering Projects (3)
- COEN 1500: Introduction to Engineering (1)
- GEEN 2400: Engineering for the Community (3)
- GEEN 2851: Statics for Engineers (3) or CVEN 2121: Analytical Mechanics I (3)
- ECEN 3010: Circuits and Basic Electronics (3)
- CVEN 3161: Mechanics of Materials I (3)
- CVEN 3227: Probability, Statistics and Decision (3)
- GEEN 3400: Invention and Innovation (3)
- GEEN 3852: Thermodynamics for Engineers (3) or AREN 2110: Thermodynamics (3)

*Select one:*

- CVEN 3323: Hydraulic Engineering (3)
- CVEN 3708: Geotechnical Engineering I (3)

### **Courses Required for Civil Emphasis (19)**

#### ***Required Courses (3):***

- CVEN 3313: Theoretical Fluid Mechanics (3)

***And, students choose two of the five courses below (note: cannot double count Hydraulics or Geotechnical Engineering I from above) (6):***

- CVEN 3525: Structural Analysis (3)
- CVEN 3246: Introduction to Construction (3)
- CVEN 3414: Fundamentals of Environmental Engineering (3)
- CVEN 3323: Hydraulic Engineering (3) — *cannot double-count from above*
- CVEN 3708: Geotechnical Engineering I (3) — *cannot double-count from above*

***Plus, students choose a focus (two courses) from the options below (6):***

- **Environmental** – CVEN 3424: Water and Wastewater Treatment (3); CVEN 4474: Hazardous & Industrial Waste Management (3)
- **Water Resources** – CVEN 4333: Engineering Hydrology (3); CVEN 4353: Groundwater Engineering (3)
- **Geotechnical** – CVEN 3718: Geotechnical Engineering 2 (3); CVEN 4728: Foundation Engineering (3)
- **Construction** – CVEN 3256: Construction Equipment and Methods (3); AREN 4506: Project Management 1 (3)
- **Structures** – CVEN 4545: Steel Design (3); CVEN 4555: Reinforced Concrete Design (3)

***And, Capstone Design is required (4):***

- CVEN 4899: Civil Engineering Senior Project Design (4)

Civil emphasis students are required to take the Fundamentals of Engineering (FE) exam when they are within 32 credit hours of graduation.

## *Electrical Engineering Emphasis*

### **Electrical-specific Core Coursework (33)**

- ECEN 1310: C Programming for EE/ECE (4)
- ECEN 1400: Introduction to Digital and Analog Electronics (3)
- COEN 1500: Introduction to Engineering (1)
- MCEN 2024: Materials Science (3)
- ECEN 2250: Introduction to Circuits and Electronics (3)
- ECEN 2270: Electronics Design Lab (3)
- GEEN 2400: Engineering for the Community (3)
- GEEN 2851: Statics for Engineers (3)
- MCEN 3047: Data Analysis and Experimental Methods (4)
- GEEN 3400: Invention and Innovation (3)
- GEEN 3852: Thermodynamics for Engineers (3)

### **Courses Required for Electrical Emphasis (21)**

#### ***Required Courses (6):***

- ECEN 2260: Circuits as Systems (3)
- ECEN 2350: Digital Logic (3)

#### ***And, students choose three of the five courses below (9):***

- ECEN 3250: Microelectronics (3)
- ECEN 3300: Linear Systems (3)
- ECEN 3350: Programming of Digital Systems (3)
- ECEN 3360: Digital Design Laboratory (3)
- ECEN 3400: Electromagnetic Fields and Waves (3)

#### ***And Capstone Design is required (6):***

- ECEN 4610: Capstone Laboratory, Part 1 (3)
- ECEN 4620: Capstone Laboratory, Part 2 (3)

## *Environmental Engineering Emphasis*

### **Environmental-specific Core Coursework (28)**

- CHEN 1310: Introduction to Engineering Computing (3)
- GEEN 1400: First-Year Engineering Projects (3)
- COEN 1500: Introduction to Engineering (1)
- GEEN 2400: Engineering for the Community (3)
- GEEN 2851: Statics for Engineers (3) or CVEN 2121: Analytical Mechanics I (3)

- ECEN 3010: Circuits and Basic Electronics (3)
- CVEN 3161: Mechanics of Materials I (3)
- CVEN 3227: Probability, Statistics and Decision (3)
- GEEN 3400: Invention and Innovation (3)
- GEEN 3852: Thermodynamics for Engineers (3) or AREN 2110: Thermodynamics (3)

### **Courses Required for Environmental Emphasis (22)**

#### ***Required Courses (9):***

- CVEN 3313: Theoretical Fluid Mechanics (3); *or* CHEN 3200: Chemical Engineering Fluid Mechanics (3); *or* MCEN 3021: Fluid Mechanics (3); *or* GEEN 3583: Fluid Mechanics for Engineers
- CVEN 3323: Hydraulic Engineering (3)
- CVEN 3414: Fundamentals of Environmental Engineering (3)

#### ***And, students choose three of the seven courses below (9):***

- MCEN 4131: Air Pollution Control Engineering (3)
- EVEN 4404: Water Chemistry (3)
- EVEN 4484: Introduction to Environmental Microbiology (3)
- CVEN 4333: Engineering Hydrology (3)
- CVEN 3424: Water and Wastewater Treatment (3)
- CVEN 3434: Applied Ecology (3)
- CVEN 4474: Hazardous and Industrial Waste Management (3)

#### ***And Capstone Design is required (4):***

- EVEN 4434: Environmental Engineering Design (4)

Environmental emphasis students are required to take the Fundamentals of Engineering (FE) exam when they are within 32 credit hours of graduation.

## ***Mechanical Engineering Emphasis***

### **Mechanical-specific Core Coursework (29)**

- CSCI 1320: Computer Science 1: Starting Computing Engineering Applications (3)
- GEEN 1400: First-Year Engineering Projects (3)
- MCEN 2000: Professionalism & Career Seminar (1)
- MCEN 2024: Materials Science (3)
- GEEN 2400: Engineering for the Community (3)
- GEEN 2851: Statics for Engineers (3) *or* MCEN 2023: Statics and Structures (3)
- ECEN 3010: Circuits and Basic Electronics (3)
- MCEN 3047: Data Analysis and Experimental Methods (4)
- GEEN 3400: Invention and Innovation (3)
- GEEN 3852: Thermodynamics for Engineers (3) *or* MCEN 3012: Thermodynamics (3)

## Courses Required for Mechanical Emphasis (21)

### Required Courses (15):

- MCEN 2043: Dynamics (3)
- MCEN 2063: Mechanics of Solids (3)
- MCEN 3021: Fluid Mechanics (3) or GEEN 3853: Fluid Mechanics for Engineers (3)
- MCEN 3025: Component Design (3)
- MCEN 4043: System Dynamics (3)

### And Capstone Design (6):

- MCEN 4045: Mechanical Engineering Design Project 1 (3)
- MCEN 4085: Mechanical Engineering Design Project 2 (3)

Mechanical emphasis students are required to take the Fundamentals of Engineering (FE) exam when they are within 32 credit hours of graduation.

## Concentration

The Engineering Plus Concentration allows students to select additional coursework in a chosen field of study, either within or outside of engineering. The Concentration course sequence must be a series of courses with increasing specificity or depth within a field, typically culminating in senior level courses. Most Concentrations will be at least four three-credit courses. Several approved Concentrations are available as examples on the Engineering Plus website ([eplus.colorado.edu](http://eplus.colorado.edu)). Every concentration *must* be pre-approved by an Engineering Plus advisor, *prior* to the commencement of the coursework. All Concentration courses require a minimum grade of C in each course.

**CU Teach Engineering Concentration**, a joint program with the School of Education, allows Engineering Plus majors to choose the CU Teach Engineering concentration, leading to teaching licensure preparation in secondary math or science. The Engineering Plus CU Teach Engineering program integrates design-focused engineering curriculum, extensive science or math content, education pedagogy courses, and student teaching to create qualified STEM educators that develop and hone the scientific, mathematical, engineering and technological literacy of grades 7-12 students. Due to teaching licensure requirements, this concentration requires substantial additional coursework beyond other approved Engineering Plus concentrations, generally taking nine semesters for completion. See below for specifics on this concentration.

**Engineering Plus CU Teach Science** offers engineering students the flexibility of earning a design-rich engineering degree, combined with the opportunity to teach secondary school science. This degree option arms grades 7-12 STEM educators with the scientific, technological, engineering, and mathematical literacy necessary to improve the teaching and learning of science and engineering subjects in middle and high schools.

The Engineering Plus CU Teach Science degree requires 50-57 engineering credit hours, 37-45 science credit hours, 16 math credit hours (Calculus I, Calculus 2, Calculus 3, Differential Equations), 18 humanities credit hours, and 26 CU Teach education credit hours as required by the Colorado Department of Education (CDE).

Though the CDE does not distinguish among science licensures, and grants a “science-secondary education” license, e+ CU Teach Science students must choose a science area of focus (physics, chemistry or biology) to ensure deeper content knowledge.

All Concentration courses require a minimum grade of **C** in each course, including education and subject matter (science) courses. Students must also maintain a minimum 2.75 cumulative GPA in subject matter (science) courses.

**Engineering Plus CU Teach Math** is designed to attract students interested in a design-rich engineering degree applicable to an engineering career, with the ability to also become a secondary mathematics teacher. This degree option arms grades 7-12 math educators with the scientific, technological, engineering, and mathematical literacy necessary to improve the teaching and learning of mathematics and engineering subjects in middle and high schools.

The Engineering Plus CU Teach Math degree requires 50-57 engineering credit hours, 31-34 math credit hours, 12-14 science credit hours (Chemistry 1, Physics 1, Physics 2, Experimental Physics), 18 humanities credit hours and 26 CU Teach education credit hours as required by the Colorado Department of Education (CDE).

All Concentration courses require a minimum grade of **C** in each course, including education and subject matter (math) courses. Students must also maintain a minimum 2.75 cumulative GPA in subject matter (math) courses.

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## Materials Science and Engineering

The Materials Science and Engineering (MSE) program is a graduate interdisciplinary MS and PhD program aimed at providing rigorous education in materials science and engineering and the fundamental physics, engineering, chemistry and biology that underlie this discipline. Educational goals are achieved through both course work and training in cross-disciplinary research supervised by one or more science and engineering faculty members.

The program offers six unique tracks of study:

- electronic, magnetic and photonics materials
- soft materials
- structural materials
- materials for energy
- biomaterials
- computational materials science

The MSE program is directed by Professor Chris Bowman of the Department of Chemical and Biological Engineering. For more information, visit the MSE website at [mse.colorado.edu](http://mse.colorado.edu).

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## Mechanical Engineering

The educational objective of the undergraduate program in mechanical engineering is to prepare graduates so that they will build on the educational foundation gained through our program by establishing themselves in professional careers and/or pursuing a graduate degree within three years of graduation. In addition, within these three years, students should have begun to generate new knowledge and/or exercise leadership in their positions.

Each graduate of the mechanical engineering program is expected to:

- apply knowledge of mathematics, science and engineering
- identify, formulate and solve engineering problems
- use computers to solve engineering problems
- use modern instrumentation
- design and conduct experiments, including the use of probability and statistics
- analyze and interpret data
- design systems, components or processes to meet desired needs
- understand the processes used to manufacture products
- understand contemporary issues in mechanical engineering
- demonstrate professional conduct in academic and workplace environment
- demonstrate effective oral and written communication skills
- function effectively on multi-disciplinary teams
- understand professional and ethical responsibility
- understand the impact of engineering in a global and societal context
- engage in lifelong learning

**Course code for this program is MCEN.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Mechanical Engineering

The undergraduate curriculum in mechanical engineering incorporates engineering science, physical science and mathematics, as well as the humanities and social sciences. The engineering science component provides basic theoretical and practical concepts in solid mechanics, materials, thermodynamics, fluid mechanics, design and manufacturing. Required courses in engineering science, physical science and mathematics are interwoven throughout the curriculum to provide a balanced education in the fundamentals of the profession and comprise three-fourths of the minimum curriculum requirement of 128 semester hours; they are

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complemented by four technical electives, five electives in the humanities and social sciences, a junior-level writing course and a free elective.

Options in environmental and biomedical engineering are available for students interested in these interdisciplinary areas.

## Curriculum for BS in Mechanical Engineering

### *Required Courses and Semester Credit Hours*

#### **Freshman Year**

##### ***Fall Semester***

- APPM 1350 Calculus 1 for Engineers—4
- CSCI 1320 Computer Science 1—4
- PHYS 1110 General Physics 1—4
- First-Year Engineering Projects course—3

##### ***Spring Semester***

- APPM 1360 Calculus 2 for Engineers—4
- MCEN 1024 Chemistry for Energy and Materials Science—4
- MCEN 1025 Computer-Aided Design and Fabrication—4
- PHYS 1120 General Physics 2—4
- PHYS 1140 Experimental Physics—1

#### **Sophomore Year**

##### ***Fall Semester***

- APPM 2350 Calculus 3 for Engineers—4
- MCEN 2000 Professional Seminar—1
- MCEN 2023 Statics and Structures—3
- MCEN 2024 Materials Science—3
- PHYS 2130 General Physics 3—3
- Humanities or social science elective—3

##### ***Spring Semester***

- APPM 2360 Introduction to Differential Equations with Linear Algebra—4
- MCEN 2043 Dynamics—3
- MCEN 2063 Mechanics of Solids—3
- MCEN 3012 Thermodynamics—3
- MCEN 3021 Fluid Mechanics—3

#### **Junior Year**

##### ***Fall Semester***

- ECEN 3010 Circuits and Electronics—3
- MCEN 3022 Heat Transfer—3

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- MCEN 3025 Component Design—3
- MCEN 3030 Computational Methods—3
- College-approved writing course—3

### ***Spring Semester***

- MCEN 3047 Data Analysis and Experimental Methods—4
- MCEN 4026 Manufacturing Processes and Systems—3
- MCEN 4043 System Dynamics—3
- General technical elective—3
- Humanities or social science elective—3

### **Senior Year**

#### ***Fall Semester***

- MCEN 3032 Thermodynamics 2—3
- MCEN 4045 Mechanical Engineering Design Project 1—3
- MCEN Technical elective—3
- Humanities or social science elective—6
- Free elective—2

#### ***Spring Semester***

- MCEN 4085 Mechanical Engineering Design Project 2—3
- MCEN Technical elective—3
- General technical electives—3
- Humanities or social science elective—3
- Free elective—3

### **Minimum total hours for degree—128**

#### Prerequisites and Passing Grades

The minimum passing grade for a course that is a prerequisite for another required course is C. If a grade of C- or lower is received in a course which is a prerequisite to another, the student may not register for the subsequent course until the first grade has been raised to a C or higher.

The minimum passing grade for a course that is not specifically a prerequisite for another required course is D-.

The Mechanical Engineering department reserves the right to drop students enrolled in MCEN courses who have not met the minimum prerequisite requirements. It is the student's responsibility to communicate with the department if summer course work and/or transfer credit will be used to meet the prerequisite requirement.

Mechanical engineering students are expected to take APPM courses for the required mathematics courses (APPM 1350, 1360, 2350, 2360) once they have matriculated into the program.

## Colorado Mesa University/University of Colorado Boulder Mechanical Engineering Partnership Program

Colorado Mesa University and the University of Colorado Boulder have created a partnership to deliver a baccalaureate mechanical engineering program in its entirety in Grand Junction, Colorado. The first two years of the program are taught by CMU faculty and the second two years of the program are taught by CU-Boulder faculty who live permanently in Grand Junction. Students completing the program will be awarded a BS in Mechanical Engineering from CU-Boulder. For more information, see [www.coloradomesa.edu/engineering](http://www.coloradomesa.edu/engineering).

### Concurrent Bachelor's/Master's Program

#### BS/MS Concurrent Degree

The concurrent bachelor's/master's degree program offers the opportunity of pursuing the bachelor's and master's degrees leading towards the awarding of the degrees at the completion of the joint program. The program is normally a five–six year program designed for currently enrolled CU-Boulder students. Initial admission to the program typically occurs during the junior year. Minimum standards for admission (set by the Graduate School) require a cumulative GPA of 3.00 and completion of all MAPS deficiencies. Additional admissions criteria are determined by the individual departments in conjunction with the appropriate school or college deans.

In order to gain admission to the BS/MS program in mechanical engineering, a student must meet the following criteria:

- Have a cumulative GPA of 3.25 or higher
- Have a minimum of 75 hours completed course work
- Transfer students must have completed a minimum of 24 hours at CU-Boulder
- If admitted to the program, the student may not pursue a double degree or double major
- Students must have completed four of the following six courses: Component Design, Computational Methods, Fluids, Heat Transfer, Thermodynamics 1, Thermodynamics 2

The degrees will be awarded simultaneously when requirements for both degrees are met. If the student wishes to withdraw from the program and only receive the BS degree they may do so by contacting the graduate advisor. The graduate school will then change their status from BS/MS concurrent back to BS.

If you are interested in the BS/MS concurrent degree program, please stop by and see the graduate advisor for an application.

### Graduate Degree Program(s)

#### Graduate Study in Mechanical Engineering

The department offers master of science (MS), master of engineering (ME) and doctor of philosophy (PhD) degree programs to students whose career plans include advanced practice, research and development and/or teaching at the college or university level.

#### Master of Science (MS) Degree

The MS in mechanical engineering consists of 30 credit hours: usually ten 3 credit hour courses or eight 3 credit hour courses plus six credit hours of thesis.

**Tracks.** Our curriculum consists of a set of nine study tracks designed to provide a balance between modern technological focus and disciplinary depth:

- Air Quality
- Bioengineering
- Design
- Energy and Environment
- Foundation
- Materials
- Mechanics of Materials
- Microsystems
- Simulation Based Mechanical Engineering Sciences

Each track consists of six courses, comprised of a set of three to five core courses and one to four enrichment courses. The remaining courses are electives, and may include thesis hours. Core courses are taught every year, and enrichment courses are taught at various intervals. Enrichment courses are more specialized and are chosen from a list of approved courses for each track. Additional courses may be approved on a petition basis. Lists of core and enrichment courses for each track are available at [www.me.colorado.edu/#!/degree-programs/c5dq](http://www.me.colorado.edu/#!/degree-programs/c5dq).

In addition to the course work for each track, MS students are required to take two semesters of MCEN 5027 (Graduate Seminar). This class is *pass/fail* and is attendance-based. It does NOT count towards the 30 credit hours required for the degree. Attendance is required at 10 seminar meetings for a passing grade. NOTE: For BS/MS students the requirement is only one semester of Graduate Seminar.

## Master of Engineering (ME) Degree

The Master of Engineering is a degree plan designed primarily for working professionals or those who seek exceptional breadth in their educational plan. The ME requires 30 semester hours of course work as described below. Students have six years to complete these requirements. A GPA of 3.00 must be maintained. Up to 9 semester hours of approved graduate level course work from other institutions may be transferred.

### Requirements

- 18 credit hours of courses at the 5000 level or above must be taken in mechanical engineering subjects.
- 12 credit hours of courses may be taken in other engineering fields, science, business, etc. Six of these hours may be at the 4000 level.
- In addition to the course work, ME students are required to take two semesters of MCEN 5027 Graduate Seminar. This class is *pass/fail* and is attendance-based. It does NOT count towards the 30 credit hours required for the degree. Attendance is required at 10 seminar meetings for a passing grade.

## Doctor of Philosophy (PhD) Degree

A student pursuing the PhD in mechanical engineering must complete a minimum of 30-42 semester credit hours in courses numbered 5000 or above (6 of these credits must include MCEN 5020 and 5040), as well as 30 semester hours of dissertation credit. In addition, all PhD students are required to take MCEN 5208, Introduction to Research (Pass/Fail). Up to 21 semester hours of graduate course work may be transferred from another accredited institution; there is no credit limit for appropriate courses taken at the University of Colorado, such as those taken for the master of science degree.

Every student desiring to pursue the PhD degree must pass a preliminary examination. As a part of this evaluation, students must pass a written math examination as well as two oral exams designed to test research and fundamental mechanical engineering competency. They must also pass a research presentation given to a committee of at least three faculty members. Overall performance in the required examinations will determine *pass/fail* status.

After passing the preliminary examination, students continue their course work and prepare a written thesis prospectus. When ready, they take an oral comprehensive examination covering the graduate course work and the thesis prospectus. After passing the comprehensive examination, students are admitted into the PhD program and conduct original research required to satisfy the thesis requirement. This research culminates in the writing of the thesis, which students defend in a final examination.

PhD students are matched with an academic advisor to review their progress toward the degree. Students are expected to meet with the advisor at least once each semester prior to registration. Once students have selected a research topic for the thesis, academic advising is done by their thesis advisor. Additional information on graduate study may be found in the Graduate School section.

## Graduate Research

Research activities are concentrated in three contemporary themes: **micro/nano scale engineering**, **energy/environment** and **bioengineering**. Faculty engage in these theme areas through three disciplinary areas of mechanical engineering: fluid mechanics/thermal sciences, solid mechanics/material sciences and design/manufacturing. Faculty and students collaborate with universities and laboratories across the United States and throughout the world.

Example research efforts in **micro/nano systems** include: design and reliability of MicroElectroMechanical Systems (MEMS), nanosystems, carbon nanotubes, mechanical properties of nanowires, nanomaterial processing, nanocomposites, disk drive shock analysis, microporous membranes, polymer derived ceramics, active materials and structures, multi-scale computational fluids modeling and MEMS/electronics packaging.

Example research efforts in **energy/environment** include: urban air quality modeling, indoor air pollution, aerosol particle characterization and health effects, energy policies and climate impacts and theoretical/computational fluid dynamics.

Example research efforts in **bioengineering** include: optical biopsy of prostate cancer, shape memory polymers/alloys, cardiovascular fluid/bio mechanics, MEMS-based biosensing, ultrasound imaging, device design, nanoparticle diagnostics and metallic/polymer biomaterials. These efforts are facilitated by collaborations with the Anschutz Medical Campus of the University of Colorado Denver, the Children's Hospital and the Colorado State Veterinary College.

Department research activities are supported by a wide range of industrial and federal agencies such as the National Science Foundation (NSF), Department of Energy (DOE), Environmental Protection Agency (EPA), National Aeronautics and Space Administration (NASA), National Institute of Health (NIH), Air Force Office of Scientific Research (AFOSR) and Defense Agency Research Project Association (DARPA). Some research activities are carried out through interdisciplinary department research centers including the Collaboratory for Air Quality Research (CAQR) and Membrane Applied Science and Technology (MAST) Center.

## Dual Degree Programs

### ME Mechanical Engineering & ME Engineering Management

## ME in Mechanical Engineering (Primary) with ME Engineering Management Requirements:

### Be Admitted into the Mechanical Engineering Degree Program

- Complete 30 hours of course work at the 5000 level or above consisting of 18 credit hours of courses in Mechanical Engineering and 12 credit hours of courses in other engineering fields, science, business, etc.
- Two semesters of graduate seminar, MCEN 5027 (This class is pass/fail and is attendance based; does not count toward fulfilling the graduate degree requirement).

### Be Admitted into the Engineering Management Program

Complete an additional 15 credit hours of graduate engineering management course work. As part of either program the following seven courses must be completed:

- EMEN 5010: Introduction to Engineering Management
- EMEN 5020: Finance and Accounting for Engineering Managers
- EMEN 5030: Introduction to Project Management –or- EMEN 5031 Software Project Management
- EMEN 5040: Quality, Strategy, and Value Creation
- EMEN 5050: Leadership
- EMEN 5900: Research Methods –or- EMEN 5090: Technology Ventures and Marketing
- One EMEN elective course other than EMEN 5000 or EMEN 5005

EMEN 5000 Engineering Analysis and EMEN 5005 Intro to Applied Statistics cannot be applied toward the Engineering Management degree.

***Must maintain a minimum GPA of 3.0 with no EMP grades less than a C+. Only one grade of C+ can be applied toward the degree.***

Successfully complete the Master's Exam.

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# Telecommunications

Telecommunications is a graduate-level discipline.

**Course code for this program is TLEN.**

## Graduate Degree Program(s)

### Graduate Study in Telecommunications

Telecommunications offers an interdisciplinary curriculum. Students are able to master not only the latest technologies associated with the Internet, but also the business skills and policy knowledge essential to achieving success in the companies driving today's rapidly changing high-tech world. Within the Interdisciplinary Telecommunications Program (ITP), students can develop expertise in leading-edge specialties such as network engineering, wireless engineering, network security and telecom policy—by gaining hands-on experience in our world-class labs working with state-of-the-art technologies.

Visit [www.colorado.edu/itp](http://www.colorado.edu/itp) for additional information, admission requirements, admission deadlines and application instructions.

### Degrees Offered

MS, PhD, BS/MS, ME/MS, MS/MBA, MS/PhD

### Degree Details

- MS in Telecommunications
- PhD in Telecommunications
- ME Engineering Management/MS Telecommunications
- MBA/MS in Telecommunications with the Leeds School of Business
- BS Management/MS Telecommunications
- BS Computer Science/MS Telecommunications
- JD/MS in Telecommunications with the School of Law

### Program Tracks

Students admitted into our master's program may pursue an area of specialization in one of four exciting tracks offering focused graduate study in some of the most sought-after areas in the broadband arena.

### Network Engineering

The Network Engineering Track is a challenging set of courses designed to provide the most

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useful and up-to-date knowledge and training available to pursue a career as a network engineer. This track gives students a deep dive on the development and operations of IP networks. The heart of this track are two challenging courses in the Telecom Lab that provides students with hands-on work in testing, simulations and networking research. This track also provides students the necessary business, economics and policy courses in telecommunications to provide knowledge needed for future career advancement. Finally, the track prepares students to successfully complete important certifications from network equipment vendors that demonstrate proficiency in the operation of their equipment.

## Network Security

The Network Security Track prepares students to be information security professionals who can manage the security of increasingly critical electronic information and data communication systems. This track teaches students how to develop, build and maintain secure and cost-effective computer systems as part of a comprehensive and efficient cyber security effort within private or public sector entities. Central to this track is a series of classes in the Security Lab that provides students hands-on assignments building, testing and operating secure telecommunications systems and devices.

As critical infrastructure, e-commerce and enterprises continue to be under attack, the information security field needs highly technical leaders. The ITP Network Security Track prepares you via technical and management courses to be the next information security leader.

The classes offered by the CU Interdisciplinary Telecom Program (ITP) use an applied approach through lab-based courses to give you the skills you need to:

- Build secure networks
- Build and deploy secure applications
- Analyze networks and systems to identify weaknesses and provide more secure solutions
- Plan, manage and communicate intelligently with multiple audiences based on current policies and regulations, best practices and upcoming trends

Through the ITP Network Security Track, you will learn not only how to build secure systems and identify weaknesses, but you will also have a thorough technical skillset to explain complex security issues to all audiences.

## Wireless Networking

The Wireless Networking Track is for individuals who want to design, build and operate wireless broadband networks. These students can serve as wireless engineers and architects for mobile service providers, wireless ISPs and large businesses operating significant wireless networks as part of their information technology groups. This track teaches students how to design, build and operate broadband networks based on state-of-the-art technologies such as LTE and Wi-Fi.

Like our other technical tracks, the Wireless Track offers two challenging classes in the Wireless Lab to give students invaluable hands-on experience building, testing and operating secure telecommunications systems and devices. This track also provides students the necessary business, economics and policy courses in telecommunications to provide knowledge needed for future career advancement. Finally, the track prepares students to successfully complete important certifications from network equipment vendors that demonstrate proficiency in the operation of their equipment.

## Telecom Policy and Strategy

The Telecom Policy Track is an exciting set of courses designed to provide all-around exposure

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to the latest telecommunications technologies, economics and public policy issues of the day. This track gives students a deep dive into telecommunication policy, strategy and regulation through courses in ITP and the CU Law School, including a potential stint in the Law School's Telecom Policy Law Clinic, where students develop comments for real-life policy dockets (instructor approval required to enroll in this course). This track also provides students hands-on exposure to IP networks, wireless networks and network security in introductory labs specifically designed to provide students their first exposure to these technologies through imaginative experiments.

## Open Option

The Open Option Track is a self-selected track for students admitted into ITP who wish to explore a variety of telecom electives or students who are pursuing the Master of Science in Telecommunications full- or part-time. As noted below, part-time students who join the program in this track will be required to first enroll in ITP core classes before enrolling in any elective courses.

Although this track allows for greater elective flexibility, students following the enrollment schedule of the other tracks (Policy, Wireless, Security and Networks) will have first enrollment priority above Open Option enrollees. Additionally, Open Option students who transition to another track must subsequently follow the schedule of enrollment selections for their newly selected track.

## Certificate Program(s)

Earning a graduate certificate offers you a foundation of knowledge and skills focusing on specific technology, as well as best practices and tools immediately applicable to the work environment. Graduate certificates are critical to the process of developing or enhancing a specialized expertise. They signify that a student has successfully completed a series of four strategically designed graduate level courses in select topics of study. Certificates also provide the flexibility to allow course credits to be applied toward a master's degree

## Professional Certificate in Network Architecture

- Learn to design communications solutions; includes theoretical and hands-on experience
- Gain expertise in how networks operate, how to configure them and how to approach network design
- Our training uses commercially available products, enabling students to complement their certificate with vendor-specific credentials

### Benefits:

- Develop critical competencies in 12-18 months
- Courses delivered both on campus and online
- Graduate credit earned can apply toward a master's in Telecommunications
- Interaction with an industry-diverse and world-wide student body

### Required Courses (6 Credit Hours):

- TLEN 5330: Data Communications 1
- TLEN 5460: Telecommunications Systems Lab

### Electives (6 Credit Hours- select 2):

- TLEN 5430: Data Communications 2

- TLEN 5370: IP Routing Protocols (classroom only)
- TLEN 5410: Network Management and Operations
- TLEN 5440: Multimedia Networking
- TLEN 5462: Advanced Telecommunications Laboratory 2 (classroom only)
- TLEN 5570: IP Network Design (classroom only)
- TLEN 5832: Network Performance and Analysis
- CSCI 5273: Network Systems

*Students may be exempted from enrolling in TLEN 5330 or TLEN 5460 with successful completion of a written examination.*

## Certificate in Computer and Network Security

Learn in detail how networks work and how users behave on the network

- Gain expertise on how to protect networks—a process that includes behavioral, economic and policy understanding
- Become fluent in security topics ranging from technical theory to legal procedures
- Take coursework that is certified to meet all CNSS training standards for INFOSEC Professionals (NSTISSI No. 4011) and System Administrators (CNSSI No. 4013 Entry Level)

Benefits:

- Develop critical competencies in 12-18 months
- Courses delivered both on campus and online
- Graduate credit earned can apply toward a MS in Telecommunications
- Interaction with an industry-diverse and global student body

Required Courses (6 Credits)

- TLEN 5530: Applied Network Security (3 credits)
- TLEN 5540: Network Security Lab (3 credits)

Electives (6 Credits)

- TLEN 5410 Network Management & Operations (3 credits)
- **New** [TLEN 5839: Secure Web Programming](#) (3 credits)
- **New** TLEN 5xxx: Large Scale Network Analysis (3 credits)
- **New** TLEN 5xxx: Securing Embedded Devices (3 credits)

## Certificate in Wireless Networks and Technologies

- Position yourself to meet the growing demand for leaders who understand wireless technologies, whether it's as a network administrator, a technician or an upper-level manager
- Master pragmatic skills in key areas of wireless networks: security and vulnerability characteristics, assessing and selecting the right product, deploying a reliable wireless network and potential interactions between wireless products
- Learn the regulatory and legal aspects of owning and operating wireless networks, as well

as the cost-benefit tradeoffs between wireless and non-wireless options

- Study coursework that's specifically designed for people with technical, legal or business backgrounds and covers a broad range of wireless and LAN issues, from technical theory to legal procedures

Benefits:

- Develop critical competencies in 12-18 months
- Courses delivered both on campus and online
- Graduate credit earned can apply toward a master's in Telecommunications
- Interaction with an industry-diverse and world-wide student body

Required Courses (12 Credit Hours):

- TLEN 5510: Wireless and Cellular Communications
- TLEN 5520: Wireless LANs
- TLEN 5230: Spectrum Management and Policy (classroom only)
- TLEN 5560: Wireless Systems lab (classroom only)

## Telecommunications Policy

- Gain expertise in the legal, political and regulatory dynamics of the Internet and communications industries
- Study technology-based policy issues such as net neutrality, privacy and over-the-top video
- Opens the door to fulfilling work as an Internet-based technology executive, strategic planner or decision maker at government agencies

Benefits:

- Develop critical competencies in 12-18 months
- Courses delivered both on campus and online
- Graduate credit earned can apply toward a master's in Telecommunications
- Interaction with an industry-diverse and world-wide student body

Required Courses (12 Credit Hours):

- TLEN 5010: Network Economics and Finance 1
- TLEN 5210: Principles of Telecommunication Policy
- TLEN 5230: Spectrum Management and Policy (classroom only)
- TLEN 5380: The Future of Video: Technology, Policy and Economics (classroom only)

*ITP degree-seeking students may substitute policy-related LAWS courses for TLEN 5230 or TLEN 5380 with ITP advisor and law professor permissions.*





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## Certificate Programs

Earning an undergraduate, graduate or professional certificate in a specialized area of engineering (such as international engineering, engineering entrepreneurship or power electronics, among others) allows students to broaden their knowledge base beyond their primary area of study. Visit [www.colorado.edu/engineering/academics/degrees-minors-certificates/certificates](http://www.colorado.edu/engineering/academics/degrees-minors-certificates/certificates) for a full listing of the certificates offered through the College of Engineering and Applied Science.

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| •                        | Civil, Environmental and Architectural Engineering    |
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| •                        | Electrical, Computing and Energy Engineering          |
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## Faculty: Aerospace Engineering Sciences

| Name             | Title                       | Education   |
|------------------|-----------------------------|---|
| AHMED, Nisar     | assistant professor         | BS, Cooper Union for the Advancement of Science and Art; MS, PhD, Cornell University                          |
| AKOS, Dennis M.  | associate professor         | BS, MS, PhD, Ohio University  |
| ARGROW, Brian M. | professor                   | BS, MS, PhD, University of Oklahoma   |
| AXELRAD, Penina  | department chair; professor | BS, MS, Massachusetts Institute of Technology; PhD, Stanford University                                       |
| BIRINGEN, Sedat  | professor                   | BS, MS, Robert College, Turkey; Diploma, von Karmán Institute for Fluid Dynamics; DSc, University of Brussels |
| BRASSEUR, James  | research professor          | BS, University of Maryland; MS, PhD, Stanford University  |
| CHU, Xinzhaoh    | professor                   | BS, PhD, Peking University  |
| CLARK, Torin     | assistant professor         | BS, University of Colorado Boulder; MS, PhD, Massachusetts Institute of Technology                            |
| CULP, Robert D.  | professor emeritus          |   |
| DOOSTAN, Alireza | assistant professor         | BS, MS, Sharif University of Technology; MA, PhD, The Johns Hopkins University                                |
| EMERY, William   | professor                   | BS, Brigham Young University; PhD, University of Hawaii   |
| EVANS, John A.   | assistant professor         | BS, MS, Rensselaer Polytechnic Institute; MS, PhD, University of Texas at Austin                              |
| FARNSWORTH,      | assistant                   | BS, MS, PhD, Rensselaer Polytechnic Institute   |

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- Civil, Environmental and Architectural Engineering

- Computer Science

- Electrical, Computing and Energy Engineering

- Engineering Management

- Herbst Humanities

- Mechanical Engineering

- Telecommunications

Environmental Design

|                     |                                     |   |
|---------------------|-------------------------------------|---|
| John                | professor                           |   |
| FELIPPA, Carlos A.  | professor                           | BS, Universidad Nacional de Cordoba, Argentina; MS, PhD, University of California, Berkeley   |
| FORBES, Jeffery M.  | professor                           | BS, University of Rhode Island; MS, University of Illinois; PhD, Harvard University   |
| FREW, Eric          | associate professor; director RECUV | BS, Cornell University; MS, PhD, Stanford University  |
| GATES, Harvey       | associate professor adjunct         | BS, University of New Mexico; MS, PhD, University of Denver   |
| GERREN, Donna Sue   | senior instructor                   | BS, MS, University of Colorado; MSE, University of Michigan; PhD, University of Kansas  |
| HUSSEIN, Mahmoud I. | associate professor                 | BS, The American University in Cairo; MS, Imperial College of Science, Technology and Medicine, London; MS, MS, PhD, University of Michigan–Ann Arbor |
| JACKSON, Jelliffe   | instructor                          | BS, University of West Indies, Trinidad; MS, PhD, University of Florida.  |
| JANSEN, Kenneth E.  | professor                           | BS, University of Missouri–Columbia; MS, PhD, Stanford University   |
| KANTHA, Lakshmi     | professor                           | BS, Bangalore University, India; MS, Indian Institute of Science; PhD, Massachusetts Institute of Technology  |
| KLAUS, David        | professor                           | BS, West Virginia University; MS, PhD, University of Colorado   |
| KNIPP, Delores      | research professor                  | BS, MS, University of Missouri Columbia; PhD, UCLA  |
| KOSTER, Jean N.     | professor emeritus                  |   |
| LARSON, Kristine    | professor                           | AB, Harvard University; PhD, University of California, San Diego  |
| LAWRENCE, Dale A.   | professor                           | BS, Colorado State University; MS, PhD, Cornell University  |
| LEBEN, Robert R.    | research professor                  | BS, MS, Pennsylvania State University; PhD, University of Colorado  |

 Law

 Media, Communication and Information

 Music

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 Other Academic Programs

|                     |                                     |  |
|---------------------|-------------------------------------|--|
| LI, Xinlin          | professor                           | BS, University of Science and Technology of China; MS, Shanghai Institute of Optics and Fine Mechanics; PhD, Dartmouth College |
| LIU, Hanli          | associate professor adjunct         | BS, University of Science and Technology of China; PhD, The University of Michigan   |
| MARSHALL, Robert    | assistant professor                 | BS, University of Southern California; MS, PhD, Stanford University  |
| MASLANIK, James     | research professor emeritus         |  |
| MAUTE, Kurt         | professor; director, CAS            | Dipl.-Ing, PhD, University of Stuttgart  |
| McGRATH, Michael    | professor adjunct                   | BS, University of Colorado   |
| McMAHON, Jay        | assistant research professor        | BSE, University of Michigan; MSE; University of Southern California; PhD, University of Colorado                               |
| NABITY, James       | associate professor                 | BS, University of Nebraska; MS, Naval Postgraduate School; PhD, University of Colorado   |
| NEOGI, Sanghamitra  | assistant professor                 | BSc, Jadavpur University; MSc, Indian Institute of Technology; PhD, Pennsylvania State University                              |
| NEREM, R. Steven    | professor; associate director, CCAR | BS, Colorado State University; MS, PhD, University of Texas at Austin  |
| PALO, Scott         | professor                           | BS, Clarkson University; MS, PhD, University of Colorado   |
| PARK, Kwang-Chun    | professor emeritus                  |  |
| PARKER, Jeffrey S.  | assistant professor                 | BA, Whitman College; MS, PhD, University of Colorado.  |
| SCHAUB, Hanspeter   | professor                           | BS, MS, PhD, Texas A&M University  |
| SCHEERES, Daniel J. | professor                           | BS, Calvin College; BSE, MSE, PhD, The University of Michigan  |
| SCHWARTZ, Trudy     | senior instructor                   | BS, MS, University of Colorado   |

|                       |   |  |
|-----------------------|---|--|
| SINGER,<br>Howard     | professor<br>adjunct                              | BS, University of Maryland; MA, Boston University; MS,<br>PhD, UCLA  |
| SNYDER,<br>Howard     | professor<br>emeritus                             |  |
| STERNOVSKY,<br>Zoltan | assistant<br>professor                            | MS, PhD, Charles University Prague                                   |
| STODIECK,<br>Louis    | director of<br>BioServe;<br>research<br>professor | BS, MS, PhD, University of Colorado                                  |
| THAYER,<br>Jeffrey P. | professor;<br>director<br>CCAR                    | BS, State University of New York; MS, PhD, University of<br>Michigan |
| VOSS, James           | scholar in<br>residence                           | BS, Auburn University; MS, Honorary PhD, University of<br>Colorado   |

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## Faculty: Chemical and Biological Engineering

| Name                   | Title                        | Education  |
|------------------------|------------------------------|--|
| ANSETH, Kristi S.      | distinguished professor      | BS, Purdue University; PhD, University of Colorado                                   |
| BELVAL, Thomas K.      | senior instructor            | BS, University of Missouri-Columbia; PhD, Rice University                            |
| BOWMAN, Christopher N. | distinguished professor      | BS, PhD, Purdue University   |
| BRYANT, Stephanie J.   | associate professor          | BS, University of Texas at Austin; PhD, University of Colorado                       |
| CHA, Jennifer N.       | associate professor          | BA, University of California, Berkeley; PhD, University of California, Santa Barbara |
| CHATTERJEE, Anushree   | assistant professor          | BS, MS, Indian Institute of Technology, Delhi; PhD, University of Minnesota          |
| CLOUGH, David E.       | professor                    | BS, Case Institute of Technology; MS, PhD, University of Colorado                    |
| DAVIS, Robert H.       | dean, professor              | BS, University of California, Davis; MS, PhD, Stanford University                    |
| deGRAZIA, Janet        | senior instructor            | BA, Barnard College; MS, PhD, University of Colorado                                 |
| DOMAILLE, Dylan        | assistant research professor | BS, University of Oregon; PhD, University of California, Berkeley                    |
| FALCONER,              | professor                    | BES, Johns Hopkins University; MS, PhD, Stanford                                     |

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- Computer Science

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|                       |                              |   |
|-----------------------|------------------------------|---|
| John L.               |                              | University  |
| FOX, Jerome           | assistant professor          | BS, Johns Hopkins University; PhD, University of California, Berkeley               |
| FUNKE, Hans           | associate professor adjunct  | PhD, University of Heidelberg   |
| GILL, Ryan T.         | associate professor          | BS, Johns Hopkins University; MS, PhD, University of Maryland                       |
| GIN, Douglas L.       | professor                    | BS, University of British Columbia; PhD, California Institute of Technology         |
| GOODWIN, Andrew P.    | assistant professor          | BA, Columbia University; PhD, University of California, Berkeley                    |
| HEINZ, Hendrik        | assistant professor          | BS, University of Heidelberg; MS, PhD, ETH Zurich                                   |
| HOLEWINSKI, Adam      | assistant professor          | BSE, PhD, University of Michigan  |
| HRENYA, Christine M.  | associate professor          | BS, Ohio State University; PhD, Carnegie Mellon University                          |
| KAAR, Joel L.         | assistant professor          | BS, PhD, University of Pittsburgh   |
| MAHONEY, Melissa J.   | assistant research professor | BS, Northwestern University; PhD, Cornell University                                |
| MEDLIN, J. William    | associate professor          | BS, Clemson University; PhD, University of Delaware                                 |
| MUSGRAVE, Charles B.  | professor                    | BS, University of California, Berkeley; MS, PhD, California Institute of Technology |
| NAGPAL, Prashant      | assistant professor          | BS, Indian Institute of Technology, Delhi; PhD, University of Minnesota             |
| NOBLE, Richard D.     | professor                    | BE, ME, Stevens Institute of Technology; PhD, University of California, Davis       |
| NUTTELMAN, Charles R. | instructor                   | BS, MS, PhD, University of Colorado   |

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|                       |                                |  |
|-----------------------|--------------------------------|--|
| RANDOLPH, Theodore W. | professor                      | BS, University of Colorado, PhD, University of California, Berkeley              |
| SCHWARTZ, Daniel K.   | department chair;<br>professor | AB, AM, PhD, Harvard University  |
| SHIRTS, Michael R.    | associate<br>professor         | AB, Harvard University; PhD, Stanford University                                 |
| STANSBURY, Jeffrey W. | professor adjunct              | BS, PhD, University of Maryland  |
| STOYKOVICH, Mark P.   | assistant<br>professor         | BS, Massachusetts Institute of Technology; PhD, University of Wisconsin, Madison |
| WEIMER, Alan W.       | professor                      | BS, University of Cincinnati; MS, PhD, University of Colorado                    |
| YOUNG, Wendy          | instructor                     | BS, University of Notre Dame; MS, PhD, University of Colorado                    |

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## Faculty: Civil, Environmental, and Architectural Engineering

| Name                    | Title                       | Education  |
|-------------------------|-----------------------------|--|
| AMADEI, Bernard         | professor                   | Dipl Eng, School of Applied Geology and Mine Prospecting, E.N.S.G., France; MS, University of Toronto; PhD, University of California, Berkeley |
| AMY, Gary L             | professor emeritus          |  |
| BALAJI, Rajagopalan     | department chair; professor | BS, Regional Engineering College, India; MS, Indian Statistical Institute; PhD, Utah State University  |
| BALL, L. Duane          | professor emeritus          |  |
| BEAMER, IV, C. Walter   | instructor                  | BS, MS, PhD, University of Colorado  |
| BIELEFELDT, Angela R.   | professor                   | BS, Iowa State University; MSCE, PhD, University of Washington   |
| BRANDEMUEHL, Michael J. | professor emeritus          |  |
| CHINOWSKY, Paul S.      | professor                   | BS, MS, California Polytechnic State University; PhD, Stanford University  |
| CHUNG FENG, Chuan       | professor emeritus          |  |
| COOK, Sherri M.         | assistant professor         | BS, Virginia Tech; MSE, PhD, University of Michigan  |
| COROTIS, Ross           | professor                   | BS, MS, PhD, Massachusetts Institute of Technology   |
| CORWIN, Christopher J.  | instructor                  | BS, University of Kentucky; MS, PhD, University of Colorado Boulder  |

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|                       |                              |  |
|-----------------------|------------------------------|--|
|                       |                              |  |
| CRIMALDI, John P.     | professor                    | BSE, Princeton University; MS, PhD, Stanford University  |
| DASHTI, Shideh        | assistant professor          | BS, Cornell University; MS, PhD, University of California, Berkeley                                |
| DIEKMANN, James E.    | professor emeritus           |  |
| DILAURA, David L.     | professor emeritus           |  |
| DOW, John O.          | associate professor emeritus |  |
| FRANGOPOL, Dan M.     | professor emeritus           |  |
| GOBLE, George G.      | professor emeritus           |  |
| GOODRUM, Paul         | professor                    | BS, University of Washington; MS, PhD, University of Texas   |
| GOOSEFF, Michael N.   | associate professor          | BCE, Georgia Institute of Technology; MS, PhD, University of Colorado Boulder                      |
| GUPTA, Vijay          | professor emeritus           |  |
| HALEK, Milan F.       | senior instructor emeritus   | BA, University of Colorado; MS, Czechoslovakia Technical University                                |
| HALLOWELL, Matthew    | associate professor          | BS, MS Bucknell University; PhD, Oregon State University   |
| HEARN, George         | associate professor          | BS, The Cooper Union; MS, PhD, Columbia University   |
| HENZE, Gregor         | professor                    | BS, Technical University of Berlin; MS, Oregon State University; PhD, University of Colorado       |
| HERNANDEZ, Mark       | professor                    | BS, MS, PhD, University of California, Berkeley  |
| HUBLER, Mija H.       | assistant professor          | BS, University of Illinois, Urbana-Champaign; MS, Cornell University; PhD, Northwestern University |
| JAVERICK-WILL, Amy L. | assistant professor          | BS, MS, University of Colorado; PhD, Stanford University   |

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|                     |                     |   |
|---------------------|---------------------|---|
| KASPRZYK, Joseph    | assistant professor | BS, MS, PhD, Pennsylvania State University  |
| KO, Hon-Yim         | professor emeritus  |   |
| KRARTI, Moncef      | professor           | Dipl Ing, Ecole Nationale des Ponts és Chausses; MS, PhD, University of Colorado Boulder  |
| KREIDER, Jan F.     | professor emeritus  |   |
| LIEL, Abbie         | associate professor | BSE, Princeton University; MSc, University College London; PhD, Stanford University   |
| LINDEN, Karl G.     | professor           | BS, Cornell University; MS, PhD, University of California, Davis  |
| LIVNEH, Ben         | assistant professor | MESc, University of Western Ontario; PhD, University of Washington  |
| McKNIGHT, Diane M.  | professor           | BS, MS, PhD, Massachusetts Institute of Technology  |
| MOLENAAR, Keith     | professor           | BS, MS, PhD, University of Colorado Boulder   |
| MONTOYA, Lupita     | assistant professor | BS, California State University; MS, PhD, Stanford University   |
| MORRIS, Matthew C.  | instructor          | BS, MS, University of Colorado  |
| NEUPAUER, Roseanna  | associate professor | BS, Carnegie Mellon University; SM, Massachusetts Institute of Technology; MS, PhD, New Mexico Institute of Mining and Technology |
| NOVAK, Ryan A.      | instructor          | BS, University of Wisconsin-Madison; MS, University of Colorado Boulder   |
| PAK, Ronald Y. S.   | professor           | BE, McMaster University, Canada; MS, PhD, California Institute of Technology  |
| PFEFFER, William T. | professor           | BA, University of Vermont; MA, University of Maine, PhD, University of Washington   |
| PORTER, Keith A.    | research professor  | BS, University of California, Davis; MEng, University of California, Berkeley; PhD, Stanford University                           |
| RAJARAM,            | professor           | BTech, Indian Institute of Technology, Madras; MS,  |

|                         |                     |  |
|-------------------------|---------------------|--|
| Harihar                 |                     | University of Iowa; ScD, Massachusetts Institute of Technology   |
| REGUEIRO, Richard       | associate professor | BSE, University of Pennsylvania, SM, Massachusetts Institute of Technology; PhD, Stanford University               |
| REN, Zhiyoung "Jason"   | associate professor | PhD, Pennsylvania State University   |
| ROSARIO-ORTIZ, Fernando | associate professor | BS, University of Puerto Rico; MS, California Institute of Technology; DEnv, University of California, Los Angeles |
| RYAN, Joseph N.         | professor           | BS, Princeton University; MS, PhD, Massachusetts Institute of Technology   |



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## Faculty: Computer Science

| Name                     | Title               | Education  |
|--------------------------|---------------------|--|
| ANDERSON, Kenneth M.     | associate professor | BS, MS, PhD, University of California, Irvine                                  |
| BENNETT, John K.         | professor           | BSEE, MEE, Rice University; MS, PhD, University of Washington                  |
| BLACK, John R.           | associate professor | BS, California State University, Hayward; PhD, University of California, Davis |
| BOESE, Elizabeth         | instructor          | BS, Pennsylvania State University; MS, Colorado State University               |
| BOYD-GRABER YING, Jordan | assistant professor | BS, California Institute of Technology; PhD, Princeton University              |
| BRADLEY, Elizabeth       | professor           | BS, MS, PhD, Massachusetts Institute of Technology                             |
| BROWN, Timothy X.        | associate professor | BS, Pennsylvania State University; PhD, California Institute of Technology     |
| BROWN, Jed               | assistant professor | BS, MS, University of Alaska Fairbanks   |
| BYRD, Richard H.         | professor emeritus  | BA, MA, PhD, Rice University   |
| CAI , Xiao-Chuan         | professor           | BS, Peking University; MS, PhD, New York University                            |
| CERNY, Pavol             | assistant professor | PhD, University of Pennsylvania  |
| CHANG, Bor-Yuh Evan      | assistant professor | BS, Carnegie Mellon University; MS, PhD, University of California, Berkeley    |
| CHEN, Lijun              | assistant           | BS, University of Science and Technology of China;                             |

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- Environmental Design

|                       |   |  |
|-----------------------|---|--|
|                       | professor                                     | MS, Institute of Theoretical Physics, Chinese Academy of Sciences; PhD, California Institute of Technology |
| CLAUSET, Aaron        | assistant professor                           | BS, Haverford College; PhD, University of New Mexico   |
| COLUNGA, Eliana       | assistant professor                           | BS, MSc, El Instituto Tecnológico y de Estudios Superiores de Monterrey; PhD, Indiana University           |
| CORRELL, Nikolaus J.  | assistant professor                           | MS, Eidgenössische Technische Hochschule Zürich; PhD, Ecole Polytechnique Fédérale de Lausanne             |
| DOWELL, Robin D.      | assistant professor                           | BS, Texas A&M University; DSc, Washington University in St. Louis  |
| EHRENFEUCHT, Andrzej  | distinguished professor emeritus              |  |
| EISENBERG, Michael A. | professor                                     | BA, Columbia University; MS, PhD, Massachusetts Institute of Technology                                    |
| ELLIS, Clarence A.    | professor emeritus                            |  |
| FISCHER, Gerhard      | professor emeritus                            | MS, University of Heidelberg; PhD, University of Hamburg   |
| FLEMING, Ioana        | instructor                                    |  |
| FOSDICK, Lloyd D.     | professor emeritus                            |  |
| FREW, Eric            | associate professor                           | BS, Cornell University; MS, PhD, Stanford University   |
| GABOW, Harold         | professor emeritus                            | AB, Harvard College; PhD, Stanford University  |
| GROSS, Mark           | ATLAS director; professor of Computer Science | BS, PhD, Massachusetts Institute of Technology   |
| GRUNWALD, Dirk C.     | associate chair; professor                    | BS, MS, PhD, University of Illinois, Urbana-Champaign  |
| HA, Sangtae           | assistant professor                           | PhD, North Carolina State University   |
| HAMMER,               | assistant                                     | BS, University of Wisconsin; MS, Toyota Technical  |

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|                      |  |  |
|----------------------|--|--|
| Matthew              | professor  | Institute at Chicago; PhD, University of Chicago   |
| HAN, Richard Y.      | associate professor                                | BS, Stanford University; MS, PhD, University of California, Berkeley                                       |
| HOENIGMAN, Rhonda    | instructor   | BS, Ohio University; MS, San Diego University; PhD, University of Colorado Boulder                         |
| HUNTER, Lawrence     | professor  | BS, MS, PhD, Yale University   |
| JESSUP, Elizabeth R. | professor  | BA, Williams College; MS, MPhil, PhD, Yale University  |
| KANE, Shaun          | assistant professor                                | BS, MS, University of Massachusetts; MS, PhD, University of Washington                                     |
| KELLER, Eric         | assistant professor                                | PhD, Princeton University  |
| KING, Roger A.       | professor emeritus                                 |  |
| KNIGHT, Robin D.     | professor  | BS, University of Otago, New Zealand; PhD, Princeton University  |
| LEWIS, Clayton H.    | professor  | AB, Princeton University; MS, Massachusetts Institute of Technology; PhD, University of Michigan           |
| LV, Qin              | associate professor; co-director, graduate program | BE, Tsinghua University; MA, PhD, Princeton University   |
| MAIN, Michael G.     | professor emeritus                                 | BS, MS, PhD, Washington State University   |
| MARTIN, James H.     | department chair; professor                        | BS, Columbia University; PhD, University of California, Berkeley   |
| McBRYAN, Oliver      | professor emeritus                                 |  |
| MILLER, Frank        | senior instructor                                  | PhD, University of Maryland  |
| MISHRA, Shivakant    | associate professor                                | BTech, Indian Institute of Technology Bombay; MS, Southern Illinois University; PhD, University of Arizona |
| MOZER, Michael C.    | professor  | BS, Brown University; MA, PhD, University of California, San Diego   |

|                      |                     |   |
|----------------------|---------------------|---|
| NUTT, Gary J.        | professor emeritus  |   |
| OSBORNE, Richard     | senior instructor   |   |
| PALEN, Leysia A.     | associate professor | BS, University of California, San Diego; MS, PhD, University of California, Irvine            |
| PALMER, Martha S.    | professor           | BA, MA, University of Texas; PhD, University of Edinburgh                                     |
| REPENNING, Alexander | research professor  | BS, Engineering College, Brugg-Windisch, Switzerland; MS, PhD, University of Colorado Boulder |



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## Faculty: Electrical, Computing, and Energy Engineering

| Name                | Title  | Education  |
|---------------------|--|--|
| AFRIDI, Khurram     | assistant professor                                    | BS, California Institute of Technology; MS, PhD, Massachusetts Institute of Technology |
| AVERY, James        | professor emeritus                                     |  |
| BARNES, Frank S.    | distinguished professor emeritus                       |  |
| CATHEY, W. Thomas   | professor emeritus                                     |  |
| CERNY, Pavol        | assistant professor                                    | PhD, University of Pennsylvania  |
| COGSWELL, Carol     | research professor                                     | MA, PhD Equivalent, University of Oregon   |
| ERICKSON, Robert W. | professor  | BS, MS, PhD, California institute of Technology  |
| FEMRITE, Andrew     | senior instructor                                      | BS, University of Colorado Boulder   |
| FILIPOVIC, Dejan    | associate professor; associate chair, graduate studies | Dipl Eng, University of Nis, Yugoslavia; MS, PhD, University of Michigan               |
| FUCHS, Ewald F.     | professor emeritus                                     |  |
| GASIEWSKI, Albin J. | professor  | BS, MS, Case Western Reserve University; PhD, Massachusetts Institute of Technology    |
| GOPINATH, Juliet T. | assistant professor                                    | BS, University of Minnesota; SM, PhD, Massachusetts Institute of Technology            |
| GRUNWALD,           | professor  | BSc, MSc, PhD, University of Illinois, Urbana-   |

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|                         |                                 |  |
|-------------------------|---------------------------------|--|
| Dirk                    |                                 | Champaign  |
| HACHTEL,<br>Gary D.     | professor emeritus              |  |
| HAUSER, John<br>E.      | associate professor             | BS, United States Air Force Academy; MS, PhD,<br>University of California, Berkeley  |
| HAYES, Russell          | professor emeritus              |  |
| HERZFELD,<br>Ute        | associate professor<br>research | MS, Dr.Rer.NAT., Johannes Gutenberg<br>Universität, Mainz, Germany   |
| HEURING,<br>Vincent P.  | associate professor<br>emeritus |  |
| HILGERS,<br>Harry       | lecturer adjunct                | MS, University of Colorado Denver  |
| JEONG,<br>Jaewoong      | assistant professor             | BS, University of Texas, Austin; MS, PhD,<br>Stanford University   |
| KELLER, Eric            | assistant professor             | PhD, Princeton University  |
| KUESTER,<br>Edward F.   | professor                       | BS, Michigan State University; MS, PhD,<br>University of Colorado  |
| LIGHTNER,<br>Michael R. | professor                       | BS, MS, University of Florida; PhD, Carnegie<br>Mellon University  |
| LIU, Youjian            | associate professor             | BE, Beijing University of Aeronautics and<br>Astronautics, China; MS, Peking University; MS,<br>PhD, Ohio State University |
| MAJERFELD,<br>Arnoldo   | professor emeritus              |  |
| MAKSIMOVIC,<br>Dragan   | professor                       | BS, MS, University of Belgrade; PhD, California<br>Institute of Technology   |
| MARDEN,<br>Jason        | assistant professor             | BS, MS, PhD, University of California, Los<br>Angeles  |
| MATHYS, Peter           | associate professor             | Dipl EI Ing, PhD, Swiss Federal Institute of<br>Technology, Zurich   |
| McLEOD,<br>Robert       | professor;<br>department chair  | BS, MS, Montana State University; MS, University<br>of California, Davis; PhD, University of Colorado                      |

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|---------------------|-------------------------|---|
| MEYER, David G.     | associate professor     | BS, University of Wyoming; MS, PhD, Stanford University   |
| MEYER, Francois G.  | professor               | MS, ENSIMAG, Grenoble; PhD, INRIA, Rennes   |
| MICKELSON, Alan R.  | associate professor     | BS, University of Texas at El Paso; MS, PhD, California Institute of Technology   |
| MODDEL, Garrett     | professor               | BS, Stanford University; MS, PhD, Harvard University  |
| NEWHALL, William G. | professor adjunct       | BS, MS, PhD, Virginia Polytechnic Institute and State University  |
| PAO, Lucy Y.        | professor               | BS, MS, PhD, Stanford University  |
| PARK, Wounjhang     | professor               | BS, Seoul University; MS, Dongguk University; PhD, Georgia Institute of Technology                                      |
| PIESTUN, Rafael     | professor               | EE, Universidad de Republica, Uruguay; MSc, PhD, Technion–Israel Institute of Technology; Post Doc, Stanford University |
| PIKET-MAY, Melinda  | associate professor     | BS, University of Illinois; MS, PhD, Northwestern University  |
| PLESZKUN, Andrew R. | associate professor     | BS, Illinois Institute of Technology; MS, PhD, University of Illinois   |
| POPOVIC, Zoya       | distinguished professor | BS, University of Belgrade, Yugoslavia; MS, PhD, California Institute of Technology                                     |
| POPOVIC, Milos      | assistant professor     | BS, Queen's University, Kingston, Ontario, Canada; MS, PhD, Massachusetts Institute of Technology                       |
| ROGALLA, Horst      | research professor      | Diploma, PhD, University of Muenster, Germany   |
| SCHERR, Timothy     | senior instructor       | BS, Washington University; MS, University of Utah   |
| SHAHEEN, Sean       | associate professor     | BS, Carnegie Mellon University; PhD, University of Arizona  |
| SHANG, Li           | associate professor     | BE, ME, Tsinghua University; PhD, Princeton University  |

|                               |                                |  |
|-------------------------------|--------------------------------|--|
| SIEWERT, Sam                  | assistant professor<br>adjunct | BS, University of Notre Dame; MS, PhD,<br>University of Colorado Boulder   |
| SOMENZI,<br>Fabio             | professor                      | DrEng, Politecnico di Torino, Italy  |
| TOURI,<br>Behrouz             | assistant professor            | BS, Isfahan University of Technology; MS, Jacobs<br>University; PhD, University of Illinois Urbana-<br>Champaign |
| VAN<br>ZEGHBROECK,<br>Bart J. | professor                      | Dipl, Katholieke Universiteit Leuven; MS, PhD,<br>University of Colorado Boulder                                 |
| VARANASI,<br>Mahesh K.        | professor                      | BE, Osmania University, India; MS, PhD, Rice<br>University   |



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## Faculty: Engineering Management

| Name                 | Title   | Education  |
|----------------------|---|--|
| BAILEY, Wendy        | instructor  | BS, Purdue University; ME, University of Colorado Boulder  |
| BOZIC, Christy       | associate director, undergraduate program                                   | BS, Purdue University; MBA, Butler University; PhD, Purdue University  |
| JOHNSON, Eben        | instructor  | BS, Carnegie Mellon University; MBA, University of California, Davis   |
| KIRSCHLING, Wayne R. | professor of engineering practice   | BS, United States Air Force Academy; MS, Stanford University; MBA, University of Colorado at Colorado Springs; DBA, University of Colorado Boulder |
| LAWTON, Barbara B.   | professor of engineering practice   | BA, American University; MA, Pennsylvania State University; PhD, University of Wyoming   |
| LITTLEJOHN, Ray      | associate professor of engineering practice; Deming Professor of Management | BS, Webster State College; MS, Trinity University; PhD, University of Oklahoma   |
| MOORER, Daniel F.    | program director; associate professor                                       | BS, U.S. Military Academy; MS, Florida Institute of Technology; PhD, University of Colorado Boulder  |
| MURRAY, Seth         | instructor  | BS, ME, University of Colorado Boulder   |
| SINCLAIR, Alex       | instructor  | BS, MS, University of Colorado Boulder; MS, PhD, University of Washington  |

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## Faculty: Herbst Humanities Program

| Name                  | Title   | Education   |
|-----------------------|---|---|
| DIDUCH, Paul          | instructor  | BA, MA, University of Alberta; PhD, University of Dallas  |
| DOUGLASS, Scot        | associate professor; director, Engineering Honors Program         | BS, University of Arizona; ThM, Dallas Seminary; PhD, University of Colorado Boulder  |
| FREDRICKSMEYER, Hardy | senior instructor   | BA, University of Colorado Boulder; MA, Columbia University and University of Texas, Austin; PhD, University of Texas, Austin |
| GIOVANNELLI, Leland   | senior instructor; director, Herbst Program of Humanities         | BA, St. John's College, Annapolis; MA, PhD, University of Chicago   |
| KOWALCHUK, Andrea     | instructor  | BA, MA, University of Alberta; PhD, University of Dallas  |
| LANGE, Anja           | senior instructor   | BA, University of Göttingen; MA, PhD, University of Colorado Boulder  |
| SIEBER, Diane         | associate professor; director, Global Engineering Program         | BA, University of Virginia; MA, PhD, Princeton University   |
| SWANSON, Joel         | assistant professor; director, Technology, Arts and Media Program | BFA, University of Colorado Boulder; MFA, University of California San Diego  |

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## Faculty: Mechanical Engineering

| Name                 | Title               | Education  |
|----------------------|---------------------|--|
| BERGQUIST, Marcelo   | senior instructor   | BS, Tulane University; MBA, Boston University; MS, US War College                        |
| BORDEN, Mark         | associate professor | BS, University of Arizona; PhD, University of California, Davis                          |
| BRANCH, Melvyn C.    | professor emeritus  |  |
| BRIGHT, Victor       | professor           | BS, University of Colorado; MS, PhD, Georgia Institute of Technology                     |
| BROWER, Timothy L.   | senior instructor   | BS, Idaho State University; MS, Montana State University; PhD, Colorado State University |
| CARLSON, Lawrence E. | professor emeritus  |  |
| CASTRO, Francisco    | instructor          | BS, University of Colorado Denver; MS, PhD, University of Colorado Boulder               |
| DAILY, John W.       | professor           | BS, MS, University of Michigan; PhD, Stanford University                                 |
| DATTA, Subhendu K.   | professor emeritus  |  |
| DING, Yifu           | associate professor | BS, MS, Fudan University; PhD, University of Akron                                       |
| DUNN, Martin L.      | professor           | BS, Montana State University; MS, PhD, University of Washington                          |
| FERGUSON, Virginia   | associate professor | BS, MS, PhD, University of Colorado Boulder  |

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|------------------------|--|--|
| GEERS, Thomas L.       | professor emeritus   |  |
| GEORGE, Steven M.      | professor  | PhD, University of California, Berkeley  |
| GREENBERG, Alan R.     | professor emeritus   |  |
| HAMLINGTON, Peter      | assistant professor  | BA, University of Chicago; MS, PhD, University of Michigan   |
| HANNIGAN, Michael      | associate professor;<br>department chair                           | BS, Southern Methodist University; MS, PhD, California Institute of Technology                         |
| HENZE, Daven K.        | associate professor;<br>associate chair,<br>undergraduate programs | PhD, California Institute of Technology  |
| HERTZBERG, Jean R.     | associate professor  | BSE, University of Michigan; MS, PhD, University of California, Berkeley                               |
| HUMBERT, James (Sean)  | associate professor  | BS, University of California, Davis; MS, PhD, California Institute of Technology                       |
| KASSOY, David R.       | professor emeritus   |  |
| KEPLINGER, Christopher | assistant professor  | BS, MS, PhD, Johannes Kepler University of Linz  |
| KNUTSON, Jeffrey       | instructor   | BS, University of Minnesota; PhD, University of Colorado   |
| KOTYS-SCHWARTZ, Daria  | instructor   | BS, MS, Ohio State University; PhD, University of Colorado Boulder                                     |
| KREITH, Frank          | professor emeritus   |  |
| LEE, Se-Hee            | professor; graduate chair  | PhD, Seoul National University   |
| LEE, Yung-Cheng        | professor  | BS, National Taiwan University; MS, PhD, University of Minnesota                                       |
| LI, Baowen             | professor  | BS, Nanjing University; MS, Chinese Academic of Science; PhD, Carl-Von-Ossietzky Universitat Oldenburg |
| LONG, Rong             | assistant professor  | BS, University of Science and Technology of China; PhD, Cornell University                             |

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|                     |   |  |
|---------------------|---|--|
| MILFORD, Jana B.    | professor                               | BS, Iowa State University; MS, PhD, Carnegie Mellon University                                     |
| MILLER, Shelly L.   | professor                               | BS, Harvey Mudd College; MS, Claremont College; MS, PhD, University of California, Berkeley        |
| MURRAY, Todd        | associate professor                     | BS, MSE, PhD, Johns Hopkins University   |
| NEU, Corey          | associate professor                     | BS, MS, Brown University; PhD, University of California, Davis                                     |
| PELLEGRINO, John    | research professor                      | BS, City College of New York; MS, PhD, University of Colorado Boulder                              |
| RAJ, Rishi          | professor                               | BS, University of Newcastle-upon-Tyne; BS, Allahabad University; PhD, Harvard University           |
| REAMON, Derek       | senior instructor                       | BS, MS, PhD, Stanford University   |
| REIKER, Gregory     | assistant professor                     | BS, Missouri University of Science and Technology; MS, PhD, Stanford University                    |
| RENTSCHLER, Mark E. | assistant professor                     | BS, University of Nebraska; MS, Massachusetts Institute of Technology; PhD, University of Nebraska |
| RUBEN, Shalom       | instructor                              | BS, MS, University of Washington; PhD, University of California, Los Angeles                       |
| STEINBRENNER, Julie | instructor                              | PhD, Stanford University   |
| STOLDT, Conrad      | associate professor;<br>associate chair | BA, University of Colorado Boulder; PhD, Iowa State University                                     |
| TAN, Wei            | associate professor                     | BS, East China University of Science and Technology; MS, PhD, University of Illinois, Chicago      |
| VASILYEV, Oleg V.   | professor                               | MS, Moscow Institute of Physics and Technology; MS, PhD, University of Notre Dame                  |
| VERNEREY, Franck    | associate professor                     | BS, MS, PhD, Northwestern University   |

|                     |   |   |
|---------------------|---|---|
| WEIDMAN, Patrick D. | professor emeritus  |   |
| XIAO, Jianliang     | assistant professor   | BS, MS, Tsinghua University; PhD, Northwestern University   |
| YANG, Ronggui       | associate professor   | BS, Xi'an Jiaotong University; MS, Tsinghua University; MS, University of California, Los Angeles; PhD, Massachusetts Institute of Technology |
| YIN, Xiaobo         | assistant professor   | PhD, Stanford University  |
| ZABLE, Jack         | emeritus senior instructor of mechanical engineering design |   |

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## Faculty: ATLAS

| Name              | Title   | Education   |
|-------------------|---|---|
| BETHANCOURT, Matt | instructor  | BA, Biola University; MFA, Parsons New School for Design              |
| DUPRE, Jill       | ATLAS associate director                          | BS, Indiana University; JD, University of Colorado Boulder            |
| GROSS, Mark       | ATLAS director; professor of Computer Science     | BS, PhD, Massachusetts Institute of Technology                        |
| HALES, Ian        | instructor  | BA, University of Colorado Boulder                                    |
| PIERCE, Aileen    | instructor  | BS, Carnegie-Mellon University  |
| SCHAAL, David     | instructor  | BA, BFA, MFA, University of Colorado Boulder                          |
| SHAPIRO, Ben      | assistant professor, computer science             | BA, University of California San Diego; PhD, Northwestern University  |
| SWANSON, Joel     | assistant professor, Herbst Program of Humanities | BFA, University of Colorado; MFA, University of California, San Diego |
| SZAFIR, Daniel    | assistant professor, computer science             | BA, Boston College; MS, PhD, University of Wisconsin Madison          |

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## Faculty: Telecommunications

| Name              | Title                        | Education   |
|-------------------|------------------------------|---|
| BARNES, Frank S.  | professor                    | BS, Princeton University; MS, Engineer's Degree, PhD, Stanford University   |
| BERNTHAL, Brad    | associate clinical professor | BA, University of Kansas; JD, University of Colorado  |
| CHEN, Lijun       | assistant professor          | BS, University of Science and Technology of China; MS, Chinese Academy of Sciences; MS, University of Maryland; PhD, California Institute of Technology |
| GATES, Harvey M.  | assistant professor adjunct  | BS, University of New Mexico; MS, PhD, University of Denver   |
| HA, Sangtae       | assistant professor          | BE, Kung Hee University; MS, POSTECH; PhD, North Carolina State University  |
| HATFIELD, Dale N. | professor adjunct            | BS, Case Institute of Technology; MS, Purdue University   |
| McMANUS, Joe      | scholar in residence         | BA, University of Maryland; MS, Carnegie Mellon University  |
| PERIGO, Levi      | scholar-in-residence         | MS, Ball State University; PhD, Nova Southeastern University  |
| REED, David       | scholar-in-residence         | BS, Colorado State University; MS, PhD, Carnegie Mellon University  |
| SANTOS, Jose      | senior instructor            | MS, University of Colorado Boulder  |
| SAVAGE, Scott     | associate professor          | BB, Edith Cowen University, Australia; MEc, University of Western Australia; PhD, Curtin University of Technology, Australia.                           |

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## Environmental Design



**Kevin J. Krizek, program director**

314 UCB • phone: 303-492-7711 • fax: 303-492-6163

program website: [www.colorado.edu/envd](http://www.colorado.edu/envd)

The Program in Environmental Design at the University of Colorado Boulder prepares students for graduate study and careers in **architecture, landscape architecture, urban design and urban and planning design**. With a diverse faculty committed to excellence in teaching, research, scholarship and creative and professional work, the program provides students with a varied range of learning opportunities.

These courses of study prepare students for careers in some of the most exciting professions that shape the designed and built environment. In addition to the program's core design sequence, students will take a wide range of technology and theory courses. Many of these courses can be eligible for advanced standing in highly rated graduate programs throughout the country.

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## Overview of the Program

### The Program's Vision

The Program in Environmental Design focuses on integrative design. This vision asserts that in the twenty-first century the creation of built environments requires:

- design approaches of real-world relevance, stressing technical, ecological, economic, social, cultural, aesthetic and ethical concerns;
- a robust knowledge base for design and planning decisions;
- an interdisciplinary culture of individuals who are not only experts in one of the core designing and planning disciplines, but experts in the sciences, humanities, arts and other professions; and
- a spirit of service to diverse communities, to social justice and to ecological sustainability.

This vision positions our undergraduate students to meet head-on the many significant design challenges expected during the next few decades. ENVD students learn complex problem solving and leadership skills that lay the foundation for a lasting career.

### The Design Professions

Undergraduate students in the Program in Environmental Design come to Boulder to prepare for a career in one of the design professions. Applicants to the program should possess a strong high-school or equivalent academic background, including four years of English and math, and at least three years of natural science (including physics and/or biology) and social science. Extra course work in math, social studies and the arts and humanities is recommended.

The discipline of design and its fields of architecture, landscape architecture, urban and planning design deal with formulating solutions to many of the problems people face in their homes and cities, as well as suburban and natural environments. Architecture focuses on the design of buildings, while planning is concerned with the formulations of policies guiding the development of neighborhoods, cities and regions. Landscape architecture and urban design resolves challenges that cross these scales.

To prepare for graduate professional study in architecture, landscape design, urban design or planning, students may emphasize study in one of these disciplinary areas. A broadly structured emphasis in design studies is also available. All graduates earn a bachelor of environmental design degree (BEnvd) as preparation for entry into graduate professional degree programs and the workplace.

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## Undergraduate Program

The program has taken a broad and integrative view of the design professions in developing its undergraduate curriculum. In recent years the challenges and opportunities facing the design professions have changed dramatically. Clients and employers demand a diverse educational experience that prepares students to work collaboratively within a team of design professionals.

To prepare students for the constantly evolving demands of the design professions, this program creates opportunities for students to gain experience in a wide range of courses in the humanities, the arts and the natural and social sciences. Together, these classes help students nimbly adapt their skills in a constantly changing and complex world.

Unlike undergraduate education in many other fields, students in architecture, landscape architecture, urban design and planning learn by doing. They experience the complexity of real-world problems and search for design solutions with the guidance of our program's exceptional faculty. From the first day of their freshman year, students actively integrate and synthesize the knowledge gained in lectures and related course activities in their hands-on design classes.

Throughout the entire curriculum, the program's required core classes are taught communally so that students from all design disciplines study shared problems together. In the professions, architects, landscape architects, urban and regional planners and urban designers need to understand each other's perspectives. They increasingly work together to find solutions to the complex issues. They must also be able to think critically and communicate clearly about many topics relevant to the sciences, humanities and arts.

The Program in Environmental Design promotes the development of a body of knowledge that allows each student to understand and appreciate:

- the major theoretical perspectives used to inform the way we design our physical environments and the significance of the designed environment in the evolution of human culture;
- the different methodologies and processes used to give shape to our spaces, buildings, gardens, neighborhoods, towns, cities and landscapes;
- the complex interactions that take place between the physical, ecological, social, cultural, behavioral and historical factors that influence the form and quality of designed environments;
- the ethical perspectives that inform the way we work to design environments and settings that are healthy, sustainable, appropriate and beneficial; and
- the social, cultural, historical and professional contexts within which environmental design is learned, practiced and perfected.

In addition, the program supports the development of a range of methods and practices that encourage students to:

- use the design process as the unique way of thinking used to give shape and form to the designed environment, and to realize its value to effect appropriate change;
- effectively and creatively design environments and settings—spaces, buildings, gardens, neighborhoods, towns, cities and landscapes—using appropriate theories, precedents, methods, tools and technologies;
- use verbal, visual and written materials to communicate design intentions and environmental outcomes so that students can work effectively with other designers, with stakeholders and with communities.

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## Facilities

Facilities for the program are provided in the Environmental Design Building and at the Center for Innovation and Creativity (CINC) facility.

### Environmental Design Building

The administrative and faculty offices, conference rooms, lecture rooms and exhibit spaces are located on the first and basement floors of the building.

Studio space is located on the first floor and the third floor of the ENVD building and provided for all students during the academic semesters. Studio space is open to students 24 hours a day and students are expected to work within the studio space to complete their models or other design projects.

The Digital Media Center, an ENVD Academic Support Center, houses a photographic studio for portfolio, digital imaging computer workstations, a printing and production lab with state of the art large format printers for professional style presentation boards and 3-D printers, a digital image library of over 100,000 images and provides professional photography and videography services. The Center also serves as an audiovisual equipment check out center for ENVD faculty and students to check out digital cameras, laptop computers, digital projectors, laser pointers, hand tools and much more. ENVD faculty, staff and students use these resources to produce images and materials for course assignments, research papers, research collaborations and other publications. The center also serves the program's needs for marketing and communications through the management of digital and printed communications including website, social media, brochures, posters and e-communications.

### Creative Lab Center

The Creative Lab Center (CLC) provides students access to specialized fabrication facilities in the university's Center for Innovation and Creativity, which is located on the CU-Boulder East Campus. The digital design and fabrication resources at the CLC are supported by a state-of-the-art wood lab, metal lab, laser cutting machines, two 3-Axis CNC routers and a high end CPU lab.

These labs enhance the ENVD curriculum by providing students with the technological resources for design visualization, scale modeling and full scale prototyping, turning ideas into tangible objects.

A mandatory "Basic Safety Orientation" is required for all students before access to the facilities will be granted. This course is an introduction to the program's safety policies as well as the proper use of personal safety equipment and safe practices on the fabrication equipment.

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# Careers in the Design Professions

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The program prepares preprofessional undergraduate students for professional graduate study in the design professions. As with other four-year preprofessional degrees, such as the bachelor of science or bachelor of arts in architecture, the BEnvd prepares students for study in a master of architecture (MArch), master of landscape architecture (MLA), master of urban design (MUD) or master of urban and regional planning (MURP) degree program.

It is common for bachelor's in environmental design graduates to receive advanced standing for the work they have done in our program, which allows them to complete a graduate degree at other design schools in a shorter time.

## Architecture

The four-year BEnvd degree is not accredited by the National Architectural Accrediting Board (NAAB) as a professional degree. NAAB does not accredit BA Arch, BS Arch or BEnvd degrees; the NAAB only accredits master of architecture (MArch) and five-year bachelor of architecture (BArch) programs. The BEnvd degree prepares students for a NAAB-accredited masters program. In this sequential program of study, students completing the BEnvD will normally be asked to complete a *minimum* of four semesters of additional course work (60 hours of credit) after admission into one of 95 NAAB-accredited graduate programs nationally.

In addition to the MArch, prospective architects must complete three years of internship and must pass a state professional licensing exam. This process is overseen by the National Council of Architectural Registration Boards (NCARB), some of which may be completed concurrently with studies.

## Planning

The practice of planning is currently not licensed in most states. Professional membership and certification is overseen by the American Planning Association (APA) and the American Institute of Certified Planners (AICP). Degrees in the field are accredited by the Planning Accreditation Board (PAB) of the Association of Collegiate Schools of Planning.

Although students interested in entry-level positions in planning may find the BEnvd degree adequate, an advanced degree (MURP, PhD or other graduate planning focus) is highly

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desirable. Students primarily interested in professional practice should obtain a graduate degree in urban planning, in urban and regional planning, in urban planning and community development or in urban design. Students interested in teaching or research in planning should complete a PhD.

## Landscape Architecture

To obtain a license, landscape architects should have an advanced education and work experience, as well as pass the national examination. In the United States, licensing is overseen both at the state level and nationally by the Council of Landscape Architectural Registration Boards (CLARB). Accreditation of educational programs is voluntary. The Landscape Architectural Accreditation Board (LAAB) accreditation process evaluates each program and provides an assessment. Advanced standing for graduate study is evaluated on a case-by-case basis, according to the standards of each graduate program, determined in accordance with a student's prior academic accomplishments as demonstrated in the application portfolio and transcript.

## Design Studies

There is an increasing demand in the design, construction and development industries for people who combine an understanding of design with a specialized understanding of related fields like computing, management, finance or marketing. Some students may use the design studies major as general preparation for graduate study in any number of academic fields that are also concerned with the design and planning of the built environment. Other students may use this emphasis to prepare for further graduate study in a professional field related to architecture, landscape architecture and planning, including business, law, journalism, public administration, product design and digital design. Design thinking is increasingly recognized in the business world as a valuable expertise in the analysis of the design of corporate structures and business plans, industrial processes, manufacturing, marketing and other related pursuits. Excellent design constitutes a fundamental aspect of sustainability in any field.

As the design studies curriculum is tailored to each student, students in this emphasis must outline and receive approval of their individual course plan by a faculty sponsor and their academic advisor before undertaking design studies. Students must complete the requirements of the five-semester, 75-credit core, and a minimum of 30 hours of course work must be approved and completed within design studies. Participants in this emphasis are expected to attain a competent level of understanding and skill and to demonstrate proficiency in design thinking and design practices as they relate to the fields of architecture, landscape design or planning.



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## Study Abroad

The Program in Environmental Design has, along with the Office of International Education, developed an exciting selection of study-abroad options. Study abroad gives students an array of unique experiences, and it can make students more competitive for graduate study and for employment. Summer programs and faculty-led programs are available to students after their first year of study. Full-semester programs are available to students starting in their third year. The study abroad program provides an academically challenging experience with extensive local support.

Environmental design (architecture, urban design or urban planning) programs are offered in Sydney, London, Rome, Denmark and Barcelona. In addition, the Office of International Education offers more than 25 programs which offer courses appropriate to design studies. These courses offer students an opportunity to study the process of design in another culture and to examine their own perceptions and attitudes toward design. Programs outside of the pre-approved listing may be considered as acceptable. Please meet with an ENVD academic advisor for details. For more information about the study abroad programs, contact the Office of International Education, University of Colorado Boulder, 123 UCB, Boulder, CO, 80309-0123, **303-492-6016**, or at [studyabroad.colorado.edu](http://studyabroad.colorado.edu).

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## Lecture Series

The program's lecture series enables students and faculty to meet alumni and people whose work significantly contributes to the different fields that make up the design professions and related fields. Other professional organizations and design-related institutions in the region also sponsor lectures and events that are open to the program's students.

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## Academic Excellence

### Recognition of Scholarship

As a preprofessional program, the Program in Environmental Design provides an atmosphere for study and creative investigation. The program holds academic rigor and quality in the highest esteem. In recognition of high scholarship and professional attainment, the program grants scholarly honors at graduation.

Students achieving a grade point average of 3.50 to 3.749 (honors) and 3.75 to 4.00 (special honors) are recognized at commencement. Honors are based on course work completed at the University of Colorado. A minimum of 70 hours of course work must be completed at CU to be eligible for honors.

### Scholarships, Loans, Awards and Prizes

A wide range of scholarships, prizes and other awards are available to BEnvd students. They are sponsored by the program, the campus, the professions and other foundations and donors.

In addition to these scholarships, interested students may participate in faculty-student research projects funded by the Undergraduate Research Opportunities Program (UROP) programs, or in other research opportunities provided by the campus or in cooperation with the program's faculty.

### Latin Honors—General Honors Program

All University of Colorado students may participate in the Latin honors granted by the College of Arts and Sciences. Students may graduate with Latin Honors (summa cum laude, magna cum laude or cum laude) through either the General Honors Program or their department (see *below*). Granting of these honors is based on several criteria, including the quality of original scholarly work (generally reported in the form of a thesis). Students interested in participating in the General Honors Program should visit the CU Honors Program website.

### Latin Departmental Honors in Environmental Design

Environmental design students may graduate with Latin Departmental Honors (summa cum laude, magna cum laude or cum laude), students with an overall GPA of 3.30 or higher propose a project to work on in their senior year of study, under the guidance of a primary advisor. Students defend their thesis to a committee of three faculty, (environmental design primary advisor, the honors council liaison and a faculty member from outside the department) in April, and the full Honors Committee awards honors in the semester the student graduates. Specific deadlines can be found on the CU Honors Program graduation page.

Latin Honors theses present work that is student initiated and student directed, well beyond the

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requirements for existing classwork. Latin Honors projects in the Environmental Design Program fall into two major categories: research and design.

- **Research** projects present a heretofore-unanswered question then work to answer it, relying on any number of data or types of evidence. The product is a paper, the length of which is determined by the topic in conversation with your advisor.
- **Design** projects present a problem and propose a solution to that problem. The product is a design or product, presented with a critical introduction. Design theses go beyond designing a building to respond to existing programmatic assumptions, to propose a new response to a problem identified by the student.

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## Academic Standards

### On This Page:

- [Student Rights and Responsibilities](#)
- [Ethics and Academic Dishonesty](#)
- [GPA Requirements, Probation and Scholastic Suspension](#)
- [Attendance](#)

### Student Rights and Responsibilities

The Program in Environmental Design is part of an academic community whose mission requires an open learning and working environment for students, faculty, staff and administrators. An open learning and working environment values and protects individual dignity and the integrity of human relationships, and is based upon mutual trust, freedom of inquiry, freedom of expression and the absence of intimidation and exploitation. Any infringement upon these freedoms and rights may be cause for review by the program or by other university offices. Students in the program are subject to the policies and procedures governing student rights and responsibilities published in this catalog. Please refer to the relevant sections outlining explicit policies governing issues of sexual harassment and discrimination, and review the full code of student conduct.

### Ethics and Academic Dishonesty

Students in the Program in Environmental Design are subject to the Boulder campus Honor Code and are expected to conduct themselves in accordance with the highest standards of honesty and integrity. Any act of academic dishonesty may receive sanctions from individual faculty and also be reported to the Honor Code Office. For a full description of Honor Code expectations and policies please refer to the Honor Code section of this catalog or to [www.colorado.edu/policies/student-honor-code-policy](http://www.colorado.edu/policies/student-honor-code-policy).

### GPA Requirements, Probation and Scholastic Suspension

A student must achieve a grade of C- or better in all courses applied toward graduation requirements. A limit of 6 credit hours of general electives that receive a minimum grade of D- may be credited toward the degree if the student has maintained a minimum cumulative grade point average of 2.00.

If a student takes a course for credit more than once, all grades are calculated into the grade point average. However, the course is only counted toward graduation once, unless a course description specifically states that it can be taken more than once for credit. If a course is repeated, the last grade earned is the grade used for degree requirements, no matter if the last

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grade earned is lower than the initial grade.

As a general rule, students who fail to meet the minimum cumulative grade point requirement (2.00) are permitted to continue their studies on a probationary basis during the following semester. Scholastic records of students are reviewed as soon as possible after the close of the probationary semester, and students are informed in writing if they are to be suspended.

When a student is suspended, the student is notified in writing with a copy of the letter placed in the student's file, which directs the student to contact their advisor so that an academic plan may be put into place. It is the responsibility of the academic advisor to monitor the student's progress.

Students on suspension are not allowed to register on any campus of the University of Colorado while on suspension, except continuing education or main campus summer sessions. A suspended student must raise his or her CU cumulative grade point to a 2.00 or higher to be eligible for re-admittance into the program. Suspended students are readmitted on a case-by-case basis by review of the program.

Students in the Program in Environmental Design who withdraw from their registered courses two semesters in a row will have a stop placed on their registration. Summer Session is not counted as a regular semester. They will not be readmitted to return to the University of Colorado Boulder before one full academic year has elapsed (not including the semester of withdrawal).

Students suspended a second time are reinstated only under special circumstances. Students who believe that their situations warrant a departure from these normal stipulations may petition for reinstatement. The program looks with favor on such petitions only if the student has shown marked improvement in academic work or if there are remarkable circumstances that have contributed to the student's academic difficulties.

## Attendance

Students are expected to attend all classes and to comply with the attendance regulations specified by their instructors. At the beginning of each semester, instructors inform students of policies governing grading policies and attendance in each class. Students who miss a final examination for illness or other good reason must notify the instructor or the program office no later than the end of the day on which the examination is given. Missing a final examination is grounds for failing the class.

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## Admission & Enrollment Policies

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The Program in Environmental Design currently offers emphases in architecture, landscape architecture, design studies and planning and urban design. Policy questions may be directed to **303-492-7711** or [ENVDOffice@colorado.edu](mailto:ENVDOffice@colorado.edu).

### Requirements for Admission

Candidates for admission to the Program in Environmental Design are expected to meet the general requirements for admission to the university. See [Undergraduate Admission](#) in the General Information section for specific requirements.

### Transfer Students

Transfer students entering the program are admitted through the University of Colorado Boulder's admission process directly into the Program in Environmental Design. Since the program has a limited enrollment, all qualified students are not guaranteed admission. A college-level GPA of 2.75 or higher is required. Preference is given to students who have taken college-level courses in the areas of architecture, planning or environmental studies. Completion of courses in related fields of social science, natural science, fine arts or humanities is also considered in admission review. All course work except the last term, if in progress, must be completed and must be listed on the official transcript sent for admission consideration.

Students are encouraged to transfer as early as possible in their undergraduate career due to the large amount of design-related course work required by the environmental design curriculum. Students may declare their emphasis in architecture, landscape architecture, planning and urban design or design studies at the beginning of their sequence. However, all students share the same core, and enrollment to some upper-division opportunities can be competitive. While transfer students are admitted for the fall and spring terms each year, it is important to note that the core curriculum is a fall-semester start with only limited opportunities to begin study out of sequence. Students who start the sequence in the spring semester will be required to complete summer classes in order to stay on track in the curriculum. All transfer students are required to take a minimum of 30 semester hours in the Program in Environmental Design.

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A maximum of 60 semester hours taken at a two-year college may be applied toward the baccalaureate degree. In general, credits in vocational-technical courses are not accepted for transfer. Transfer agreements between the University of Colorado and all Colorado community colleges outline approximately one year of prescribed general education courses that may be completed as preparation for transfer into the Program in Environmental Design. As noted above, students should plan to transfer to the University of Colorado as soon as possible to start the sequential curriculum. See [Undergraduate Admission](#) under General Information in this catalog for admission standards for transfer.

Transfer students from other universities offering pre-professional or accredited professional degree programs in one of the program's emphases who enter CU-Boulder may be admitted to the degree program with advanced standing. A portfolio review will be required for these students. Please contact the ENVD Advising Office for information. In order for transfer credit to meet core degree requirements, a grade of *B* or better is required in the transferring class.

## Intrauniversity Transfer (IUT)

University of Colorado students in good standing who are interested in pursuing a design education may apply for transfer into the program. IUT meetings are held for interested students several times each semester. Students should contact the program offices for the dates of meetings and deadlines for application review for specific semesters. We highly encourage students to attend an Environmental Design Program tour, which are offered Monday-Friday at 12:30 p.m. starting in the Environmental Design building lobby. For more information, please visit the [Environmental Design Program IUT website](#).

## Credit Policies

### Advanced Placement

Advanced Placement (AP) and college-level credit may be granted on the basis of the College Board's Advanced Placement tests. For students who have taken AP course work in high school and receive scores meeting university standards in the AP examination, AP as well as college credit is granted. Granted college credit is treated as transfer credit without a grade, but counts toward graduation and meets other specific requirements for which it is appropriate.

### Incomplete Grades

The program's faculty set their own policies for grading and for granting incompletes. Special conditions may be noted on class syllabi. In all cases, students must present evidence of circumstances beyond their control that prevent them from completing the class. The student and faculty member must complete a written agreement (form available in program offices) outlining the terms of course completion and submit this agreement to the dean's office.

### Independent Study

Ordinarily, only students at the 3000- or 4000-level of studio are permitted to obtain independent study credit. Independent study credit may not be used to substitute for any required core or design studio course.

Typically, only students who have at least a 3.00 GPA are permitted to register for independent study. Additional requirements might be established depending on the proposed topic. Not more than 3 hours of independent study credit during one semester and not more than a total of 6 are given for the entire time the student is enrolled, unless an exception is granted by the director.

A complete description of the scope of the independent work, a summary of how it will be carried out, and a definition of the intended outcomes must be submitted to the supervising

faculty member no later than five days after the official beginning of a semester. Approval of the description must be by the faculty member and by program administration before permission is granted for enrollment in the independent study course. Students should make arrangements for the independent study course details during registration or well before the semester begins.

## Other Credits

Credits for teaching assistantships, research assistantships, internships and for independent study are all guided by the same standards. Credits earned as a teaching assistant, research assistant or intern are subject to a 3 credit-hour limitation. Teaching assistantships and internships are offered on a *pass/fail* basis.

## Pass/Fail Credits

A student may elect to take up to 6 semester hours toward the BEnvd degree on a *pass/fail* basis, but these credits must fall in the category of general electives and may not include course work taught within the Program in Environmental Design.

Students should confer with their academic advisor regarding specific academic standards for repeating laboratory, studio and other undergraduate courses. Credits for repeated courses are not counted toward the 120 semester hours needed for graduation.

## ROTC Credit

Students matriculating in the Program in Environmental Design are eligible to participate in the ROTC programs on the Boulder campus.

Students interested in such programs should contact the professor in charge of the ROTC program of their choice (Army, Navy, Air Force) and also their academic advisor for the program for information on residence and curriculum requirements for graduation. No more than 8 credit hours of ROTC courses may be applied to the BEnvd degree.

## Transfer Credit

Credits transferred from other institutions are limited to the number of credit hours given for similar work in regular offerings at the University of Colorado, and must meet the quality level expected at CU. The academic advisor, in conjunction with the faculty, may make exceptions to this regulation.

The program does not accept vocational/technical course work in design, graphics or construction as meeting specific course requirements of the program; nor does it consider such course work as acceptable in fulfilling the program's elective requirements. Only in exceptional circumstances may a student petition the director of the program to request a transfer of such credits.

A grade of *C-* or better is required in any course for which credit is granted in transfer from another institution to the university. In order for transfer credit to meet core degree requirements, a grade of *B* or better is required in the transferring class. Grades earned in other institutions (excluding other campuses of the University of Colorado) are not computed with the student's CU grade point average.

For more information on transfer credit policies, see Transfer of College-Level Credit in the Admissions section.

## Residence Requirement

A student must complete a minimum of 30 course credits within the Program in Environmental

Design. Students also must complete their last semester in residence as full-time students.

## Advising

Academic advising for students presently enrolled or anticipating enrollment in the program is provided in a variety of forms. High school students or prospective transfer students from other universities are encouraged to participate in Be a CU Student for a Day or other visitation programs co-sponsored by the program and the CU-Boulder Office of Admissions. Information on campus visitation programs may be obtained by contacting the Office of Admissions at **303-492-6301**, or [admissions.colorado.edu/undergraduate/visit](http://admissions.colorado.edu/undergraduate/visit).

Students already enrolled in Boulder campus programs who are interested in intrauniversity transfer (IUT) into the Program in Environmental Design should contact the office at **303-492-7711** for required group meeting times focusing on the IUT transfer process.

Students enrolled in the program receive academic advising from faculty and professional staff. Information on appointments and open office hours for advising is available at the office, ENVD 168, by calling **303-492-7711**, or on the Program in Environmental Design website.

## New Student Welcome

Incoming freshmen and transfer students are invited to attend New Student Welcome programming during the summer prior to the start of the fall semester. Visit the [New Student Welcome website](#) to learn more.

All students are required to attend an ENVD information session during New Student Welcome Week in August to receive an overview of educational opportunities and the philosophy of the program, and to meet other new students and the faculty of the program.

## Retention of Student Work

As a condition of admission, the Program in Environmental Design may retain, for a period of time, student work submitted in fulfillment of class requirements. This retained work may be used to provide outside agencies with tangible evidence of performance, to serve as additional visual aid material in presentations to other students and to contribute to possible educational exhibits and publications requested by the university community and the general public. The program does not claim any copyright and intellectual ownership of the material, but does retain rights to display student work for marketing and promotion, or for academic purposes.

Students have a responsibility to record their work for later use in their portfolios. The program has a responsibility, when it retains material, to allow students the opportunity to record their work for their portfolio.

## Computing

The Program in Environmental Design requires that all incoming undergraduate students have and use their own computers and software applications in their studies. OIT on the Boulder campus has suggested hardware and software configurations for both desktop and notebook computers on their website at [www.colorado.edu/oit/recommendations](http://www.colorado.edu/oit/recommendations). Neither the Boulder campus nor the Program in Environmental Design endorse or require students to buy a computer from a particular manufacturer. The configurations suggested by OIT establish high performance requirements that can be found in many different computers. Specialized software requirements for different classes in the Program in Environmental Design appear on the syllabi

for those classes, and that software is generally available through the bookstore at discounted student rates.

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## Environmental Design

Environmental design includes the fields of architecture, landscape architecture and urban and planning design, as well as research pertaining to these fields. The bachelor in environmental design curriculum is a design studio-based education, which requires the completion of design-based studio experiences every semester, along with a number of complementary courses, general electives and environmental-design electives. At any time students may declare an emphasis in architectural design, landscape architecture design, urban and planning design or design studies; they must declare an emphasis during their third-level studio. All graduates from the undergraduate program earn a bachelor in environmental design degree with an emphasis in **architectural design, landscape architecture design, urban and planning design or design studies**.

In the core, bachelor in environmental design students take a sequence of courses, which emphasize the knowledge, methods and practices, common to the fields of architecture, landscape architecture and urban and planning design. As the established design professions are increasingly collaborating on complex design issues related to the designed environment, the mix of core courses reflects these trends.

The program requires that students complete courses in a clear series of prerequisites, but includes flexible opportunity for general studies and elective courses. Students must meet the prerequisites of any course before enrolling in subsequent courses.

### The Design Emphases

Students may declare an emphasis at any time upon enrollment, but must declare an emphasis before enrolling in any third-level design studio. In addition, students must meet the required prerequisites for each level. Students will declare an emphasis in architectural design, landscape architectural design, urban and planning design or design studies.

The BEnvd degree and its emphases is a preprofessional program of study intended to prepare students for entry into graduate study, though many bachelor's in environmental design students find employment in careers allied to the professions without undertaking graduate study. Depending upon the particular requirements of graduate professional programs at other institutions, the BEnvd degree may lead to advanced standing, which can shorten the duration of graduate studies. After completing the BEnvd degree, a professional master's degree will be required for professional licensure in architecture or landscape architecture.

### Environmental Design Curriculum: Thematic Structure

The undergraduate Program in Environmental Design encourages interdisciplinary study and collaborative work on real-world programs. It also encourages a breadth of knowledge, including knowledge in the liberal arts and in other general studies, which prepare students to

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be critical thinkers and communicators.

The first year of the core introduces students to fundamental design ideas and practices, to the concepts of analysis and problem solving, to human factors, to ecology, to design history and theory and to the relationship between environmental design and ethics. The following three semesters challenge students with design problems at a different scales within the built environment: at the scales of urban building, landscape and design. Each of these design challenges underscores the interdependency of scales upon one another and the complex connectedness which characterizes the built environment.

The final three semesters of the curriculum offer students the opportunity to emphasize architecture, landscape architecture or planning and urban design. Students wishing to pursue academic work that crosses disciplines can pursue design studies. During the final two years of study, students may earn opportunities to engage in service learning in the community or in design-build, they may study abroad, or they may have opportunities for more individualized research.

**Course codes for this program are ARCH and ENVD.**

## Bachelor's Degree Program(s)

### Bachelor's Degree in Environmental Design

#### General Degree Requirements

Students must complete a minimum of 120 semester hours subject to the maximum outlined in this catalog, meet all specified major core requirements and maintain a GPA of 2.00 or better.

Students must complete one course from each of the following general education requirements area. Courses must be completed with a grade of C- or better.

- **Writing:** WRTG 1150 or ARSC 1150
- **Humanities:** one class from the following arts and sciences core areas: human diversity, literature and the arts or ideals and values
- **Social Science:** one class from the following arts and sciences core areas: historical context, United States context or contemporary societies
- **Math:** one class from the emphasis area: *architecture:* MATH 1150 or 1300; *planning:* MATH 2510 or SOCY 2061; *landscape architecture:* MATH 1150, 1300, 2510; or SOCY 2061
- **Natural Science:** one class from the emphasis area: *architecture:* PHYS 2010; *planning and urban design* or *landscape architecture:* CHEM 1111, EBIO 1030 and 1050 or EBIO 1210 and 1230, PHYS 2010

### Environmental Design Curriculum and Course Sequence

#### Year One

- Semester I. The first semester of the core introduces students to the broad range of issues and forces that interact to affect the shape and form of the designed environment, including human factors and land ethics.
- Semester II. The second semester introduces critical design theories and practices which can effect change at different scales and levels of complexity. Areas of study extend to ecology, as well as to the history and theory of the built environment.

#### Years Two and Three

- Semesters III to V. The three-semester sequence focuses on issues surrounding sustainability in the built environment. In studios, faculty from the disciplines of architecture, landscape and planning use an interdisciplinary approach to understanding design and the designed environment addressing complex global issues, especially emphasizing sustainability and community engagement.

### **Years Three and Four**

- Semesters VI to VIII. Students must declare an emphasis in their third year. During these semesters, students pursue more specialized study within their emphasis. Students may also have opportunities for praxis (applied practice), service learning within the community, research or study abroad. The program recognizes several certificate programs, within the program and across the campus, which can substitute for praxis and for other requirements (*see Certificates below*).

### **Required Courses and Semester Credit Hours**

#### **First Year: Core Classes**

##### ***Fall Semester***

- ENVD 1004 Introduction to Environmental Design Theory—3
- ENVD 1052 Design and Communication 1—3
- ENVD 2001 Social Factors and Design—3
- Writing requirement—3
- Humanities (*see list of options above*)—3

##### ***Spring Semester***

- ENVD 1102 Design and Communication 2—3
- ENVD 1104 Introduction to Environmental Design Methods—3
- ENVD 2003 Ecology and Design—3
- Natural science requirement (*see list of options above*) (Note 1)—3-5
- Social science (*see list of options above*)—3

#### **Second Year: Core Classes**

##### ***Fall Semester***

- ENVD 2120 Environmental Design Studio 1—6
- ENVD 3114 History and Theory of ENVD: Buildings—3
- ENVD 3115 Introduction to Building Materials and Systems—3
- Math requirement (*see list of options above*) (Note 2)—3-5

##### ***Spring Semester***

- ENVD 2130 Intermediate Design Studio 2—6
- ENVD 3003 Site Planning—3
- ENVD 3134 History and Theory of ENVD: Precincts—3
- Non-ENVD elective (Note 3)—3

## **Third Year: Core Classes**

### ***Fall Semester***

- ENVD 3100 Environmental Design Studio 3—6
- ENVD 3122 Research Issues and Methods in Planning and Design—3
- ENVD 3144 History and Theory of ENVD: Systems—3
- Non-ENVD elective—3

### ***Spring Semester***

- ENVD 3300 Selected ENVD Design Studio or Practicum or study abroad—6
- ENVD 3300 ENVD Seminar, approved certificate courses, study abroad or design studies—3
- ENVD or open electives—3
- Non-ENVD elective—3

#### *Notes:*

1. These are linked core courses that are corequisites and are designed to be taken together.
2. Students intending to enroll in the architecture emphasis are strongly encouraged to take a physics class.
3. Students intending to enroll in the architecture emphasis are strongly encouraged to take a pre-calculus math class.
4. Students intending to enroll in the architecture emphasis are strongly encouraged to take a total of 45 credits of general study.

## **Fourth Year: Architecture Emphasis**

Architecture emphasis students develop design solutions encompassing conventional design-build, digital fabrication, cultural, urban and global context, areas of structures, construction and environmental systems, and how they are integrated into built structures.

### ***Fall Semester***

- ENVD 4100 Architecture Studio 1—6
- ENVD elective or AREN 3050 Environmental Systems for Buildings 1—3
- ENVD elective or AREN 4035 Architectural Structures 1—3
- Elective—3

### ***Spring Semester***

- ENVD 4300 Architecture Studio 2—6
- ENVD elective or AREN 3060 Environmental Systems for Buildings 2—3
- ENVD elective or AREN 4045 Architectural Structures 2—3
- Elective—3

## **Fourth Year: Planning Emphasis**

Planning emphasis students will focus on problems of sustainability in urban environments and

the integration of urban design with other planning practices to address sustainability issues.

### ***Fall Semester***

- ENVD 4100 Advanced Planning Seminar—3
- ENVD 4023 Environmental Impact Assessment—3
- ENVD 3152 Geographic Information Systems (GIS)—3
- ENVD 4361 Healthy and Vital Communities—3
- Non-ENVD elective—3

### ***Spring Semester***

- ENVD 4420 Planning Capstone—3
- ENVD 4794 Planning/Urban History—3
- ENVD 4311 Housing Policies and Planning—3
- ENVD elective—3
- Non-ENVD elective—3

### **Fourth Year: Landscape Emphasis**

Landscape emphasis students develop design solutions in all scales that work in concert with natural systems and reflect both the art and science of design.

### ***Fall Semester***

- ENVD 4340 Landscape Architecture Studio 1—6
- ENVD 4100 Landscape Architectural History—3
- ENVD 4100 Landform Manipulations—3
- Elective—3

### ***Spring Semester***

- ENVD 4440 Landscape Architecture Studio 2—6
- ENVD 4100 Materials and Methods—3
- ENVD4100 Plants and Design—3
- Elective—3

### **Fourth Year: Design Studies Emphasis**

The design studies sequence provides students the opportunity to build interdisciplinary, flexible and specialized courses of study. Faculty advisor and academic advisor must approve courses.

### ***Fall Semester***

- ENVD 4100 Design Thinking—3
- ENVD elective—6-9
- Elective—3-6

### ***Spring Semester***

- ENVD 4420 Design Studies Capstone—3
- ENVD elective—6-9
- Elective—3-6

## Environmental Design Minor

A minor in environmental design provides an approach to identifying and solving complex problems within the context of the built environment. It provides a foundation in theory, history and methodology employed in fields such as architecture, planning, landscape architecture and related design disciplines. The environmental design minor has three possible tracks, one in **design**, one in **theory** and one in **planning**. These three tracks reflect the breadth of topics and methods covered in the environmental design curriculum and meet a variety of interests of students seeking the minor.

### Design Track

The design track develops students' basic skills and knowledge about designing in the built environment. It provides practice that enables students to work with professional architects and planners or to go to graduate school in the professional design fields.

#### Required

- ENVD 1052 Design and Communication 1
- ENVD 1102 Design and Communication 2
- ENVD 2120 Environmental Design Studio 1

#### History and Theory Classes: Choose two:

- ENVD 3114 History and Theory of ENVD: Buildings
- ENVD 3134 History and Theory of ENVD: Precincts
- ENVD 3144 History and Theory of ENVD: Systems

#### Studio Class Option. Choose one:

- ENVD 2130 Environmental Design Studio: Landscape Design,
- ENVD 3100 Environmental Design Studio: Urban Design
- ARCH 4010 Architectural Appreciation and Design-AREN only

### Environmental Design History and Theory Track

The theory track develops students' basic skills in design and an understanding of theories of design through history and in contemporary society. It provides a foundation for students interested in a broad range of fields, including computational design, urban and community development, resource management and technology.

#### Required

- ENVD 1004 Intro Environmental Design Theory
- ENVD 1052 Design and Communication 1
- ENVD 1102 Design and Communication 2
- ENVD 1104 Intro Environmental Design Methods

#### History and Theory Classes. Choose two:

- ENVD 3114 History and Theory of ENVD: Buildings
- ENVD 3134 History and Theory of ENVD: Precincts
- ENVD 3144 History and Theory of ENVD: Systems
- History theory elective: any one class from
- ENVD 4364 History and Historiography of ENVD
- ENVD 4764 Theory and Criticism in ENVD

## Planning Track

The planning track develops students' basic skills and knowledge about urban and environmental planning. Students gain an understanding of land use, fundamentals of successful communities and the sustainable interaction of systems. This track enables students to work with professional planners and better understand planning as it applies to their own major field. It also prepares students for graduate study in planning.

### Required

- ENVD 3144 History and Theory of ENVD: Systems
- ENVD 3300 Planning Studio Praxis or 4000-level planning studio

### Three of the following courses:

- ENVD 3300 Planning Praxis Seminar (required if taking praxis)
- ENVD 3152 Geographic Information Systems
- ENVD 4023 Environmental Impact Assessment
- ENVD 4311 Housing Policy and Planning
- ENVD 4794 History of Urban Design and Planning
- Any special topics class in ENVD 4361 Social Factors in Design or ENVD 4363 Physical Factors in ENVD

## Dual Degree Programs

### Dual Degrees

In addition to the BEnvd degree, students may pursue a dual degree at CU-Boulder. Past students have received the BEnvd degree concurrently with undergraduate degrees in business, engineering and various programs offered by the College of Arts and Sciences. Typically, specific course requirements do not change in either program of a double degree; and additional hours (varying by college) may be required. All undergraduate students must complete the general education requirements and the requirements for their specific emphasis within the Program in Environmental Design in addition to the other requirements. Students considering a double-degree program are encouraged to speak with advisors in both units to determine requirements and procedures for application.

## Certificate Program(s)

### Certificates and Minors

Students are encouraged to explore the opportunity of adding a certificate or minor to their studies. The following are a few certificates that the program supports towards its Praxis semester. Students interested in the certificate options below or in any alternative certificate or minor offered at CU, for the Praxis semester, or in addition to their primary study, should

contact their academic advisor to have a plan set in place prior to their junior year.

- INVST Community Studies ([www.colorado.edu/communitystudies](http://www.colorado.edu/communitystudies))
- Western American Studies ([www.centerwest.org/academics/certificate](http://www.centerwest.org/academics/certificate))
- Minor in Technology, Arts and Media ([tam.colorado.edu/mtam.html](http://tam.colorado.edu/mtam.html))
- Certificate in Digital Media (CDM) ([tam.colorado.edu/cdm.html](http://tam.colorado.edu/cdm.html))
- Sustainable Practices ([sustainable.colorado.edu](http://sustainable.colorado.edu))

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## Faculty: Environmental Design

| Name                | Title                                       | Education  |
|---------------------|---|--|
| ARIAS, Ernesto G.   | professor emeritus                          |  |
| BANASIAK, Meredith  | senior instructor                           | HAB, Xavier University; MArch, Arizona State University                                  |
| BELLUCCI, Justin    | instructor                                  | BEnvD, MS, University of Colorado Boulder  |
| CHAWLA, Louise      | professor emerita                           |  |
| DELANGE, Marcel     | senior instructor                           | MArch, Delft Institute of Technology   |
| DERR, Victoria      | senior instructor                           | BA, Hope College, Michigan; MES, PhD, Yale School of Forestry and Environmental Studies  |
| DRENNAN, Kimberly   | instructor                                  | BA, Trinity University, San Antonio; MArch, Rhode Island School of Design                |
| GOLDSTEIN, Bruce E. | associate professor                         | BA, Wesleyan University; MS, Yale University; PhD, University of California              |
| HOLBERT, Marianne   | instructor                                  | BFA, College of the Holy Cross; MArch, Washington University, St. Louis                  |
| JUHASZ, Joseph      | professor emeritus                          |  |
| KAHN, David         | senior instructor                           | BA, University of California, Santa Cruz; MArch, MLA, University of California, Berkeley |
| KRIZECK, Kevin      | associate professor; director, ENVD program | BSE, Northwestern University; MRP, UNC Chapel Hill; MSCE, PhD, University of Washington  |

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|                         |                              |   |
|-------------------------|------------------------------|---|
| LANTERMAN, John         | senior instructor            | BSC, Colorado State University; MLA, University of Colorado   |
| LINDSAY, Georgia        | visiting assistant professor | MS, PhD, University of California, Berkeley   |
| McCALL, Jr., Raymond    | associate professor          | BS, University of Wisconsin–Milwaukee; MS, Illinois Institute of Technology; PhD, University of California, Berkeley            |
| MULLER, Brian           | associate professor          | BA, Yale University; PhD, University of California, Berkeley  |
| PALMER, Joni            | visiting assistant professor | BS, Cornell University; MLA, Harvard University Graduate School of Design; PhD, University of Colorado, Boulder                 |
| POLIZZI, Jade           | instructor                   | BEndv, University of Colorado Boulder; MArch, University of Colorado Denver   |
| ROUDBARI, Shawhin       | assistant professor          | BS, MS, PhD, University of California, Berkeley; MS, Cornell University; California Registered Professional Engineer (PE-Civil) |
| SANCAR, Fahriye Hazer   | professor emeritus           |   |
| SCHULTE, Stacey         | instructor                   | BA, University of Colorado Boulder; MA, University of Colorado Denver; MS, University of Michigan, Ann Arbor                    |
| TAVEL, Michael          | senior instructor            | BA, BS, University of Toledo; MArch, University of California, Berkeley   |
| VAN VLIET, Willem K. T. | professor emeritus           | Doctorandus, Free University of Amsterdam; PhD, University of Toronto   |
| XU, Ping                | professor                    | BA, MArch, Tsinghua University (PRC); MLA, University of Pennsylvania; DDesign, Harvard University                              |





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## School of Law



**Philip J. Weiser, dean**

401 UCB • phone: 303-492-8047 • fax: 303-492-1757

school website: [www.colorado.edu/law](http://www.colorado.edu/law)

The University of Colorado Law School, established in 1892, has a long and proud history as a top public law school. The first students of color entered in 1898. The school became a charter member of the Association of American Law Schools organized in 1901. The first woman graduated in 1908. And, the school has been on the American Bar Association's list of accredited law schools since its first publication in 1923.

Today, Colorado Law, housed in the beautiful new "green" Wolf Law Building with one of the largest law libraries in the country, is also one of the most technologically advanced law schools in the country. Most importantly, it provides one of the best comprehensive legal educations in the nation, featuring:

- 510 students, selected from the nation's statistically best applicants with diverse backgrounds and representing 100 undergraduate institutions
- A favorable faculty-student ratio (1:10) that produces class sizes that encourage discussion
- 55 highly published resident faculty dedicated to interacting with students inside and outside the classroom
- First-year students who are placed in small sections for more class participation opportunities and to build relationships with classmates and professors
- Full-time, three-year Juris Doctor (JD) degree, one-year Master of Laws (LLM) degree, eight dual degrees, four certificates, four centers and three journals
- An Experiential Learning Program that integrates lawyering activities, including nine legal clinics, externships, public service pledge and trial and moot court competitions
- Comprehensive program to prepare students for a wide range of careers; many graduates obtain judicial clerkships

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## Law School Vision

A supportive and diverse community of scholars and students in a place that inspires vigorous pursuit of ideas, critical analysis and civic engagement in order to advance the rule of law in an open, sustainable society.

## Our Mission

- **Teaching:** To employ robust theoretical inquiry, doctrinal and policy analysis and professional skills
- **Scholarship:** To explore and discuss ideas, to develop and test new ideas and approaches, to challenge the status quo and to convey the school's research and ideas to lawyers, academics, policymakers and the world
- **Public Service:** To instill in students an awareness of a lawyer's civic responsibilities and opportunities to serve and lead

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## Academics

Colorado Law's three-year, full-time Juris Doctor (JD) degree provides a strong, well-rounded legal education with a rich mixture of theory, policy, doctrinal analysis and professional skills. Students have broad flexibility to meet their individual interests and needs.

### Areas of Academic Strength

**Environmental, Energy and Natural Resources Law.** Ranked consistently among the very best in the country, environmental and natural resources law has been a key focus of the Colorado Law curriculum for more than half a century, and is one of the strongest and deepest programs of its kind.

**Technology and Intellectual Property Law:** Colorado Law has developed one of the nation's most comprehensive legal programs oriented around information technology. Technology lawyers address interesting policy challenges and novel legal issues, and rank among the most satisfied within the legal profession. Colorado Law is the right place at the right time for those interested in exploring the frontiers of entrepreneurial law, technology policy and intellectual property.

**Entrepreneurial and Business Law:** Colorado Law provides a robust curriculum in business law, tailored for aspiring deal lawyers in Boulder, Denver and beyond. Boulder has a vibrant entrepreneurial community with many start-up and emerging companies. We place students in small law firms that serve small business and emerging companies, as well as in larger law firms who serve traditional larger corporate clients. In recent years, we have placed students in interesting and fulfilling in-house positions.

**American Indian Law:** At Colorado Law, we believe that American Indians deserve the very best lawyers and that we have an obligation to train them. Our American Indian Law Program faculty, including the nation's top scholars and practitioners in the field, offers a full slate of introductory and advanced classes in the field to prepare students for all aspects of Indian law practice, and we now have dozens of successful alumni practicing Indian law in tribal government, federal agencies and at law firms. Colorado Law graduates are equally prepared to work on impact litigation, economic development, policy advocacy, individual legal services and tribal governance in Indian law. Our American Indian Law Program also appeals to many students with broader practice interests in natural resources, public lands, property, museum and art law, technology, entrepreneurship, family law and beyond. Indeed, because American Indian law raises questions regarding the rule of law and legal pluralism, the contours of sovereignty and governance, cross-cultural representation and minority rights and interdisciplinary study and practice, it offers important intellectual development opportunities for all Colorado Law students.

**Juvenile and Family Law:** Juvenile and family law covers a broad range of practice areas, such as marriage, divorce, custody, visitation, family support, child abuse and neglect,

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delinquency, adoption, estate planning, education law and elder law. The Juvenile and Family Law Program (JFLP) provides students with opportunities to acquire specialized knowledge in this field, develop a network of, and foster collaboration between, students, academics, and practitioners and engage in interdisciplinary work in the study and practice of the field. The Program includes specialized courses, research projects, externships and clinical opportunities.

## Academic Support

From the student's first day, Colorado Law invests in her or his academic success. Through the Rothgerber Academic Assistance Program, upper-division law students tutor first-year students in their courses, except Legal Writing and Advocacy. The program is open to all first year students, and more than 50 percent of the class participates in this free opportunity.

## Legal Research and Writing

Colorado Law's Legal Research and Writing Program ensures that its graduates are proficient in legal research, analysis and writing, and capable of adapting these skills to varying contexts. All first-year Legal Writing and Appellate Court Advocacy courses are taught by resident legal writing faculty, and legal research and research strategy is guided by professional librarian instructors. Upper-division courses are designated as writing classes and students spend a seminar preparing a substantial paper requiring significant legal research and writing.

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## Experiential Learning

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Experiential education encompasses lawyering activities in which students receive experience outside the classroom—clinics, externships, appellate and trial competitions and voluntary public service work. Colorado Law’s Experiential Learning Program gives greater coherence to our entire curriculum and builds linkages with faculty involved in experiential education and those involved in traditional classroom teaching.

### Legal Clinics

Colorado Law’s Clinical Education Program started in 1948 and now serves almost 900 clients each year. Clinics are courses that provide practical learning experiences for our students, much-needed assistance to those less fortunate in our community and invaluable service to the public good. By handling actual cases, students make the transition from legal theory to legal practice, enabling them to take classroom knowledge and turn it into real-world understanding. Under the supervision of expert clinical faculty, student practitioners take primary responsibility for understanding the goals of their clients, and working to represent those clients’ interest persuasively and competently. Clinics are available to all interested students.

- American Indian Law Clinic
- Appellate Advocacy Clinic
- Civil Practice Clinic
- Criminal Defense Clinic
- Entrepreneurial Law Clinic
- Family Law Clinic
- Juvenile Law Clinic
- Natural Resources Litigation Clinic
- Technology Law and Policy Clinic

### Public Service Pledge Program

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Colorado Law is a public institution with a public spirit. The faculty and the students have a passion for and deep appreciation of a lawyer's civic responsibilities to serve the underprivileged and the community. Students who complete a voluntary pledge of at least 50 hours of law-related public service work, not for credit or other compensation, receive recognition on their transcripts. Such service provides students with valuable skills and values, such as legal research and writing, client interviewing and legal argument development. Students can perform pro bono work for any government agency engaged in legal work (administrative agencies, public defenders, district attorney offices and judiciary), nonprofits that provide legal services, public interest law firms or private firms on pro bono projects.

## Trial Advocacy and Moot Court

Appellate advocacy, mock trials and moot court competitions help to develop skills in appellate brief writing and oral argument, and gain valuable trial practice experience. Colorado Law teams have consistently been extremely competitive and participate in and host more and more competitions each year. Coaching and support come from an experienced group of faculty, fellow students, alumni who recently competed and judges and lawyers in the community. Students may earn academic credit for their participation. Examples of recent competitions are:

- Consance Baker Motley National Moot Court Competition
- Emory Civil Rights and Liberties Competition
- Hispanic National Bar Association Moot Court
- Jessup International Law Moot Court Competition
- Jim R. Carrigan Trial Advocacy Competition
- Mardi Gras National Moot Court Competition
- National Moot Court Competition
- National Moot Court Competition in Child Welfare and Adoption Law
- National Student Trial Advocacy Competition
- National Telecommunications Moot Court Competition
- The National Trial Competition
- Native American Law Students Association Moot Court Competition
- Pace National Environmental Law Moot Court Competition
- Philip C. Jessup International Law Moot Court Competition:
- The Rothgerber Moot Court Competition
- Saul Lefkowitz National Moot Court Competition

## Externships

Students may gain academic credit for performing substantive legal work with government agencies, public institutions and not-for-profit organizations. Students develop professional lawyering skills, gain insight into various aspects of the legal system and profession and cultivate a sense of professional responsibility. While uncompensated, students receive credit hours (1 credit hour per 50 hours of work) toward their degrees.

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## Career Development

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Colorado Law prepares students for a wide variety of careers. The Office of Career Development offers students and alumni individualized career counseling and professional development advice to help them identify and achieve their career goals. The office has career counselors with JDs who have many years of experience in a wide range of law practice areas. It maintains state-of-the-art career development and job search resources and helps students prepare for and pursue job opportunities during and after law school.

### Services and Programs

- **Career Counseling:** Each first-year student meets with a career counselor who helps with résumés and job search action plans.
- **Employer Outreach:** Counselors conduct extensive employer outreach in- and out-of-state.
- **Career Fairs/Symposia:** The office organizes employer networking opportunities on and off campus.
- **On-Campus Interviews:** Each year, nearly 70 employers come on campus to interview students for summer clerkships, internships and associate attorney positions with law firms and government agencies.
- **Résumé Collections:** Résumés from interested students are sent to in- and out-of-state employers.
- **Brown Bag Speaker Series:** Practicing attorneys from the local and national legal community are regularly invited to speak to students during weekly lunch-hour informational sessions about what it's like to work in a variety of legal areas.
- **Job Postings:** Through a secure web-based system, students and alumni can review current job listings and an online resources library.
- **Mock Interviews:** Counselors set up appointments with students for practice interviews with the counselors or with volunteer attorneys. Students receive tips and feedback to help them improve.
- **Referrals:** Counselors help students connect with alumni and other legal professionals as resources for information about a field or practice area of law in Colorado or any other part of the country or world.

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Mentoring and Community Involvement: The office regularly helps students get involved in the legal community by referring them to mentor programs (including the Student Alumni Mentoring Program), bar associations, Inns of Court and other law-related organizations.

## Job Opportunities

Colorado Law helps students pursue numerous job opportunities and helps connect them to valuable part-time and permanent legal positions, including:

- Externships are for students working unpaid in the legal community for academic credit, under the supervision of a field and faculty supervisor.
- Honors programs are prestigious programs for students and graduates to work within federal government agencies.
- Judicial clerkships are prestigious paid positions for new graduates working for judges in federal, state and appellate trial courts.
- Summer law clerks are paid part-time or full-time for first- or second-year students in law firms and other organizations.
- Fellowships provide funding for law students and graduates to work with public service organizations or academic programs.

## Employment during Law School

The study of law is demanding and requires the highest level of concentration. Most students devote 50–70 hours a week to class time and study. Students may be employed for no more than 20 hours per week when enrolled in more than 12 credit hours, in accordance with ABA Rule 304(f).

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## Research Centers

Colorado Law's centers have earned national prominence for their research, publications and leading conferences that debate legal and policy issues, foster practical solutions and innovative ideas, facilitate networking and produce scholarship. Students are an integral part of the centers. Students may work as volunteers, externs or research assistants on research projects, reports, newsletters and events. In addition, students will have unique access to national and local policymakers, researchers, scientists, entrepreneurs and legal practitioners in many areas of the law.

### Byron R. White Center for the Study of American Constitutional Law

Named in honor of the retired Supreme Court Justice and CU alumnus, the center was founded in 1990 to enhance the study and teaching of Constitutional law and simulate public debate and understanding of our Constitutional system. Each year, the center gathers politicians, academics and practitioners for the Ira C. Rothgerber, Jr. Conference. Recent topics have included home rule, reapportioning Colorado, state initiatives, academic freedom and conscience and the free exercise of religion.

### Getches-Wilkinson Center for Natural Resources, Energy and the Environment

The Getches-Wilkinson Center for Natural Resources, Energy and the Environment is dedicated to serving the people of the American West, the nation and the world through creative, interdisciplinary research, bold, inclusive teaching and innovative problem solving in order to further true sustainability for our lands, waters and environment. Formerly known as the Natural Resources Law Center, the Getches-Wilkinson Center is building on the successful legacies not only of the NRLC, but also of other existing programs in natural resources, energy and the environment at Colorado Law.

The Getches-Wilkinson Center regularly hosts an array of conferences and distinguished speakers, including the Annual Martz Summer Conference, the Energy Innovation Speaker Series and various seminars for practitioners and the interested public. Students are invited to join these events and visit some of the center's ongoing projects, such as the longstanding work to improve western water management, to develop and deploy best management practices for oil and gas production and to develop practical strategies and solutions to provide appropriate sustainable energy technologies.

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## Entrepreneurship

The center is nationally recognized as a telecommunications law powerhouse. It hosts leading technology policy conferences with legal, technical, regulatory and business experts to elevate the debate around technology policy issues, facilitate networking and develop “human capital” in the Colorado technology community. Students assist on major research projects including the Software Regulation Clearing House and help organize 15–20 events a year on topics such as digital broadband migration, entrepreneurial law and startups, new technology, business plan competition, private equity, software patents and regulatory law and economics.

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## Wolf Law Building

The five-story Wolf Law Building was completed in 2006 and was only possible through the financing of alumni, friends, law firms and 61 percent by students.

- Top “green” certification, from construction to operation, including 88 percent renewable energy and electricity, 40 percent water use reduction and 59 percent regionally manufactured materials
- Technologically advanced wireless networking, video conferencing, videotaping capabilities for distance learning and digital kiosks
- All classrooms have electrical outlets for each student and complete audio-visual equipment (LCD projectors, DVD, VHS, cable) with built-in touch-screen control systems
- Student commons with café and patio, study and interview rooms, individual lockers and mailboxes, law bookstore and courtyard with barbecue
- Suites and offices for centers, clinics, student organizations, journals and all faculty offices
- 250-seat main courtroom with judge’s chambers, 30-seat teaching courtroom with jury box and witness stand and a mock trial practice room for competition and clinic training

The three-story William A. Wise Law Library is housed in the Wolf Law Building.

- Most comprehensive law library in the 12-state Rocky Mountain region, one of the largest in the country, serving as a selective federal government depository
- 40 instructional student lab computers, five group study rooms, 445 seats, distributed computing stations
- 25,000 visitors served per year
- 720,000 volumes and microform equivalents

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## JD Admissions & Financial Aid

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### Admission Standards

Above all, Colorado Law values leadership, character, diversity and commitment to service in its students. The small size of the Law School—about 170 in each entering class—and the large number of applicants require a very selective admissions process. Admissions decisions are based on many factors, including undergraduate grade point average (GPA) and the Law School Admissions Test (LSAT) score, and take into account other indicators of ability, motivation and achievement as well. In the faculty's judgment, a diverse student body improves the educational experience of all students.

### Application Process

Regular admission applications with all required materials should be submitted starting October 1 and no later than March 15. Find complete application instructions at [www.lsac.org](http://www.lsac.org) and on the Colorado Law website. The Admissions Committee considers regular decision applications beginning in December. Applicants are notified by letter of decisions from mid-January until the class is filled in May. Admission from the waitlist, which is not ranked, can occur as late as July and the number of offers varies from year to year.

### International Students

International applicants have additional requirements as explained on the school's website, including transcripts showing completion of the equivalent of an American bachelor's degree, foreign degree verification and transcript translation, if applicable. The TOEFL is required of all students whose native language is not English, as a thorough and excellent command of written and spoken English is crucial to success in law school. After admissions, international students must submit a financial affidavit stating that they have the financial resources to support themselves while attending school in the United States, since the Colorado Law cannot offer loan assistance to international students.

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## Transfer Students

Students who have completed at least one full year of study (approximately 30 semester credits) at a law school accredited by the American Bar Association may apply for fall transfer admission to Colorado Law. Applications for fall enrollment are accepted after May 1 and must be received by July 1. The number of transfer students admitted varies each year, and only those who have done very well in their law studies elsewhere have a substantial chance of admission.

## Visiting Students

Colorado Law admits some students who are receiving their law degree from another law school to study here for the fall or spring semester or both. Admission as a visiting student is available to applicants who have completed one or two years of high-quality work at another law school and have demonstrated a compelling need to attend Colorado Law. Financial aid for visiting students is usually handled by a consortium agreement between Colorado Law and the degree-granting institution.

## Financial Aid

All admission decisions are made without regard to students' financial need. Every attempt is made to provide full financial assistance through federal and private educational loans, grants, work-study and scholarships. Students applying for financial aid, private law scholarships or grants based on financial need must complete the Free Application for Federal Student Aid (FAFSA, [www.fafsa.ed.gov](http://www.fafsa.ed.gov)) and submit it to the processor as soon as possible after January 1. The priority FAFSA filing deadline is April 1. Eligible students are awarded Federal Direct Stafford/Ford Loans up to a maximum of \$20,500 per year. Graduate PLUS loans are available to students when financial need exceeds Stafford loan limits. Graduate PLUS loans are federally guaranteed, but unlike Stafford loans, they have good credit requirements for borrowers. Private alternative law loan programs have interest rates and fees that vary according to the lender, the credit rating of the student and whether there is a co-signer. Both loan fees and interest rates may be higher than those of the Stafford Direct loans and there is no cap on interest rates.

## Scholarships, Fellowships and Awards

A number of scholarships, fellowships and awards are given annually on a competitive basis for academic and financial considerations. All admitted first-year students are considered for scholarships, as recipients are selected by the Admissions and Financial Aid Committee after an offer of admission has been made. It is possible for scholarships to be awarded through August. Colorado Law also offers some scholarship money to second-year and third-year students each spring. These scholarships are awarded based on academic performance and other criteria, such as economic need and demonstration of assistance in advancing the diversity of the student body.

## Family Educational Rights and Privacy Act

The Family Educational Rights and Privacy Act (FERPA) affords certain rights with respect to a student's education records. Copies of the policy are available in the Wise Law Library and the Rules of the Law School on the website.

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## Student Life

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Students who choose the University of Colorado Law School generally seek the very best all-around legal education combined with a great location, a supportive community, top specialties, interdisciplinary study, dedicated faculty, a public service tradition and so much more. Colorado Law is distinguished by the extraordinary quality of its students. As a competitively selective school, its students rank in the top tier, represent a rich blend of geographic and ethnic backgrounds and bring experiences of leadership, career achievement and community service. Although competitiveness among students with such elite qualifications is typical at many law schools, CU Law students have a proud history of putting collegiality first.

### Commitment to Diversity

Colorado Law is proud to have been one of the earliest law schools in the nation to graduate lawyers of color. The first students of color entered the University of Colorado Law School in 1898 and the first woman graduated in 1908. Colorado Law's commitment to diversity is evident throughout the Law School. We seek students with not only the academic credentials to excel in a rigorous legal education program, but also a desire to join a diverse community of future lawyers committed to the service of others. Student organizations offer support and networking opportunities.

### Journals

Colorado Law is home to three nationally respected student-led law journals. These journals provide legal research, writing, editorial and publishing experience to competitively chosen second- and third-year law students, with a select number of third-year students serving as prestigious Editorial Board members. Subscribers include government agencies, judicial courts, law school and government libraries, judges, attorneys, faculty and alumni.

- *University of Colorado Law Review* (founded in 1928)
- *Colorado Natural Resources, Energy and Environmental Law Review*
- *Journal on Telecommunications & High Technology Law*

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Colorado Law's student organizations reflect the diverse interests and concerns of its active student body. Students increase their knowledge in specific areas, gain leadership experience and work closely with fellow students, faculty, alumni and legal professionals with similar passions. The Student Bar Association serves as the school's student government, represents the interests of law students generally, allocates funding to other organizations and administers the school's honor code with the Honor Council.

- Aerospace Law and Policy Association
- American Bar Association, Law Student Division
- American Civil Liberties Union
- American Constitution Society
- Asian Pacific American Law Students Association
- Black Law Students Association
- Business Law Association
- Christian Legal Society
- Colorado Election Law Project
- Construction and Real Estate Law Association
- Diversity Awareness Now
- Doman Society of International Law
- Environmental Law Society
- Federalist Society for Law and Public Policy Studies
- J. Reuben Clark Law Society
- Jewish Law Students Association
- Juvenile and Family Law Club
- Latino Law Students Association
- Law Students for Reproductive Justice
- Legal Alternative Dispute Resolution Club
- National Lawyers Guild
- Native American Law Students Association
- OUTlaw
- Phi Delta Pi
- Public Interest Students Association
- Republican Law Society
- Sports and Entertainment Law Student Association
- Student Animal Legal Defense Fund
- Student Bar Association
- Student Trial Lawyers Association
- Technology and Intellectual Property Society
- Women's Law Caucus

## Honor System

Members of the legal profession are held to the highest standards of ethical and professional conduct, and Law School faculty and students are expected to maintain the same level of professional competence and integrity in their work. The Colorado Law School Honor Code, subscribed to by all students, is a system of rules administered by student officers and demands the highest ethical conduct. Law students have considerable individual freedom and responsibilities, such as being able to take unproctored exams.

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## Law

The course code for this school is LAWS.

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## Master of Laws (LLM) Degree

Colorado Law offers one-year, full-time LLM degrees in three specialty areas:

- Entrepreneurial Law
- Information Technology and Intellectual Property Law
- Natural Resources Law

## Juris Doctor of Laws (JD) Degree

### First Year

First-year courses lay the foundation and all JD candidates take these courses to learn to “think like a lawyer.” Common law courses taught in the Socratic Method allow students to develop legal reasoning and critical thinking skills. All first-year students are assigned to a small cohort to help build strong relationships and study groups with classmates.

#### **Fall Semester**

- **Civil Procedure:** Rules governing pleading, joinder of parties, discovery, jurisdiction of courts, right to jury trial, appeals and res judicata and collateral estoppel, with emphasis on the Federal and State Rules of Civil Procedure
- **Contracts:** Contract liability, offer and acceptance, consideration, frauds statute, contract remedies, the parol evidence rule, contract performance, conditions, changed circumstances
- **Legal Writing:** Legal analysis and document preparation, objective legal analysis techniques, legal rule synthesis, authority use to explain rules and rule application to case facts
- **Legislation and Regulation:** Statutory interpretation, architecture of the administrative state and interpretation and review of regulation.
- **Torts:** Nonconsensual allocation of losses for civil wrongs, focusing on negligence and strict liability

#### **Spring Semester**

- **Legal Writing II:** Appellate brief and document preparation, oral arguments before a three-judge mock court, techniques of persuading a court to accept a client’s view of the law and

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facts, professional judgments within ethical boundaries and lawyer credibility

- **Constitutional Law:** Constitutional structure, including judicial review, federalism, separation of powers and constitutional rights of due process and equal protection
- **Criminal Law:** Statutory and common law of crimes and defenses, the procedures by which the law makes judgments as to criminality of conduct, constitutional limits
- **Property:** Personal property, estates and interests in land, landlord–tenant, basic land conveyancing and private land use controls
- **Academic Support**

## Second and Third Years

The elective program in the second and third years builds upon the foundation laid in the first-year curriculum. Students must take Evidence and Legal Ethics and Professionalism courses and a seminar course. Colorado Law encourages a balance between experiential learning and classroom studies, graded courses and non-graded courses and study within and outside the law school.

### Elective Courses

#### ***Business***

- Accounting Issues for Lawyers
- Advanced Contracts: Commercial Transactions
- Agency, Partnership and the LLC
- Antitrust
- Auditing, Compliance and Management
- Bankruptcy
- Business Planning
- Business Transactions
- Corporate Finance
- Corporations
- Creditors' Remedies and Debtors' Protection
- Deals
- Deals Lab: Advanced Securities
- Deals Lab: Advanced Venture Capital
- Law Practice Management
- Mergers, Acquisitions and Reorganizations
- Payment Systems
- Secured Transactions
- Securities Regulation
- Venture Capital and Private Equity

#### ***Criminal***

- Capital Punishment in America
- Criminal Procedure: Investigative Phase

- Criminal Procedure: Adjudicative Process
- Post Conviction Criminal Procedure
- White Collar Crime

### ***Family, Gender and Health***

- Domestic Violence
- Family Law
- Gender, Law, and Public Policy
- Health Law I: Finance, Administration and Organization of Health Care
- Health Law II: Medical Malpractice Litigation
- Juvenile Justice
- Parent, Child and State
- Sexuality and the Law

### ***Government and Public Interest***

- Administrative Law
- Education Law
- Election Law
- Employment Discrimination
- Employment Law
- Federal Courts
- First Amendment
- Labor Law
- Legislation
- Local Government
- Race and American Law

### ***Intellectual Property, Technology and Telecommunications***

- Computer Crimes
- Copyright
- Introduction to Intellectual Property Law
- IP Counseling
- IP and Technology Contracting
- Patent Law
- Patent Litigation
- Privacy and Security in the Digital Age
- Telecommunications Law and Policy
- Trademark and Unfair Competition

### ***International***

- Conflict of Laws
- Law and Development
- Immigration and Citizenship Law
- International Business Transactions
- International Dispute Resolution
- International Environmental Law
- International Human Rights
- International Law
- International Legal Order: History and Foundations
- International Trade Law
- Refugee and Asylum Law

### ***Jurisprudence and Perspective***

- Class and Law
- Critical Theory Colloquium
- Economic Analysis of Law
- Gender and Law
- Jurisprudence
- Philosophy of Law

### ***Litigation***

- Advanced Appellate Advocacy
- Advanced Evidence
- Complex Civil Litigation
- Evidence
- Federal Litigation: Everything but the Trial
- Litigation Drafting
- Motions Advocacy
- Trial Advocacy

### ***Natural Resources, Energy and Environmental Law***

- American Indian Law I
- American Indian Law II
- Climate Change Law and Policy
- Energy Insecurity and Sustainable Law
- Energy Law and Regulation
- Environmental Law
- Foundations of Natural Resources Law and Policy
- Jurisdiction in Indian Country

## Mining and Energy Law

- Oil and Gas
- Public Land Law
- Toxic and Hazardous Waste
- Water Law
- Wildlife and the Law

## ***Practice—Clinical***

- American Indian Law Clinic
- Appellate Advocacy Clinic
- Civil Practice Clinic
- Criminal Defense Clinic
- Entrepreneurial Law Clinic
- Extern Program
- Family Law Clinic
- Juvenile Law Clinic
- Natural Resources Litigation Clinic
- Technology Law and Policy Clinic

## ***Practice—Simulation***

- Advanced Trial Advocacy
- Alternative Dispute Resolution
- Appellate Advocacy Competition
- Arbitration
- Legal Negotiation
- Mediation
- Motions Advocacy
- Trial Advocacy
- Trial Competition

## ***Property***

- Advanced Real Estate Transactions
- Construction Law
- Estate Planning
- Land Use Planning
- Real Estate Planning
- Real Estate Transactions
- Wills and Trusts

## ***Research and Writing***

- Advanced Legal Research
- Advanced Legal Writing
- Independent Legal Research: *Journal of International Environmental Law and Policy*
- Independent Legal Research: *Journal on Telecommunications & High Technology Law*
- Independent Legal Research: Law Review
- Judicial Opinion Writing

### **Taxation**

- Corporate Taxation
- Estate Planning
- Federal Estate and Gift Tax
- Federal Tax Politics
- Income Taxation
- Partnership Tax
- Tax Policy
- Taxation of Conduit Entities

### **Seminars**

- Advanced American Indian Law
- Advanced Criminal Procedure
- Advanced Natural Resources Law
- Antidiscrimination and First Amendment
- Class and Law
- Comparative Constitutional Law
- Computers and the Law
- Constitutional Theory
- Consumer Empowerment
- Counseling Families in Business
- Gender Law
- Information Privacy
- Jurisprudence
- Law and Economics of Utility Regulation
- Law and Literature
- Media, Popular Culture and Law
- Oil and International Relations
- Power, Ethics and Professionalism
- Securities Litigation and Enforcement
- Separation of Powers
- Tax Policy

- Theory of Punishment

*Note: Not all courses are offered each semester. This is a composite list of the last three years of course offerings.*

## Dual Degree Programs

### Dual Degree Programs in Law

Colorado Law students take advantage of an array of rich opportunities for interdisciplinary study through other CU schools and colleges, in addition to the University of Alberta. The schools work in cooperation to select courses for the programs that allow students to earn the dual degrees in less time than it takes to earn each degree separately. Students apply separately to and are admitted by the two schools under their respective admissions requirements. Only credits earned after law school enrollment count toward the JD degree, and the first year of the JD curriculum must be taken exclusively at Colorado Law.

- **Juris Doctor/Master of Business Administration (JD/MBA)** with CU-Boulder's Leeds School of Business
- **Juris Doctor/Master in Environmental Studies (JD/ENVS)** with CU-Boulder's Environmental Studies Program
- **Juris Doctor/Doctorate in Environmental Studies (JD/PhD)** with CU-Boulder's Environmental Studies Program
- **Juris Doctor/Doctor of Medicine (JD/MD)** with UC Denver's School of Medicine on the Anschutz Medical Campus in Aurora
- **Juris Doctor/Master of Public Administration (JD/MPA)** with UC Denver's School of Public Affairs
- **Juris Doctor/Master of Science, Telecommunications (JD/MST)** with CU-Boulder's Interdisciplinary Telecommunications Program
- **Juris Doctor/Master of Urban and Regional Planning (JD/MURP)** with CU-Boulder's College of Architecture and Planning
- **Juris Doctor/Bachelor of Laws (JD/LLB)** with the University of Alberta Faculty of Law, Canada

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| Name                 | Title   | Education  |
|----------------------|---|--|
| AARONSON, Norman F.  | clinical professor emeritus                         |  |
| BERNTHAL, J. Brad    | associate professor                                 | BA, University of Kansas; JD, University of Colorado   |
| BLOOM, Frederic      | associate professor                                 | BA, Washington University in St. Louis; JD, Stanford University  |
| BOYD, William        | associate professor                                 | BA, University of North Carolina; MA, PhD, University of California, Berkeley; JD, Stanford University |
| BRISCOE, Georgia     | library associate; head of technical services;      | BS, Washington State University; MA, University of San Diego; AMLS, University of Michigan             |
| BRUFF, Harold        | Charles I. Thomson Professor of Law                 | BA, Williams College; JD, Harvard University   |
| BRUNET MARKS, Alexia | associate professor                                 | BA, Colgate University; MS, PhD, Purdue University; JD, Northwestern University                        |
| CALHOUN, Emily       | professor   | BA, MA, Texas Tech University; JD, University of Texas   |
| CAMPOS, Paul F.      | professor   | AB, MA, JD, University of Michigan   |
| CANTRELL, Deborah    | director of clinical education; associate professor | BA, Smith College; MA, University of California, Los Angeles; JD, University of Southern California    |

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|-------------------------|---|---|
| CARPENTER, Kristen A.   | associate professor   | BA, Dartmouth College; JD, Harvard University   |
| CHAPIN, Violeta         | associate clinical professor  | BA, Columbia University; JD, New York University  |
| CHENG, Ming             | associate professor   | AB, Harvard University; JD, New York University School of Law; PhD, University of California, Berkeley    |
| COLLINS, Richard B.     | professor   | BA, Yale University; LLB, Harvard University  |
| DESAUTELS-STEIN, Justin | associate professor   | BA, JD, University of North Carolina; LLM, Harvard University; MALD, Tufts University The Fletcher School |
| ENGLAND, Ann            | associate clinical professor  | BA, JD, University of Michigan  |
| FURMAN, H. Patrick      | clinical professor emeritus   |   |
| GAZUR, Wayne M.         | associate dean for faculty development; professor   | BS, University of Wyoming; JD, University of Colorado; LLM, University of Denver                          |
| GERDING, Erik           | associate professor   | AB, Duke University; JD, Harvard Law School   |
| GRUBER, Aya             | professor   | BA, University of California, Berkeley; JD, Harvard University  |
| GURUSWAM, Lakshman      | Nicholas Doman Professor of International Environmental Law                                   | LLB, Sri Lanka; PhD (Law), University of Durham, United Kingdom   |
| HART, Melissa           | director of the Byron R. White Center for the Study of American Constitutional Law; professor | BA, Harvard-Radcliffe; JD, Harvard University   |
| HENDRICKS, Jennifer     | associate professor   | BA, Swarthmore College; JD, Harvard University  |
| HUANG, Peter            | DeMuth Chair; professor   | AB, Princeton University; SM and PhD, Harvard University; JD, University of Pennsylvania                  |
| KIERNAN-                | director of the legal writing   | AB, Princeton University; JD,   |

|                         |   |   |
|-------------------------|---|---|
| JOHNSON, Derek H.       | program; legal writing professor                                | University of Michigan  |
| KRAKOFF, Sarah A.       | Schaden Chair for Experiential Learning; professor              | BA, Yale University; JD, University of California, Berkeley   |
| LINZ, Robert            | library associate director; head of Public Services; instructor | BA, Wake Forest University; JD, University of Florida; MLIS, Florida State University                             |
| LOEWENSTEIN, Mark J.    | Monfort Professor of Commercial Law                             | AB, JD, University of Illinois  |
| MACK, Natalie           | legal writing professor   | BA, University of South Carolina; JD, University of Colorado  |
| MATTHEW, Dayna          | professor   | AB, Harvard-Radcliffe; JD, University of Virginia   |
| MOSS, Scott             | associate professor   | BA/MA, Stanford University; JD, Harvard University  |
| MUELLER, Christopher B. | Henry S. Lindsley Professor of Procedure and Advocacy           | AB, Haverford College; JD, University of California, Berkeley   |
| NAGEL, Robert F.        | Ira C. Rothgerber Jr. Chair in Constitutional Law               | BA, Swarthmore College; JD, Yale University   |
| NEVELOW MART, Susan     | law library director, associate professor                       | BA, University of California, Santa Cruz; JD, University of California, Berkeley; ML.S, San Jose State University |
| NORTON, Helen           | associate professor; associate dean for academic affairs        | BA, Stanford University; JD, University of California, Berkeley   |
| OHM, Paul               | associate professor   | BS, BA, Yale University; JD, University of California, Los Angeles  |
| PEPPET, Scott R.        | professor   | BA, Cornell University; JD, Harvard University  |
| RAMSEY, Carolyn         | professor   | BA, University of California, Irvine; AM, JD, Stanford University   |
| ROBINSON, Colene        | associate clinical professor                                    | BA, Miami University of Ohio; JD, Loyola University, Chicago  |

|                           |  |   |
|---------------------------|--|---|
| SCHLAG, Pierre            | Byron R. White Professor of Constitutional Law                   | BA, Yale University; JD, University of California, Los Angeles                          |
| SCHMITZ, Amy J.           | professor  | BA, Drake University; JD, University of Minnesota                                       |
| SCHWARTZ, Andrew          | associate professor  | ScB, Brown University; JD, Columbia University  |
| SELDEN, Karen             | catalog librarian; instructor                                    | BS, Pennsylvania State University; MLS, Simmons College                                 |
| SOULES, Michael           | associate clinical professor                                     | BA, University of Michigan; MA, University of California, Berkeley; JD, Yale Law School |
| SPAIN, Anna               | associate professor  | BA, Denison University; JD, Harvard University  |
| SQUILLACE, Mark           | professor  | BS, Michigan State University; JD, University of Utah                                   |
| STAFFORD, Gabrielle Marks | legal writing professor  | BA, University of Pennsylvania; JD, Boston University                                   |
| STAFFORD, Todd M.         | legal writing professor  | BA, Southern Methodist University; JD, Duke University                                  |
| SURDEN, Harry             | associate professor  | BA, Cornell University; JD, Stanford University   |
| THOMPSON, Jane            | library assistant director for faculty services, instructor      | BA, University of Missouri, Columbia; MA, MLL, JD, University of Denver                 |
| WEISER, Phillip J.        | dean; director of the Silicon Flatirons Center; professor        | BA, Swarthmore College; JD, New York University   |
| WESSON, Marianne C.       | Wolf-Nichol Fellow; President's Teaching Scholar; professor      | AB, Vassar College; JD, University of Texas   |
| WHITE, Ahmed              | associate dean for research; professor                           | BA, Southern University; JD, Yale University  |
| WILKINSON, Charles        | Moses Lasky Professor of Law; distinguished university professor | BA, Denison University; LLB, Stanford University  |

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## Media, Communication and Information



### **Lori Bergen, Founding Dean**

478 UCB • phone: 303-492-5007 • fax: 303-492-0969

website: [www.colorado.edu/cmci](http://www.colorado.edu/cmci)

The College of Media, Communication and Information (CMCI) prepares students for careers as engaged and effective citizens endowed with deep understanding of the historical and contemporary context of human communication and expression. Mindful of the active role communication plays in shaping human relationships, CMCI trains graduates to study and practice constructive interaction among people, communities, industries and publics. The college equips students with the skills needed to produce, gather, archive, curate, analyze and evaluate the flood of information, messages, images, sounds and ideas that populate our complex and rapidly evolving global media landscape.

To these ends, CMCI resourcefully combines disciplines newly extended and empowered by digital media and the social and cultural transformations those media engender. These include established scholarly, creative and professional fields such as media studies, communication, the history and interpretation of film and television, journalism, advertising and video production in its cinematic, documentary and broadcast forms. But the college also houses both the fast-growing field of information science—a discipline that, through inquiry and innovation, tackles the problems and opportunities facing an increasingly networked society—and the emergent disciplines of intermedia art, design, music, writing and performance.

In giving these activities a collaborative home, CMCI facilitates innovative interactions among them. Its academic structure accordingly stimulates cross-disciplinary cooperation at all levels of curriculum, research and creative work. Further, CMCI promotes the transformational exchanges it nurtures within its own walls for campus-wide benefit. Its organization thus fosters outreach to—and student and faculty participation from—other schools, colleges, centers and facilities throughout CU Boulder and the wider Colorado community.

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## Overview of the CMCI Program

### On This Page:

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CMCI's collaborative character is even more visible at the graduate level and in terms of its faculty's scholarly and creative work. Examples include the doctoral program in Information Science, the masters in Critical Media Practices, the doctoral program in Intermedia Art, Writing and Performance and the doctoral program in Media Research and Practice, which offers three PhD tracks, each lodged in a different yet related department. CMCI's signature spirit of collaboration is further reflected in the various centers the college contains: the Center for Environmental Journalism (CEJ); the Center for Media, Religion and Culture (CMRC); and the Center for the Study of Conflict, Collaboration and Creative Governance (3CG). It is also reflected in the close relations the new college hopes to entertain with centers elsewhere on campus—for example, with the Center for Humanities and the Arts (CHA); the Center for Media, Arts and Performance (CMAP); and the Stan Brakhage Center.

### Statement of Core Skills, Competencies and Scholarly and Creative Initiatives

Given its mission, CMCI attracts students, faculty and industry and creative professionals from across the closely related fields of media, communication and information. All of those either rostered in or affiliated with the new college accordingly share a set of skills, competencies and scholarly and creative interests that form a common core. This core is expressed at all levels of the college, from undergraduate curriculum and graduate training to the research and creative work of its faculty and both internal and external affiliates.

### The Undergraduate Experience

Thus all undergraduates enrolled in CMCI take as part of their experience a Core Curriculum designed to provide the broad intellectual framework common to each of the individual disciplines in which students eventually major. In addition to conveying the conceptual tools and perspectives all students in the college need, the Core Curriculum supplies the shared body of knowledge, exemplars and ideas required to build a coherent intellectual and creative community. Distinctive features of CMCI's Core Curriculum are therefore its economy and simplicity, aiming thereby to instill a common sense of focus and purpose in its students.

Undergraduates enrolled in CMCI also acquire the technical and computational skills needed to thrive in today's networked media environment. While training in these skills will form part of

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students' shared experience, instruction is nonetheless integrated in each student's chosen field of emphasis as part of the set of requirements needed to complete any given major. In keeping with the culture of collaboration the new college fosters, the courses that enable students to meet these shared technical and computational requirements come from a variety of sources—for instance, as CMCI courses offered by faculty in one of the college's own academic units, or as courses taught within the framework of the Technology, Arts and Media (TAM) program in the College of Engineering and Applied Science. So while contributing to each student's core experience, these courses form part of rather than an addition to their chosen majors, ensuring efficient progress toward the degree.

What is true of the core experience of CMCI's undergraduates is equally true of their more advanced and specialized work. Each academic unit, of whatever kind, has a curriculum of its own, expressed as a set of requirements determined by its faculty and fulfilled by the courses that faculty design. However, precisely because the faculty of the college's various departments, centers and programs share many interests and forms of expertise, courses offered by one unit may fulfill requirements in another. In addition, then, to making it possible to economize instructional effort by creating potential efficiencies through overlapping lower-level (1000–2000) and upper-level (3000–4000) undergraduate requirements, faculty's common scholarly and creative interests introduce a growing degree of interdisciplinary collaboration as students advance toward their degrees. Thanks to these efficiencies the college enjoys greater flexibility in encouraging team teaching both within and across departments and programs. CMCI thus exploits its inherent interdisciplinarity in such a way as to deepen students' interdisciplinary experience still more.

## The Graduate Experience and Faculty Research and Creative Work

CMCI's collaborative character is even more visible at the graduate level and in terms of its faculty's scholarly and creative work. A prime example is the Doctoral Program in Media Research and Practice, which offers three PhD tracks, each lodged in a different yet related department: the first in Strategic Communication, taught by the Department of Advertising, Public Relations and Media Design; the second in Journalism Studies, taught by the Department of Journalism; and the third in the Department of Media Studies. In addition to creating efficiencies by combining resources, the program underscores the shared technical and intellectual as well as logistical needs of the three units involved, turning streamlined administration into scholarly and creative synergy. CMCI's signature spirit of collaboration is further reflected in the various centers the college contains: the Center for Environmental Journalism (CEJ); the Center for Media, Religion and Culture (CMRC); and the Center for the Study of Conflict, Collaboration and Creative Governance (3CG). It is also reflected in the close relations the new college hopes to entertain with centers elsewhere on campus—for example, with the Center for Humanities and the Arts (CHA); the Center for Media, Arts and Performance (CMAP); and the Stan Brakhage Center.

Journalists learn from information scholars about the nature and uses of big data while sharing with them their skills in narrative and communication. Members of the communication faculty deepen colleagues' insights into the underlying forms and principles of organizational, interpersonal and public conversation that structure the worlds in which advertising and strategic communication operate while gaining access from colleagues in these areas to problems and case studies they might have overlooked. Meanwhile, faculty in media studies benefit from direct exposure to the technologies and creative processes explored by media production faculty, offering in return a deeper historical, social and theoretical insight into the way media shape, even as they are shaped by, the wider society they serve. Centers like CMRC, CEJ and 3CG already harness CU's exceptional multidisciplinary resources in everything from cultural studies to environmental science and from journalism to media design in focused collaborative initiatives of all sorts. By bringing practitioners in all of these areas

together with artists and researchers in information science, media production and intermedia art, writing and performance, CMCI provides the environment for many more such common enterprises in the future.

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## Academic Excellence

### Dean's List

Students in the College of Media, Communication and Information who have completed at least 12 credit hours of CU-Boulder course work for a letter grade in any single semester with a term grade point average of 3.75 or better are included on the dean's list and receive a notation on their transcript and a letter from the dean.

### Graduation with Honors

CMCI students may graduate with general honors and/or CMCI distinction or departmental honors. Students interested in general honors must consult the Honors Program office, [www.colorado.edu/honors/](http://www.colorado.edu/honors/). CMCI students may also graduate with departmental honors. Students interested in departmental honors should consult their departmental web site for specific requirements and honors designations.

### Graduation with Distinction

Students will graduate with "CMCI Distinction" if they have at least 60 credit hours completed at the University of Colorado Boulder and have a grade point average of 3.75 or higher for all course work completed at the University of Colorado.

### Program Awards and Scholarships

Alumni and friends of CMCI have made it possible to provide more than three dozen annual scholarships and awards to officially admitted students in the College's specific majors. The deadline for application is February 20.

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# Academic Standards

## Good Academic Standing

Good academic standing in the college requires a cumulative grade point average of 2.00 or above in University of Colorado work and a 2.00 grade point average for all CMCI coursework. Grades earned at another institution are not used in calculating the grade point average at the University of Colorado. However, grades earned in another school or college within the University of Colorado system are used in determining a student's scholastic standing and progress toward the degree.

## Probation

Students whose cumulative grade point average falls below 2.00 overall or 2.00 in CMCI coursework are placed on probation. Those students who enroll in any term in the calendar year, excluding summers, after being placed on probation are expected to raise their grade point to the minimum or above by the end of the term. Neither CU Boulder's summer session nor enrollment through Boulder evening courses counts as a probationary semester. Students are not dismissed at the end of the summer term.

Students placed on academic probation who elect to remain out of school for a full calendar year can return to the university with a two-semester window to achieve the required cumulative GPA or CMCI GPA. Students on probation who return after a hiatus of one year are placed on a second probation at the end of the semester in which they return if their cumulative GPA or CMCI GPA remain below the minimums and are dismissed from the university if they do not achieve the minimums by the end of the semester following the imposition of the second probation.

## Scholastic Suspension

CMCI students are subject to suspension if they do not maintain a cumulative university GPA of 2.00 and a cumulative CMCI GPA of 2.00.

Students whose GPA's fall below either of these levels are normally placed on probation for one semester, during which they have an opportunity to raise their averages to the required levels. Students who still have a cumulative average below 2.00 after their semester of probation will be suspended and will not be able to register for University of Colorado daytime courses on any campus during any academic year. Students suspended are eligible for readmission when they have achieved a cumulative 2.00 average or a 2.00 average in CMCI courses by virtue of work done during the University of Colorado's summer term (any of the three campuses) and/or through the Division of Continuing Education and Professional Studies (Boulder evening or correspondence courses). Students who choose to enroll in continuing education courses to restore their good standing must maintain a 2.5 GPA or above in each term or be suspended

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from both day and continuing education classes. They also may return as transfer students when they have overcome their academic deficiencies by enrolling at another institution (i.e., by achieving an overall 2.00 average in the University of Colorado work plus all work taken elsewhere since suspension). These transfer grades are used only for the purpose of readmission and do not remain in the University of Colorado cumulative grade-point average. Suspended students pursuing this latter option have two semesters after readmission to bring their University of Colorado and/or CMCI grade point average up to 2.00 or they are suspended again.

## Academic Ethics

The College of Media, Communication and Information maintains the highest standards of intellectual honesty. Cheating; plagiarism; illegal possession and distribution of examinations or answers to specific question; alterations, forgery, or falsification of official records; presenting someone else's work as one's own or performing work or taking an examination for another student are examples of acts that may lead to suspension or expulsion. Reported acts of academic dishonesty are referred to the Honor Council. The policies and procedures governing acts of academic dishonesty can be found online at [honorcode.colorado.edu/academics](http://honorcode.colorado.edu/academics).

## Policy on Grade Appeals

The following shall be the official policy of the College of Media, Communication and Information regarding grade appeals.

When a student believes that a grade has been improperly assigned, and discussions between the instructor and the student have not led to any resolution of the problem, then:

1. The student shall have the option of making a formal written appeal to the chair/associate chair of his/her department. The appeal must specify the remedy desired by the student, and it must be submitted within 45 days of the end of the academic term in which the course was taken.
2. The chair/associate chair will meet with the student and with the faculty member who taught the course. The instructor will be asked to submit a formal, written response to the student's written appeal. If the chair/associate chair is unable to broker a solution mutually acceptable to both student and instructor, then the chair shall appoint an ad hoc Student Ethics committee, which will review the dispute. The committee shall consist of two impartial faculty members competent in the subject matter of the course in question.
3. The department chair will convene the committee and provide the committee with the student's written appeal and the written response from the faculty member. Within 45 days, the committee will submit a report and recommendation to the chair, and the chair will recommend to the instructor either 1) that the originally assigned grade stand; or 2) that a new grade be assigned.

In cases where a change of grade is recommended and the instructor does not wish to accept the recommendation of his/her colleagues, the materials will be submitted to the dean of CMCI who will review the materials and make a final decision.

## Policy on Waiver of Degree Requirements

The College of Media, Communication and Information does not waive degree requirements or excuse students from completing degree requirements. Petitions for exceptions to the academic policies stated here may be submitted to the ad hoc Committee on Academic Rules and Policies. Such petitions will be considered only if they meet all three of the following conditions:

### Performance

- Journalism
- Media Studies

Music

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- The student must document that she/he has made every effort to fulfill the policy or requirement as defined and must demonstrate that no other options exist for fulfilling the requirement as defined in this catalog.
- The student must document that she/he is prevented from fulfilling the policy or meeting the requirement as defined here for compelling reasons beyond the student's control.
- The student must demonstrate to the satisfaction of the faculty committee that she/he has fulfilled or will fulfill the intent of the policy or the requirement through an appropriate alternative.

Students who believe that their circumstances meet the conditions to submit a petition must first consult with their academic advisor. If the advisor offers options for meeting the requirement or policy as defined here, the student must pursue those options and should not submit a petition.

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# Admission & Enrollment Policies

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## Requirements for Admission

Students will apply to the College of Media, Communication and Information in one of the six undergraduate majors. Students who are not eligible for admission directly into the major may be placed in a major in the College of Arts and Sciences.

## Transfer Students

Students applying to transfer into the College of Media, Communication and Information from another institution must have 24 semester hours of college credit and must have completed the equivalent of the introductory courses in the specific major with a GPA of at least 3.00, both overall and in the major courses. Students without 24 hours of credit or the prerequisite courses should apply to the College of Arts and Sciences. See the Undergraduate Admission section of this catalog for [transfer student admission standards](#).

## Attendance Regulations

Students are expected to attend classes regularly and to comply with the attendance policies specified by their instructors at the beginning of each semester. A student who does not attend the equivalent of the first week's sessions of a class during a term may be administratively dropped from the class.

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## Credit Policies

### Pass/Fail

In addition to the university's general policies, majors in the CMCI may not take any MAPS, core requirements, certificate or minor courses, business, additional field of study or CMCI courses pass/fail, but any other course may be taken pass/fail. Up to six hours may be taken pass/fail, except for transfer students, for whom the limit is one hour in every eight attempted at the University of Colorado, up to the maximum of six credit hours.

### Transfer Credits

Credit in subjects transferred from other institutions to the University of Colorado is limited to the amount of credit given for similar work at the University of Colorado. Transfer credits in CMCI courses are limited to 12 semester credits from four-year institutions and six semester credits from two-year institutions. All transfer credit is subject to approval of the assistant dean of CMCI. Work from another accredited institution of higher education that has been completed with a grade of C- (1.70) or better may be transferred to the University of Colorado. Categories of transfer course work not accepted by the university are described in the [Transfer Course Work Not Accepted by the University](#) section in Undergraduate Admission. All courses transferred from junior and community colleges carry lower-division credit. Courses transferred from four-year institutions generally carry credits at the level at which they were taught at the previous institution, but can be subject to review on a course-by-course basis.

## Residence Requirement

CMCI students must complete a minimum of 45 credit hours in University of Colorado Boulder courses. Of these 45 credits, a minimum of 30 credits must be in upper-division credit hours completed as a matriculated student in the College of Media, Communication and Information at the University of Colorado Boulder and at least 15 of these upper-division hours must be in the major. A maximum of 6 credit hours taken at other University of Colorado campuses (UC Denver and CU-Colorado Springs) can be counted toward the minimum 45 credits required on the Boulder campus. Courses taken while on CU-Boulder study abroad programs, through CU-Boulder continuing education or CU-Boulder correspondence courses are considered to be in residence.

## Senior Requirement

Seniors must file to graduate with both a written form and online by November 1 of the semester prior to May and August graduation and March 1 of the semester prior to December graduation. Graduation packets are available at the College of Media, Communication and Information office. All CMCI students must also meet with their advisor the semester prior to graduation to complete the graduation check-out form.

## Advising

Majors are encouraged to consult an advisor each registration period. Advising is available from faculty and staff throughout the academic year, and major advising sheets are provided for each sequence. However, students are ultimately responsible for fulfilling all degree requirements.

## Double-Degree/Double-Major Programs

Students may complete requirements in two fields and receive two degrees from the university.

- Writing and Performance
- Journalism
- Media Studies

Music

Graduate School

Other Academic Programs

Such double-degree programs are available combining CMCI with business, engineering, music or disciplines in the College of Arts and Sciences. Students must make application for a double degree program in both CMCI and the Leeds School of Business, the College of Arts and Sciences, the School of Engineering and Applied Sciences or the College of Music. Any other combined program must be arranged by consulting both programs. All double degrees shall consist of a degree within CMCI and a degree outside CMCI.

Students may double major within CMCI. The primary major will determine whether the degree is a BA or BS. Students may not get a double degree within CMCI.

## Colorado Student Bill of Rights

In the interests of promoting timely graduation and facilitating the transfer of students among the institutions of higher education in the state of Colorado, the College of Media, Communication and Information and the University of Colorado Boulder adhere to the Student Bill of Rights as presented in Colorado Statute 23-1-125.

- 23-1-125. Commission directive - student bill of rights - degree requirements - implementation of core courses - competency test - prior learning (1) Student bill of rights. The general assembly hereby finds that students enrolled in public institutions of higher education shall have the following rights: (a) Students should be able to complete their associate of arts and associate of science degree programs in no more than sixty credit hours or their baccalaureate programs in no more than one hundred twenty credit hours unless there are additional degree requirements recognized by the commission; (b) A student can sign a two-year or four-year graduation agreement that formalizes a plan for that student to obtain a degree in two or four years, unless there are additional degree requirements recognized by the commission; (c) Students have a right to clear and concise information concerning which courses must be completed successfully to complete their degrees; (d) Students have a right to know which courses are transferable among the state public two-year and four-year institutions of higher education; (e) Students, upon completion of core general education courses, regardless of the delivery method, should have those courses satisfy the core course requirements of all Colorado public institutions of higher education; (f) Students have a right to know if courses from one or more public higher education institutions satisfy the students' degree requirements; (g) A student's credit for the completion of the core requirements and core courses shall not expire for ten years from the date of initial enrollment and shall be transferrable.

## Statewide Guaranteed Transfer of General Education Courses

As of fall 2003, the two-year and four-year transfer articulation agreements among Colorado institutions of higher education were replaced by a statewide guaranteed transfer of approved general education courses taken at any Colorado public institution of higher education. Under the statewide guaranteed transfer program, up to 31–33 credits of successfully (C- or better) completed course work will automatically transfer and apply towards graduation requirements at the receiving institution. The course work must be drawn from the list of approved guaranteed transfer courses and must meet the distribution requirements of the guaranteed transfer program. Further information about the statewide transfer program, including the list of approved courses and distribution requirements, can be found at the website of the Colorado Department of Higher Education, [higher.ed.colorado.gov/Academics/Transfers/Students.html](http://higher.ed.colorado.gov/Academics/Transfers/Students.html).

As of fall 2006, a student graduating with an associate of arts or an associate of science degree from a Colorado community college and entering the College of Media, Communication and

Information is exempt from the written communication requirement and the lower-division component of the core curriculum, with the exception of CMCI 1010 and 1020. Note that students are still subject to the MAPS requirements. Additional information on the evaluation of transfer credit of Colorado community college course work and its application in select arts and sciences major programs can also be found at [artsandsciences.colorado.edu/artssciences/prospective-students/](https://artsandsciences.colorado.edu/artssciences/prospective-students/).

Students are required to follow the graduation requirements listed in this catalog at the time of their initial entry onto the Boulder campus.

## Credit Policies

### Advanced Placement Program

See [Undergraduate Admission](#) and the [Advanced Placement Table](#).

### International Baccalaureate

Any student admitted to a University of Colorado campus after June 30, 2003, who has graduated from high school having successfully completed an International Baccalaureate (IB) diploma, program will be granted 24 semester hours of college credit. No tuition will be charged for these credits. These credits will be granted, however, only if the student receives a score of 4 or better on an examination administered as part of the IB diploma program.

In addition, college credit is granted for International Baccalaureate examinations at the higher level with a score of 4 or better. For specific equivalencies, contact the Office of Admissions at 303-492-2458 or visit [www.ibo.org](http://www.ibo.org).

### Credit/No Credit

Credit/no credit changes must occur during the schedule adjustment periods.

### Credit Taken as a Nondegree Student

Once a student has been admitted to a degree program, credits from the Division of Continuing Education such as ACCESS, Boulder evening credit courses and CU-Boulder correspondence classes may be eligible to be applied toward the degree. Students will receive initial advising during orientation once they have been accepted to a degree program in the College of Media, Communication and Information.

### Cross-Listed Courses

Courses that are cross-listed in two or more departments are credited in the department in which the student has the most semester hours, irrespective of the department in which the student formally enrolled for the course.

### Incomplete Grades

An I grade is given at the discretion of the course instructor only when a student has satisfactorily completed a substantial portion of a course and, for reasons beyond the student's control, is prevented from completing all work for the course within the term. Incomplete grades must be requested by the student and should not be awarded by the instructor for non-attendance. (In the case of non-attendance, the instructor should award the student the grade(s) earned.) If an incomplete grade is given, the instructor is required to document the reasons/grounds for the awarding of the incomplete grade, the specific work and conditions for completion of the course and the time frame within which the course work must be completed. The maximum time the instructor can allow for the completion of the course work and subsequent award of a course grade is one year from the end of the term the course was taken.

After one year, if no final grade is awarded, the I will change to the grade of F. A copy of the Incomplete Agreement (forms are available from the dean's office) signed by the student and instructor and accompanied by documentation of the extenuating circumstances that resulted in the awarding of an incomplete should be filed with the Director of Advising's Office and a copy should be given to the student.

## Independent Learning

A maximum of 30 credit hours of correspondence/online learning work may count toward the degree. Arts and Sciences courses offered by the CU-Boulder Division of Continuing Education carry resident credit.

## Independent Study

With departmental approval, students may register for independent study during the normal registration periods for each semester. Students may not register for more than 6 credit hours of independent study credit during any term. No more than 8 credit hours of independent study taken in a single department or program can be applied toward the total hours needed for graduation. A maximum of 16 hours of independent study may count toward the degree. The minimum expectation for each semester hour of credit is 25 hours of work.

A student may not use independent study projects to fulfill the college's general education requirements. Some departments further restrict the use of independent study hours toward meeting major requirements.

## Repetition of Courses

If a student takes a course for credit more than once, all grades are calculated into the grade point average. However, the course is only counted toward graduation once, unless a course description specifically states that it can be taken more than once for credit.

## ROTC Credit

The ROTC courses listed below have been certified as acceptable college-level course work by the faculty of the College of Arts and Sciences or by other colleges and schools on the Boulder campus. These courses are counted as elective credit toward the degree. Courses not included on this list do not count toward any degree requirements. Transfer ROTC course work must be evaluated as equivalent to course work on this list to count toward degree requirements.

- AIRR 3010 and 3020
- AIRR 4010 and 4020
- MILR 1011 and 1021
- MILR 2031 and 2041 (students may not receive credit for either course if they have credit in OPMG 3000)
- MILR 4072 and 4082
- NAVR 2020
- NAVR 3030
- NAVR 3040
- NAVR 3101
- NAVR 4010 and 4020
- NAVR 4030
- NAVR 4101

## Withdrawal

See the General Information section of the catalog for specific [withdrawal procedures](#) and university wide policies.

Students in the College of Media, Communication and Information who withdraw two semesters in a row will have a dean's stop placed on their registration. Summer session is not counted as a regular semester. They will not be permitted to return to CU-Boulder before one full academic year has elapsed (not including their semester of withdrawal). CMCI students may withdraw from all classes for a term until the last day that classes are taught by requesting withdrawal through the Office of the Registrar. Students cannot withdraw after classes have ended for a term except through the appeal process outlined in the General Information section of the catalog.

These policies also apply to CMCI students who are enrolled in continuing education courses.

Students are encouraged to participate in the Stay Connected program through the Registrar's office when their withdrawal from the university is temporary.

## Readmission

CMCI students who request readmission to the college are always readmitted to their major of record at the time they last attended the university. Readmitted students who desire to pursue a major different from their major of record must follow the new college's process for declaring a major after they have been readmitted.

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# General Credit & Enrollment

## Core Curriculum

## Mission Statement

The Core Curriculum blends liberal arts learning with skills necessary for success in careers involving media, communication and information. It aims to cultivate ways of thinking and doing that serve the educational, vocational and citizenship needs of CMCI students. To these ends, the curriculum promotes expression, collaboration and critical literacy across multiple forms of communication—from speech and writing to computing and visual media. Those skills underwrite learning across the humanities, the arts and the social and natural sciences, insuring educational breadth. The Core Curriculum matches that breadth with focus through a secondary concentration that students choose to supplement their major—a minor, certificate or focused cluster of courses either in or outside the college. Through designated history and diversity courses, the curriculum equips students to live in globalizing worlds, consider issues from multiple perspectives and engage in long-term thinking beyond the contemporary moment. Finally, the curriculum promotes both intellectual cohesion and independent learning through an introductory Common Experience course for all students and specialized Capstone Experiences tailored to particular majors and interests.

## Educational Goals

The Core Curriculum is designed to help CMCI students master ways of doing, thinking and investigating essential to studying and working in media, communication and information fields. These competencies may be studied and practiced in course work either within or outside the college. Graduates of the college are expected to be able to demonstrate competence in the following:

- Multi-modal composition and expression: being able to use written, spoken, visual and digital media for effective expression, argumentation and communication of ideas and sentiments to audiences.
- Collaboration, design and creative problem solving: being able to work effectively and inventively with others in complex problem solving and design tasks.
- Communicative interaction: being able to look at phenomena from the perspective of symbolic and material interchanges among individuals, collectives and institutions.
- Media literacies: being able to interpret and critically analyze messages and formal conventions (genres, grammars, logics) in multiple modes and media of communication (visual, sonic, discursive) and to consider them from the perspectives of their audiences, political economies and histories.

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- Quantitative and computational thinking: being able to approach and solve problems quantitatively and algorithmically, and to apply and utilize computing models and resources when advantageous.
- Institutional and organizational understanding: being able to consider problems, policies and collective action from the perspectives of different institutions and organizations—e.g., political, legal, economic and religious.
- Cultural understanding: being able to consider problems and social experiences comparatively, considering different global and domestic cultures, with attention to categories of race, class, ethnicity, religion, gender and sexuality.
- Historical understanding: being able to consider social, cultural, intellectual, technological and/or institutional phenomena in historical perspective.
- Ethical action: being able to recognize moral issues, deliberate intelligently about them and uphold the ethical standards of particular disciplines and practices.

|   |
|---|
| Performance   |
| <ul style="list-style-type: none"> <li>• Journalism</li> <li>• Media Studies</li> </ul> |
| <input type="checkbox"/> Music  |
| <input type="checkbox"/> Graduate School  |
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## Design of the Core Curriculum

The Core Curriculum is designed to be both flexible and comprehensive. While promoting a shared mission and identity for CMCI students through a set of college requirements, the Core Curriculum also promotes breadth and porosity of learning across all the schools and colleges of the CU Boulder campus. Most of the core requirements may be taken either within or outside the college, and many are covered by a student's major. Students who wish to double degree in a CMCI discipline and a discipline outside CMCI will find that the CMCI Core Curriculum dovetails almost entirely with the core or breadth requirements of other CU Boulder colleges and schools.

| Core Curriculum at a Glance |  |                            | Hours required |
|-----------------------------|--|----------------------------|----------------|
| College requirements        | Common Experience: 2 courses + 2 labs/studios                                  |                            | 8              |
|                             | Capstone Experience: 1 course  |                            | 3              |
|                             | Area of concentration outside the major  |                            | variable       |
| Breadth requirements        | Composition and Expression: 2 courses  | Lower-division writing     | 3              |
|                             |  | Upper-division composition | 3              |
|                             | Quantitative Thinking: 1 course  |                            | 3              |
|                             | Computing: 1 course  |                            | 3              |
|                             | Foreign Language: third-year high school or third-semester college proficiency |                            | 0–3            |
|                             | The Natural World: 2 courses + a lab   |                            | 7              |

|                            |   |                |
|----------------------------|---|----------------|
|                            | People and Society: 2 courses                           | 6              |
|                            | Humanities and the Arts: 2 courses                      | 6              |
| Point-of-view requirements | Historical Views: 2 "H" designated courses              | 0–6 additional |
|                            | Diversity and Global Cultures: 2 "D" designated courses | 0–6 additional |

## College Requirements

1. A **Common Experience** course sequence—CMCI 1010 and 1020—Concepts and Creativity 1 & 2: Media, Communication, Information: lectures + lab/studio (2 courses). This course sequence introduces shared themes, values, ethical issues and competencies across the college and emphasizes the marriage of study and practice that will be the hallmark of CMCI as a whole. Each course is structured as a lecture plus a lab/studio in which students create projects putting the lecture's ideas into practice by means of writing, speaking, design, visual presentation and other modes of expression, and by means of collaborative and active learning.
2. An upper-division **Capstone Experience**: scholarly, lab-based or studio-based (1 course, 3-4 hours). This course fosters students' research, creative work, service learning and/or invention, and may include teamwork as well as individual achievement. This course may be taken within the major, or it may be offered as an interdisciplinary option.
3. An **area of concentration** outside the major (variable hours). Defined as a second major, a minor, a certificate or an area of concentration as established by departments within or outside the college, this sequence of courses helps students develop the intellectual versatility necessary for successful study and work in media, communication and information fields.

## Breadth Requirements

*NB: Breadth requirements may be satisfied either within or outside the college. They may also overlap with requirements for individual majors.*

1. **Composition and Expression** (2 courses, 6 hours):
  1. Lower-division writing (3 hours). This course develops the foundational skills in written expression expected of every CU Boulder graduate.
  2. Upper-division visual, digital, verbal, written and/or media composition (3 hours). This course requirement emphasizes the many alternative forms of composition and expression that CMCI students cultivate.
2. **Quantitative Thinking** (1 course, 3 hours): This course provides students with the ability to think at a certain level of abstraction, to manipulate symbols and to assess adequately the data that will confront them in their course work and in their daily lives.
3. **Computing** (1 course, 3 hours): This course introduces students to the basic principles of computing, including computational architectures and logic, coding and scripting, issues in technical project management and issues in human-centered technology design.

4. **Foreign Language** (3 hours): This requirement encourages students to comprehend the structure and vocabulary of a language other than their native one, to read significant and difficult works in that language and to understand aspects of the culture(s) lived in that language. This requirement may be met at the time of matriculation by fulfilling the MAPS requirement of high school, third-level proficiency in a single language. Students who lack the MAPS requirement must pass an appropriate third-semester college course or a CU Boulder–approved proficiency examination.
5. **The Natural World** (2 courses + lab, 7 hours): These courses study the nature of matter, life and the universe. They enhance literacy and knowledge of one or more disciplines in the natural or physical sciences, and enhance the reasoning and observing skills necessary to evaluate issues with scientific content. A laboratory or field experience helps students gain hands-on experience with scientific research, develop observational skills of measurement and data interpretation and learn the relevance of these skills to the formation and testing of scientific hypotheses.
6. **People and Society** (2 courses, 6 hours): These courses introduce students to the study of social groups, including social institutions and processes and the forces that mold and shape social groups, including values, beliefs, communication processes and organizational principles. They prepare students to approach social phenomena of all kinds in an informed and critical way; to describe, analyze, compare and contrast social phenomena; and to analyze their own sociocultural assumptions and traditions.
7. **Humanities and the Arts** (2 courses, 6 hours): These courses foster students' understanding of fundamental aesthetic, cultural, literary, philosophical and theological issues. They sharpen critical and analytical abilities so that students may develop a deeper appreciation of works of art and literature and of philosophical, ethical and religious ideas and belief systems.

## Point-of-View Requirements

*NB: Point-of-view requirements may be satisfied either within or outside the college. They may also overlap with breadth requirements and/or major requirements. In addition, a single course may be designated both "H" and "D."*

1. **Historical Views** (2 "H" designated courses, 0–6 additional hours). This requirement enables students to understand that every contemporary issue has a history, and that an understanding of historical context and change is essential to an understanding of the contemporary moment. "H" designated courses emphasize longitudinal thinking and the investigation of the processes and the meanings of change over time.
2. **Diversity and Global Cultures** (2 "D" designated courses, 0–6 additional hours). This requirement increases students' understanding of the world's diversity and pluralism. "D" designated courses study some aspect of two broad and interrelated areas: (a) the nature and meaning of diversity and the experience of groups marginalized because of their race, ethnicity, gender, sexuality or other characteristics; and (b) cultures other than those of Europe and the United States.

## Academic Advising and Responsibilities

Students in the college are expected to assume responsibility for planning their academic program in conjunction with their academic advisor in accordance with college rules and policies and with departmental major requirements. Any questions concerning these provisions are to be directed to the student's academic advisor. The college cannot assume responsibility for problems resulting from students failing to follow the policies stated in the catalog or from incorrect advice given by someone other than an appropriate staff member of the college.

All new students are required to attend a special orientation, advising and registration program on campus before enrolling.

## Advising

Academic advising is an integral part of undergraduate education. The goal of all academic advising is to help students make responsible decisions as they develop educational plans compatible with their potential and with their career and life goals. Advising is more than the sharing of information about academic courses and programs; it includes encouraging students to formulate important questions about the nature and direction of their education and working with them to find answers to those questions. Advisors confer with students about alternative course schedules and other educational experiences, but students themselves are responsible for selecting the content of their academic program and making progress toward an academic degree.

As students progress through their academic program, their questions and concerns change. CU-Boulder offers a system of faculty, professional academic advisors and peer advisors to address these ongoing and multifaceted concerns.

Students are ultimately responsible for choosing appropriate courses, for registering accurately and for meeting all degree requirements. Academic advisors assist students in clarifying their interests, values and goals and help students relate these to academic programs and educational opportunities. As students work with their advisors, the advisors help students develop a coherent and balanced program of study that fulfills graduation requirements and assist students in identifying and integrating into their programs educational experiences outside the classroom that enhance their personal, intellectual and professional development. Academic advisors also assist students in understanding academic policies, requirements, procedures and deadlines.

## Responsibilities of Students and Advisors

Within the advising system on the Boulder campus, both students and advisors have responsibilities.

### **Students are responsible for:**

1. knowing the requirements of their particular academic program, selecting courses that meet those requirements in an appropriate time frame, registering accurately and monitoring their progress toward graduation;
2. consulting with their academic advisor several times every term;
3. scheduling and keeping academic advising appointments in a timely manner throughout their academic career, so as to avoid seeking advising only during busy registration periods;
4. being prepared for advising sessions (for example, by bringing in a list of questions or concerns, having a tentative schedule in mind and/or being prepared to discuss interests and goals with their advisor);
5. knowing and adhering to published academic deadlines;
6. monitoring their position on registration waitlists; and
7. reading their CU email on a weekly basis.

### **Advisors are responsible for:**

1. helping students clarify their values, goals and abilities;
2. helping students understand the nature and purpose of a college education;
3. providing accurate information about educational options, requirements, policies and procedures;
4. helping students plan educational programs consistent with the requirements of their degree program and with their goals, interests and abilities;
5. assisting students in the continual monitoring and evaluation of their educational progress; and
6. helping students locate and integrate the many resources of the university to meet their unique educational needs and aspirations.

## General Graduation Requirements

CMCI students must fulfill the following requirements for graduation:

1. Pass a total of 120 hours.
2. Maintain a 2.00 overall grade point average and a 2.00 grade point average in CMCI coursework.
3. Pass 45 credit hours of upper-division work.
4. Complete a minimum of 45 credit hours in University of Colorado courses on the Boulder campus. Of these 45 credits, a minimum of 30 credits must be upper division hours completed as a matriculated student in CMCI. Six of the 45 credit hours may be taken at other University of Colorado campuses. Courses taken while on CU Boulder study abroad programs, through CU Boulder continuing education or CU Boulder correspondence courses are considered to be in residence.
5. Complete a major offered by the College of Media, Communication and Information. Students are subject to the major requirements in force when they declare the major.
6. Complete the CMCI core and MAPS requirements.

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## Graduate Study

Curricula leading to advanced degrees are offered by all of the departments in the College of Media, Communication and Information. Students should consult the [Graduate School](#) section of this catalog for admission and degree requirements of the Graduate School. Curricula for graduate programs are listed under each department. For information about enrollment in graduate course work while still an undergraduate, see [Admission of Seniors](#) in the Graduate School section.

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## Programs of Study

|  |             |
|--|-------------|
| <b>Communication</b>                                 | BA, MA, PhD |
| <b>Emergent Technologies and Media Art Practices</b> | PhD         |
| <b>Information Science</b>                           | BS, MS, PhD |
| <b>Interdisciplinary Documentary Media Practices</b> | MFA         |
| <b>Intermedia Art, Writing and Performance</b>       | PhD         |
| <b>Journalism</b>                                    | BA, MA      |
| <b>Media Production</b>                              | BA          |
| <b>Media and Public Engagement</b>                   | MA          |
| <b>Media Research and Practice</b>                   | PhD         |
| <b>Media Studies</b>                                 | BA          |
| <b>Strategic Communication</b>                       | BS          |
| <b>Strategic Communication Design</b>                | MA          |

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## Advertising, Public Relations and Media Design (APRD)

Advertising, Public Relations and Media Design (APRD) strives to produce leaders in the area of strategic communication who have mastered a design-thinking process grounded in analytical and creative thought. We believe in amplifying our students' curiosity, increasing their tolerance for risk and encouraging them to look at life and a career with an entrepreneur's eye for opportunity. APRD is committed to providing students the necessary tools and techniques to think critically, adapt, create and above all lead in a rapidly changing media world.

Our goal is to help students acquire the kind of in-depth expertise in at least one area of strategic communication and design that will enable them to generate ideas and solve problems for a variety of organizations, including but not limited to ad agencies, PR firms, publishing and design firms, nonprofits, start-ups and personal ventures. We produce graduates who are forward-looking and have a deep interest in and knowledge of diverse cultures both within the United States and throughout the world.

The Department of Advertising, Public Relations and Media Design actively encourages students to enroll in courses offered both within and outside CMCI. Similarly, many of our courses are open to students in other units on the grounds that the design-thinking process can be used to solve problems in a wide variety of disciplines

**Course code for this program is APRD.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Strategic Communication

"Strategic Communication" is an umbrella term covering all three undergraduate tracks offered by the department. The tracks from which students are free to choose are (1) Media Design, (2) Advertising and (3) Public Relations.

Each track requires 34 credit hours, comprised of the 19-hour departmental Core Curriculum and 15 hours of specialized course work. The courses of specialized studies include "Strategic Communication Campaigns," a 4-hour capstone course completed in the student's final year.

### Required Courses and Semester Credit Hours

## APRD Core Curriculum

To complete the department core requirement, students take:

*1st semester:*

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- APRD 1000: Idea Industries (3 hours)

*2nd semester:*

- APRD 1001: Creative Concepts (3 hours)
- APRD 1002: Introduction to Branding Strategy (3 hours)

*Anytime after 2nd semester:*

- Strategic Communication Law and Professional Ethics (3 hours) or (JRNL 3651 – Media Law and Ethics (3 hours)
- APRD 4931: Internship (anytime after 3rd semester: at least 3 hours)

Seventh and eighth semesters:

- APRD 4403 Capstone Strategic Communication Campaign—3 credit hours plus 1-hour lab/workshop. Total of 4 credit hours

## Media Design and Creative Advertising

Media Design consists of two required courses and three electives totaling 15 credit hours. All media design students are also required to maintain an online portfolio of their work. A portfolio review is required for graduation.

*3rd semester:*

- APRD 2003: Fundamentals of Design (3 hours)

*4th semester:*

**ONE** of the following as a **required course**.

- APRD 3000: Intermediate Creative Concepts (3 hours) suggested for all creative advertising majors

Or

- APRD 3001: Intermediate Design Concepts (3 hours) suggested for design majors

*4th through 8th semesters:*

EITHER three required electives offered by APRD under the Media Design track, OR one of three suggested pathways:

1. Creative Advertising - Copywriting:

- APRD 3500 Story Design—3
- APRD 3102: Story Design II—3
- APRD 4503 Portfolio 1—3
- APRD 4523 Portfolio 2—3

2. Creative Advertising – Art Direction:

- APRD 3001 Intermediate Design Concepts—3
- APRD 3100 Design for Digital Media—3

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- APRD 4503 Portfolio 1—3
- APRD 4523 Portfolio 2—3

### 3. Media Design:

- APRD 3100 Design for Digital Media—3
- Branding and Identity Systems—3
- APRD 4600 Design Portfolio 1—3
- APRD 4601 Design Portfolio 2—3

### General Electives:

- APRD 2000 Principles of Advertising
- APRD 2002 Principles of Public Relations
- APRD 3001 Intermediate Design Concepts
- APRD 3100 Design for Digital Media
- APRD 3102 Story Design I
- APRD 3500: Story Design II
- APRD 4503 Portfolio 1
- APRD 4523 Portfolio 2
- APRD 3700 Field Study in Strategic Communication
- APRD 4501 Design of Social Innovation
- APRD 4600 Design Portfolio 1
- APRD 4601 Design Portfolio 2
- APRD 4700 Advertising Intensive
- Design History
- Branding and Identity Systems
- Design Research
- Information Visualization
- The Entrepreneurial Mindset
- Leadership: Styles and Situations
- Imagining Futures
- Design Psychology
- Designing User Experience

## Strategic Advertising

Strategic Advertising consists of two required courses and three electives totaling 15 credit hours. All strategic students are also required to maintain a portfolio of their work. A portfolio review is required for graduation.

### *3rd semester:*

- APRD 2000: Principles of Advertising (3 hours)

*4th through 8th semesters*

**ONE** of the following as a **required course**.

- APRD 3002 Communication Platforms (3 credit hours) suggested for media planning
- APRD 3003 Strategic Communication Research Methods (3 credit hours) suggested for account planning
- APRD 3004 Account Management (3 credit hours) suggested for account management

EITHER 3 electives offered under the Strategic Advertising track OR one of two suggested pathways:

1. Account Management

- APRD 3002 Communication Platforms—3
- APRD 3003 Strategic Communication Research Methods—3
- APRD 4300 Strategic Communication Analytics and Metrics—3

2. Account Planning

- APRD 3008 Qualitative Research Methods—3
- APRD 3007 Curiosity for Strategists—3 OR APRD 4100 Brands and Culture—3
- APRD 4102 Sustainable Brand Practices—3 credit hours

3. Media Planning

- APRD 3005 Content Strategy and User Engagement—3
- APRD 4101 Media Planning—3
- APRD 4300 Strategic Communication Analytics and Metrics—3

Advertising Electives:

- APRD 2001 Principles of Public Relations—3
- APRD 2002 Principles of Design—3
- APRD 3002 Communication Platforms—3
- APRD 3003 Strategic Communication Research Methods—3
- APRD 3004 Account Management—3
- APRD 3005 Content Strategy and User Engagement—3
- APRD 3006 History of Advertising—3
- APRD 3007 Curiosity for Strategists—3
- APRD 3008 Qualitative Research Methods—3
- APRD 3700 Field Study in Strategic Communication—3
- APRD 4100 Brands and Culture—3
- APRD 4102 Sustainable Brand Practices—3
- APRD 4300 Media Planning—3
- APRD 4300 Strategic Communication Analytics—3
- APRD 4543 Strategic Brand Management—3

- APRD 4700 Advertising Intensive—3

## Public Relations

Public Relations consists of three required courses and two electives totaling 15 credit hours. All PR students are required to maintain a portfolio of their work. A portfolio review is required for graduation.

*3rd semester:*

- APRD 2002: Introduction to Public Relations (3 hours, required)

*4th through 7th semesters:*

- APRD 3003: Strategic Communication Research Methods (3 hours, required)
- APRD 3103: Strategic Writing for Public Relations (3 hours, required)

*4th through 8th semesters:*

- Two electives offered under the Public Relations track:
- Public Relations Electives:
- Strategic Planning Cases in PR
- APRD 2000 Principles of Advertising
- APRD 2003 Principles of Design
- APRD 3300 Crisis Communication
- APRD 3301 Social Media Strategy for PR
- APRD 3302 APRD 4300 Strategic Communication Analytics and Metrics
- APRD 3700 Field Study in Strategic Communication
- APRD 4102 Sustainable Brand Practices

General Electives:

- COMM 3320 Persuasion
- COMM 2600 Organizational Communication
- COMM 1300 Public Speaking
- COMM 3310 Argumentation and Advocacy
- PR and Society
- History of Advertising and Public Relations
- Social Media Strategies
- PR Law and Ethics
- Secondary Area of Study

## Secondary Area of Study

In addition, all Strategic Communication majors must complete a secondary area of study outside STCM: any major, minor, or academic certificate of at least 12 credit hours offered at the university.

## Graduate Degree Program(s)

### Graduate Study in Strategic Communication

APRD offers programs of study leading to the MA or PhD in strategic communication. Interested students should contact the department for current admission and degree requirements. APRD offers programs of study leading to the MA or PhD in strategic communication. Interested students should contact the department for current admission and degree requirements.

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## Communication (COMM)

The bachelor of arts in communication provides analytic work from both humanistic and social-scientific perspectives, and practical work to improve communication performance in various kinds of situations.

The undergraduate degree in communication emphasizes knowledge and awareness of:

- the basic contexts in which communication is enacted (e.g., interpersonal, group, organizational and public contexts);
- the various processes of interaction within these contexts;
- the basic methods of investigating questions about communication;
- the ethical issues and responsibilities of communication practice;
- the diversity of communication styles associated with gender and cultural differences; and
- the uses and implications of communication technology;
- the history and development of communication as an object of scholarly study, including both the humanistic and social-scientific traditions.

In addition, students completing the degree in communication are expected to acquire the ability and skills to:

- express ideas in an informed, coherent and effective manner, particularly the ability to articulate and develop a sustained argument, both orally and in writing;
- analyze, criticize and evaluate messages and interactions in a variety of practical contexts, both orally and in writing; and
- adapt messages and negotiate interactions responsibly in diverse and changing situations.

There are optional programs in which students are encouraged to participate such as study abroad, internships and graduating with honors.

Graduate study in communication examines problems of human interaction and relationship, participation and collaboration and deliberation, dialogue and decision making in personal relationships, workplace and institutional contexts and community and public life. The master's program provides students with knowledge of selected bodies of communication scholarship and develops their skills in analyzing complex communication situations for a range of professional positions in business, nonprofit institutions and other types of community groups, and for doctoral study in communication. The doctoral program provides students with opportunities to conduct theoretically grounded, practically useful research that crosses traditional academic boundaries and that prepares them to assume faculty positions in universities, as well as in research and training programs in business, government and social service agencies.

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- Critical Media Practices

Course code for this program is **COMM**.

## Bachelor's Degree Program(s)

### Bachelor's Degree in Communication

Majors must complete a minimum of 36 hours of course work in communication, at least 18 of which must be upper division (3000 level or higher). Only courses with grades of C- or better count toward the major, and the overall major GPA must be 2.000 (a C- is 1.700).

#### Required Courses and Semester Credit Hours

- COMM 1210 Perspectives on Human Communication—3
- COMM 1300 Public Speaking—3
- COMM 1600 Group Interaction—3
- COMM 3210 Human Communication Theory—3
- At least two of the following: <sup>[SEP]</sup>COMM 2360 Campaigns and Revolutions—3, <sup>[SEP]</sup>COMM 2400 Discourse, Culture and Identities—3, <sup>[SEP]</sup>COMM 2500 Interpersonal Communication—3, <sup>[SEP]</sup>COMM 2600 Organizational Communication—3
- COMM 3300 Rhetorical Foundations of Communication—3
- One methods course: COMM 3740, 3750 or 3760—3
- One senior seminar: COMM 4220, 4300, 4400, 4510, 4600 or 4610—3
- At least two additional upper-division electives (3000- or 4000-level courses): 4000-level courses may be taken twice (only twice) with different topics—6-9

*Up to 8 credit hours of independent study and 6 hours of internships may be taken. These are upper-division elective hours but do not count toward major requirements. Eligible students interested in graduating with department honors should contact the department's honors coordinator as soon as possible.*

In addition, Communication majors must complete a **secondary area of study** outside COMM: any major, minor, or academic certificate of at least 12 credit hours offered at the university.

The department encourages its majors to take related courses in other departments in CMCI as well anthropology; business; English; ethnic studies; history; linguistics; philosophy; political science; sociology; speech, language and hearing sciences; and theatre and dance.

The department also encourages participation in optional programs such as study abroad, internships and graduating with honors.

Students who wish to major in communication should meet with a department advisor, where they will be advised of any changes in this list of requirements.

### Minor in Communication

Minors must complete a minimum of 18 hours of course work in communication, at least 9 of which must be upper division (3000 level or higher). Only courses with grades of C- or better count toward the major, and the overall major GPA must be 2.000 (a C- is 1.700). They may apply no more than 6 credit hours of transfer work, including 3 hours of upper-division credit.

#### Required Courses and Semester Credit Hours

- COMM 1210 Perspectives on Human Communication—3

- Information Science
- Intermedia Art, Writing and Performance
- Journalism
- Media Studies

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Other Academic Programs

- Either COMM1300 (Public Speaking) or COMM 1600 Group Interaction—3
- One 2000-level course—3
- Three upper-division courses (3000 level or higher)—9

Students who wish to minor in communication should meet with a department advisor, where they will be advised of any changes in this list of requirements.

## Graduate Degree Program(s)

The department offers programs of study leading to the MA and PhD in communication. Interested students should contact the department for current admission and degree requirements, or see [comm.colorado.edu](http://comm.colorado.edu).

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## Critical Media Practices (CMDP)

CMDP addresses the changing landscape of electronic media making by developing both analytical and production skills across a wide range of platforms, practices and technologies while simultaneously placing them within the broader perspective of culture and history. The department explores cross-platform media production, computational media and creative ethnography, as well as other time-based media arts practices such as locative media and performance art. Our convergent approach to media spans a variety of media tools including digital photography, audio/video editing and single camera video production, open source programming and digital single lens reflex cameras, as well as emergent tools under development. With an emphasis on the interaction between critical theory and media production practices, students are encouraged to not only thoughtfully engage with the diversity of media cultures but to also become active entrepreneurial media producers, directors, writers, editors and scholars at the forefront of emerging cultural industries. Critical Media Practices prepares students to make productive use of the tools to engage creatively with the future trajectories of media, wherever they may lead.

Students of Critical Media Practices will be exposed to a variety of approaches concerning the study of media, information and communication through core CMCI classes. The undergraduate program is designed to provide basic hands-on grounding in production theory, aesthetics, techniques and approaches emphasizing innovative approaches to media making. As such, the department provides a rich and varied resource for cross-pollination and collaboration. At the graduate level, the program features a terminal MFA. The department also supports a practice-based PhD in Emergent Technologies and Art Practices. This innovative merger of theory and praxis, spanning undergraduate through graduate education, places CU on the cutting edge of institutions exploring innovative models for educating twenty-first-century students as well as publishing and disseminating scholarship.

**Course code for this program is CMDP.**

### Bachelor's Degree Program(s)

#### Bachelor's Degree in Media Production

Students complete the foundational courses in theory and practice before proceeding to advanced courses in media production and critical studies. Once the basic requirements are completed, students in this major may elect to focus on a specific area of concentration. Students may also elect to follow a comprehensive approach to media production provided by a 9-credit-hour elective structure. Students from within or outside CMCI can pursue course work within CMDP, provided they meet course prerequisites, though seating priority is given to declared majors. With advisor and faculty guidance, CMDP majors may elect to design a 12-credit-hour concentration derived from areas within the CMCI.

#### Digital Media Cultures concentration

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    - Information Science
    - Intermedia Art, Writing and Performance
    - Journalism
    - Media Studies
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Students follow the basic major requirements described above, but instead of taking electives they complete the 12-credit-hour certificate offered through the ATLAS Technology, Art and Media program. This provide students with an opportunity for an in-depth exploration of contemporary digital media cultures.

### Documentary Practices concentration

Students follow the basic major requirements described above, but instead of taking electives they complete 12 hours of prescribed course work within CMDP focusing on documentary storytelling.

### Music Technology concentration

Students follow the basic major requirements described above, but instead of taking electives they complete 18 hours of prescribed course work within CMDP focusing on Music Technology.

### Performance Media concentration

Students follow the basic major requirements described above, but instead of taking electives they complete courses that develop a performance vocabulary and explore the historical and cultural contexts of performance through project-based courses exploring the design and implementation of media installations. The capstone project will be a large-scale performance or installation.

### *Required Courses and Semester Credit Hours*

Students will take the foundational courses in theory and practice, CMDP 1400: Introduction to Contemporary Media Cultures (3 hours) and CMDP 2500: Introduction to Media Practices (4 hours) before proceeding to advanced courses in media production. Critical studies courses require that students take CMDP 1400. In addition to the basic requirements, students in this major may elect to focus on a specific area of concentration. Students may also elect to follow a comprehensive approach to media production provided by a nine credit hour elective structure. Students from within or outside the college may pursue course work within CMDP, provided they meet course prerequisites, though seating priority is given to declared majors. With advisor and faculty guidance, CMDP majors may elect to design a 12 credit hour concentration derived from areas within the college. All students will be required to take the capstone course Concepts and Practices of New Media (3 hours) in their final year. Credit distribution for BA in Media Production: Critical Media Practices courses (12 credit hours); Interdisciplinary Media Production requirements (13 credit hours); and Production electives (9 credit hours) or an CMDP concentration (12–18 credit hours).

### Required Studio Courses (13 credit hours):

- CMDP 2500: Introduction to Media Practices (3 hours)
- CMDP 2600: Creative Media Making (3 hours)
- CMDP 3500: Digital Photographic Practices (3 hours)
- CMDP 4900: Concepts and Practices of New Media (3 hours)

### Studio Electives Courses (Rotating Electives):

- CMDP 2510: Critical Media Practices Workshop I (1-3 hours)
- CMDP 2710: Media Production Methods and Ideas (3 hours)
- CMDP 2720: Animation (3 hours)
- CMDP 2810: Documentary Media Poetics (3 hours)

- Information Science
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- Journalism
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- CMDP 2860 / MUSC 2081: Performance Audio Recording (2 hours)
- CMDP 2870 / MUSC 2091: Recording Design (2 hours)
- CMDP 3510: Critical Media Practices Workshop II (1-3 hours)
- CMDP 3610: Contemporary Image Making Practices (3 hours)
- CMDP 3620: Images and Stories (3 hours)
- CMDP 3720 / ENGL 3856 / ATLAS 3519: Multimedia Composition (3 hours)
- CMDP 3810: Engaged Documentary Media Practices (3 hours)
- CMDP 3820: Introduction to Performance Media (3 hours)
- CMDP 3830: Performance Design for Media (3 hours)
- CMDP 3840: Sound Practices (3 hours)
- CMDP 3860 / MUSC / MUEL 4081: Introduction to Electronic Music (3 hours)
- CMDP 3910: Media Production Topics (3 hours)
- CMDP 3990: Media Professional Seminar (2 hours)
- CMDP 4610: Small Screen Storytelling (3 hours)
- CMDP 4620: Media Installations and Environments (3 hours)
- CMDP 4630: Fundamentals of Computational Media (3 hours)
- CMDP 4640 / ENGL 4116 / ATLAS 4519: Multimedia Sound (3 hours)
- CMDP 4810: Advanced Documentary Media Practices (3 hours)
- CMDP 4820: Ethnographic Media (3 hours)
- CMDP 4860 / MUSC 4111: Composing at the Computer (2 hours)
- CMDP 4870 / MUSC / MUEL 4121: Sound Practices Topics (3 hours)
- CMDP 4905: Independent Study (3 hours)
- CMDP 4920: Media Production Internships (3 hours)

Required Media Production Critical Studies Courses (9 credit hours):

- CMDP 1400: Introduction to Contemporary Media Cultures (4 hours)
- CMDP 2100: Approaches to Historical Media Practices (3 hours)
- CMDP 2400: Media Aesthetics (3 hours)

Media Production Critical Studies Electives:

- CMDP 3210: Interactive Digital Cultures (3 hours)
- CMDP 3350: Modes of Documentary Media History (3 hours)
- CMDP 3410: Topics in Media Studies (3 hours)
- CMDP 3450: Critical Perspectives in Media Practices (3 hours)
- CMDP 4110: Cultures of Digital Sound (3 hours)
- CMDP 4220: Digital Archives in Media Practices (3 hours)
- CMDP 4310: Screen Culture and Globalization (3 hours)
- CMDP 4320: Media Engagement in Digital Diasporas (3 hours)
- CMDP 4410: Topics in Contemporary Screen Technologies (3 hours)

- CMDP 4450: Contemporary Issues in Documentary Media (3 hours)

## Graduate Degree Program(s)

### Graduate Study in Critical Media Practices

The department offers programs of study leading to the MFA in interdisciplinary documentary and PhD in emergent technologies and media art practices. Interested students should contact the department for current admission and degree requirements.

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## Information Science (INFO)

Information Science considers the relationships between people, places and technology—as well as the information or data those interactions yield. It unites a number of interdisciplinary approaches for understanding and shaping a future characterized by pervasively available digital technology. Drawing on knowledge from social science, computer science, data science, and the humanities, information scientists support the study and innovation of “socio-technical systems.”

In other words, Information Science takes as a core idea that data are a common denominator for both social and technical systems. By focusing on the transformation of data across systems of people, places, and technology in ways that then make data truly useful and meaningful, students will be in the best possible position to invent what society can do with technology, and what technology can do for society.

Students will acquire broad skills in human-information interaction, including:

- multiple forms of information analysis, from small data to big data, from quantitative to qualitative, from data exploration to information exposition;
- skills in working with information, industries and audiences to tell stories with data;
- understanding social and ethical contexts of information and technology;
- human-centered design and research design;
- data curation, archiving and management;
- computing to support information-analytic skills, including prototype building and scripting for working with data.

**Course code for this program is INFO.**

### [Bachelor's Degree Program\(s\)](#)

## Bachelor's Degree in Information Science

The BS in Information Science requires 54 credit hours within the major. Students will also complete the CMCI Core as part of their general education. A secondary area of study, which is also part of the CMCI Core, will be used to synthesize knowledge of Information Science with an application domain. The Portfolio & Professionalization as well as the Capstone courses are a critical part of cohort-building in the major, and are designed to create a community of learners who are prepared to tackle ambitious projects together, individually, and in preparation for internship and post-baccalaureate opportunities.

### Information Science Sources in the CMCI Core

INFO 1201 Computational Reasoning 1: Expression & Media Transformation

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INFO 1301 Quantitative Reasoning 1: Intuitions & Evidence

## Foundations

Information Science students will take the following foundations courses:

INFO 1111 Representations Seminar & Studio

INFO 1121 Interactions Seminar & Studio

INFO 2131 Ecosystems Seminar & Studio

INFO 2201 Computational Reasoning 2: Representations of Data

INFO 2301 Quantitative Reasoning 2: Uncertainty & Inference

## Digital Landscapes

Information Science majors are required to take three courses (a total of at least nine credit hours) from a list of approved courses that meet the “digital landscapes” requirement. These may come from inside or outside Information Science. Example courses that may be offered within Information Science at the 1000 or 2000 level and include Historical Trajectories of Information Science, Human-Computer Interaction, or Gender and Information Technology. Courses from other majors within CMCI that would satisfy the Digital Landscapes requirement would include MDST 3002: Digital Cultures and Politics, or JRNL 2601: Principles of Journalism and Networked Communication, among others.

## Information Exploration & Exposition Series

Information Science students will take both Information Exploration and Information Exposition. Though not required, we highly recommend that Information Science majors take these courses in sequence.

INFO 3401 Information Exploration

INFO 3402 Information Exposition

## Portfolio/Profession and Capstone Series

The Department of Information Science values project-based learning, team-based learning, the development of good professional practice, and the development of specializations at the undergraduate level. The Portfolio & Professional Development as well as the Capstone courses are a critical part of cohort-building in the major, and are designed to create a community of learners who are prepared to tackle ambitious projects together, individually, and in preparation for internship and post-baccalaureate opportunities.

### **INFO 2001, 3001, 4001. Portfolio and Professional Development**

Facilitates career development through the disciplined reflection about and presentation of one’s work using a variety of modalities across a variety of media. Students will be introduced to individuals and organizations representing a diversity of career paths in their chosen field

### **INFO TBD. Senior Capstone**

## Problems in Information Science and Mastery

Information Science students will take a total of 5 Problems in Information Science and Mastery courses, with a minimum of 2 courses in each category.

- Practices
- Information Science
- Intermedia Art, Writing and Performance
- Journalism
- Media Studies

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### **INFO TBD Problems in Information Science (multiple)**

A series of different courses will be offered in which students deeply engage in specific domains, applying the skills that have been learned in the foundation courses through instructor-guided research of a progressive series of timely problems about the domain. Problems in Information Science are domain-guided versions of Information Exploration and Information Exposition combined in one course. Examples of problem domains that may be taught include: Computational Biology, Computational Social Science, Crisis Informatics, Digital Humanities, Medical Informatics, Music Informatics, Personal Informatics, Philanthropic Informatics, Online Communities, and Social Media.

### **INFO TBD Information Science Mastery (multiple)**

A series of different courses will offer deep dives into theory and methods in different areas of Information Science. Examples of mastery topics that may be taught include: Advanced Research Methods, Advanced Computing for Information Science, Data Mining, Human Computation and Crowdsourcing, Information Ethics and Policy, Information Retrieval, Information Visualization, Machine Learning, Natural Language Processing, Network Analysis, Tangible Interfaces, Ubiquitous Computing, and Visual Computing.

## **Minor in Information Science**

The Minor in Information Science will draw from courses described above in Foundations, Exploration and Exposition, Digital Landscapes, Problems in Information Science and Mastery. The minor is currently under formal review and details of the requirements will be available on the CMCI website once it is approved.

### **Graduate Degree Program(s)**

The department offers programs of study leading to a PhD in information science. Interested students should contact the department for current admission and degree requirements.

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## Intermedia Art, Writing and Performance (IAWP)

IAWP is an interdisciplinary digital arts and humanities research unit with a practice-based PhD in Intermedia Art, Writing and Performance. Core faculty collaboratively investigate past and present forms of digital art, writing and performance, and offer graduate students a hands-on, experience-based learning environment in which to explore emerging forms of creativity triggered by practice-based research methodologies. The research conducted in the program reflects the rapidly transforming knowledge systems and digital media economies generated by the substantial technological shifts currently taking place in our society.

IAWP-affiliated faculty work with top graduate student recruits to probe the significance of a digitally expanded and collaborative research environment located in a cluster of interdisciplinary research labs. Using hands-on collaborative forms of lab-based research that feed teaching while also drawing on it, IAWP provides a flexible pedagogical structure that leads to the creation of new and hybridized forms of art, writing, performance, scholarship, research, theory, design, curation, exhibition and publication appropriate for our evolving cultural moment. The program concentrates its curriculum on digital forms of creativity, thus enhancing the larger agenda of the university to cultivate cutting-edge investigations into the practice, theory, history and philosophy of media and into media's relationships to creativity, communication, technology and information.

In short, the IAWP program offers itself as a hub of practice-based digital arts and humanities research that promotes interdisciplinary collaborations across departments, colleges and schools, and even outside the CU campus.

**Course code for this program is IAWP.**

### Graduate Degree Program(s)

## PhD in Intermedia Art, Writing and Performance

Students in the IAWP PhD program learn how to develop creative and strategic practicebased research into the digital arts and humanities at the interface of intermedia art, writing and performance, and reflect on the ways contemporary art practice and scholarly research and production are being rethought in relation to the digital media, communication and information technologies that permeate international culture.

By focusing the pedagogical structure of the unit around a cluster of faculty directed research labs that foreground experimental, collaborative, processbased learning and technical development in the intermedia arts and digital humanities, students who graduate with a PhD in IAWP will bring into the world an advanced and creative skill set that includes the ability to create, produce, direct, design and theorize complex digital media projects that investigate both contemporary and future forms of interdisciplinary art making, performance, writing, publishing,

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exhibiting and curating. The flexibility of the collaborative learning environment that grows out of numerous disciplines, including studiobased arts practice, humanities research, creative writing and collaborative performance, will enable students to recalibrate the vital role creativity plays in the interdisciplinary research community. All of this will in turn serve as an incubator for future forms of personal expression and civic presence in digital culture.

Because of the interdisciplinary nature of the program, students in IAWP learn from and collaborate with faculty and graduate students located across various CU Boulder colleges, institutions, centers and departments, and thus will expose themselves to the best possible interdisciplinary learning environment. Given that the core and affiliated faculty members in the program are rostered in different colleges and departments across campus and are significantly involved with many arts and humanities departments, IAWP students will learn new ways to build strategic alliances with collaborators from many different disciplinary backgrounds.

Interested students should contact the department for current admission and degree requirements.

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## Journalism (JRNL)

The Department of Journalism is founded on the principle that a well-informed and engaged public is essential to democracy—perhaps more so now, at a time of dizzying change, than it has ever been; and that, in the face of this change, journalism retains a unique role in contributing to civic life and to the quality of public discourse.

We put this principle to work by helping students become constructive participants in an ever-evolving global media landscape, where distinctions between producers and consumers of content have blurred. More specifically, we prepare them, at both the undergraduate and graduate levels, for careers in journalism and other fields of public communication. We train students to gather information from a diversity of sources, to analyze it critically, and to report what is significant, through stories and other media forms across multiple media platforms. We encourage ethical awareness so that students will think independently, being prepared to reflect on and to help shape media practices and norms rather than take them at face value.

We believe in the integration of classroom instruction with practical experience. Many of our students work for, and manage, campus online news and entertainment sites, television programs and a radio station. They intern at broadcast stations, newspapers, magazines, websites and social media companies. Lastly, as a faculty, and with the help of colleagues elsewhere in our College who are working on new and innovative forms of human communication, we are committed to improving journalism through pioneering research and creative work.

**Course code for this program is JRNL.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Journalism

Journalism majors develop skills in information gathering, storytelling, and analysis across a variety of platforms, including television, social media, mobile devices, radio and print—using an ever-expanding variety of media tools and technologies. In addition to their professional preparation, students take courses in a core curriculum that provides a range of conceptual and interdisciplinary options and, in consultation with a faculty member, develop an individualized secondary area of concentration (18 credit hours). Students complement their skill competencies with a study of ethics, history, international media, law, literary journalism, news and public perception, sociology of news, visual culture, and other conceptual courses offered in the department and elsewhere in the college and university.

We offer a curriculum with these learning goals:

- Communicate to various public audiences with clarity and precision, using the most effective combination of images, sounds and words, and applying the most appropriate contemporary technologies.

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- Gather information, through research, observation and interviews, and evaluate what is gathered.
- Acquire expertise in a particular subject and use that expertise to communicate clearly to various public audiences.
- Base journalistic work on such enduring ethical principles as accountability, fairness, accuracy, responsibility, and diversity.
- Think analytically, critically and creatively about the social, historical, economic and scientific forces that underlie daily events, in order to provide appropriate context in the reporting of daily events.
- Apply the laws of freedom of expression, in both the United States and in a global media setting.
- Blend entrepreneurial strategies with journalistic enterprise to enable success in a fast-changing economic environment.

### *Required Courses and Semester Credit Hours*

Within the college standard of 120 credit hours for the bachelor's degree, the BA in Journalism requires 36 credit hours:

#### *JRNL Core Curriculum*

Principles of Journalism and Networked Communication—3

Fundamentals of Reporting—3

Journalism Law and Ethics—3

One upper-division reporting course—3

These include Advanced Reporting, TV Reporting, News Corps, Arts and Cultural Reporting, Feature Writing, and others.

Two conceptual courses in journalism—6

These include Advanced Ethics, Media Coverage of Diverse Populations; Concepts in Visual Culture; Critical Perspectives on Journalism; History of Documentary Film; History of Journalism; History of Broadcasting; History of Digital Journalism; Sociology of News; Literary Journalism; International Media and Global Crises; Reporting Wars, Disasters and Peace; News and Public Perception; and others.

Internship—3

Capstone—3

#### *Other Courses in Journalism*

Electives (12 credit hours): Students choose from a variety of advanced journalism courses, including but not limited to the following: Covering Political Campaigns; Editing and Presentation; Advanced Reporting; TV Reporting; Opinion Writing; Broadcast Projects; Advanced Camera and Editing; Arts and Cultural Reporting; Feature Writing; Media Coverage of Diverse Populations; Concepts in Visual Culture; Critical Perspectives on Journalism; History of Documentary Film; History of Journalism; History of Broadcasting; History of Digital

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Journalism; Sociology of News; Literary Journalism; International Media and Global Crises; Reporting Wars, Disasters and Peace; News and Public Perception, and others.

## Secondary Area of Study (18 hours)

Journalism majors must complete a secondary area of study outside of JRNL. At least 9 of the minimum 18 hours must be upper division. Check with your academic advisor for details.

## Minor in Journalism

In consultation with their advisors, students who are majoring in another discipline may pursue a minor in journalism. The minor is currently under formal review and details of the requirements will be available on the CMCI website once it is approved.

## Graduate Degree Program(s)

The department offers programs of study leading to the M.A. and Ph.D. in journalism. Interested students should contact the department for current admission and degree requirements.

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## Media Studies (MDST)

Contemporary media practitioners, both professional and amateur, influence the values and behaviors of national and global populations, challenging and shaping the authority, legitimacy and control exercised by governments and other powerful social institutions. Because of this, media and cultural studies are central to research about the complex intersections of culture, politics and economics from the local to the global levels. Appropriately, the Department of Media Studies emphasizes the history, nature and impact of mediated sounds, images and texts from a wide range of inter- and cross-disciplinary perspectives.

The Department of Media Studies examines ways of thinking about and conducting research into the intersection of media, communication and cultural practices in both historical and contemporary perspectives. Encompassing humanistic, social scientific and artistic approaches to the study of media and culture, and interdisciplinary in its theoretical and methodological approaches, the degree spans traditional boundaries between theory and practice. It fosters media “literacy” in the broadest sense by providing students with critical skills to analyze contemporary media and culture, along with technical, aesthetic and intellectual principles that facilitate strong media practices.

**Course code for this program is MDST.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Media Studies

The goal of the media studies BA is to prepare students to become intellectually engaged critics of their media environment through a commitment to rigorous scholarship and creative media practice. Students will exit the program with a vital edge as innovative, critical professionals and well-rounded, independent thinkers.

### *Required Courses and Semester Credit Hours*

Students pursuing the BA in Media Studies complete 13 courses, for 39 credit hours.

Four required courses comprise the MDST core:

- Media Literacy (3 hours)
- Media Research (3 hours)
- Media and Communication History (3 hours)
- Digital Culture and Politics (3 hours)

Students would then take the following courses offered by MDST, other departments or programs in CMCI or departments outside CMCI:

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- Advanced Research Methods (3 hours)
- Media Practice (6 hours)

The Media Practice component consists of courses involving hands-on work in the CMCI Departments of Advertising, Public Relations and Media Design; Journalism; Information Science or Critical Media Practices; or in the Technology, Arts and Media program in ATLAS.

Students will additionally explore an area of emphasis by taking four courses (for 12 credit hours) in one of the following:

- Media and Culture
- Media and Politics
- Global and International Media
- Multimedia Practice: Design and Production
- Media History and Archaeology
- Media Leadership: Management and Entrepreneurship
- Media Technology and Society
- Images and Screen Studies
- Self-Designed Emphasis (requires faculty approval)

Courses meeting this requirement could come from anywhere within CMCI or across the CU Boulder campus curriculum.

MDST requires an internship (3 hours) in a field of the student's choice, and a capstone project (3 hours), both usually completed in the senior year.

## Graduate Degree Program(s)

The department offers programs of study leading to the MS and PhD in media studies. Interested students should contact the department for current admission and degree requirements

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## Residential Academic Program (RAP)

### Communication and Society Residential Academic Program

Buckingham Hall's Communication and Society Residential Academic Program (COMM RAP) is a living-learning environment for 200 students designed around the theme of Communication and Society. It offers students an opportunity to engage with faculty and other students in a small college atmosphere within a major research university. Students explore the complex social problems and challenges of communication in contemporary society in seminar-sized courses. They also have opportunities to participate in co-curricular activities that stress civic engagement. The many opportunities for outreach and collaboration with the Boulder community provide an excellent venue for learning by doing.

A unique feature of the program is its integration of courses supporting areas within the College of Media, Communication and Information. These courses emphasize the role of participation, deliberation and collaboration in shaping and resolving public problems and problems in daily life. Its offerings also include opportunities for upper-division courses on topics germane to communication and society.

In addition to communication offerings, the curriculum includes courses that satisfy the writing and core requirements in CMCI. Across the year, guest lectures and seminars provide opportunities to interact on civic engagement and societal participation with leading experts on the CU faculty and distinguished visitors to the university.

The COMM RAP is open to students with an interest in communication and society, regardless of major. A fee is charged for participation in the program. For more information, call **303-492-1996**.

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## Faculty: Advertising, Public Relations and Media Design

| Name                   | Title                                 | Education  |
|------------------------|---------------------------------------|--|
| CHEVAL, Melinda Kiger  | senior instructor                     | BS, West Virginia University School of Journalism  |
| DUNCAN, Thomas R.      | professor emeritus                    |  |
| GANGADHARBATLA, Harsha | department chair; associate professor | BE, Motilal Nehru Institute of Technology, University of Allabad, India; MA, Michigan State University; PhD, University of Texas at Austin |
| LOGAN, Kelty           | assistant professor                   | BA, University of California, Los Angeles; MBA, Tulane University; PhD, University of Texas at Austin                                      |
| MORIARTY, Sandra E.    | professor emerita                     |  |
| ROBBS, Brett           | professor emeritus                    |  |
| SCHAUSTER, Erin        | assistant professor                   | BS, Southern Illinois Carbondale; MS, Southern Illinois Edwardsville; PhD, University of Missouri Columbia                                 |
| SLAYDEN, David         | associate professor                   | BA, Southern Illinois University; MA, University of Chicago; PhD, Indiana University   |
| WEED, Michael L.       | instructor                            | BA, Duke University  |
| WILLIS, Erin           | assistant professor                   | BA, MA, PhD, University of Missouri Columbia; Master Public Health, University of Memphis  |

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## Faculty: Communication

| Name                     | Title  | Education  |
|--------------------------|--|--|
| ASHCRAFT, Karen L.       | director, Communication and Society RAP; professor | BA, California State University, Hayward; PhD, University of Colorado Boulder  |
| BOROMISZA-HABASHI, David | assistant professor                                | MA, Pazmany Peter Catholic University of Hungary; MA, State University of New York, Albany; PhD, University of Massachusetts |
| BOWERS, John Waite       | professor emeritus                                 |  |
| BURGESS, Guy             | instructor   | BA, PhD, University of Colorado  |
| CAMPBELL, Kathleen G.    | senior instructor emerita                          |  |
| CRAIG, Robert T.         | professor emeritus                                 | BA, University of Wisconsin; MA, PhD, Michigan State University  |
| DARNELL, Donald K.       | professor emeritus                                 |  |
| DEETZ, Stanley A.        | professor emeritus                                 | BS, Manchester College; MA, PhD, Ohio University   |
| FLORES, Lisa A.          | associate professor                                | BA, Berry College; MA, Northern Illinois University; PhD, University of Georgia  |
| FREY, Lawrence R.        | associate chair of graduate studies; professor     | BS, Northwestern University; MA, PhD, University of Kansas   |
| HAUSER, Gerard A.        | professor emeritus                                 |  |
| JAHN, Jody               | assistant professor                                | BS, University of Idaho; MA, PhD, University of California, Santa Barbara  |

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|-----------------------|--|---|
| KOSCHMANN, Matthew A. | assistant professor  | BA, University of Wisconsin-Madison; MA, University of New Mexico; PhD, University of Texas at Austin |
| KUHN, Timothy R.      | associate professor  | BA, MA, University of Minnesota; PhD, Arizona State University  |
| SIMONSON, Peter       | associate professor  | AB, AM, Stanford University; PhD, University of Iowa  |
| SKERSKI, Jamie        | senior instructor  | BA, Eastern Illinois University; MA, Colorado State University; PhD, Indiana University               |
| SPRAIN, Leah          | assistant professor  | BA, Pacific Lutheran University; MA, PhD, University of Washington                                    |
| TAYLOR, Bryan C.      | professor  | BA, University of Massachusetts Amherst; MS, PhD, University of Utah                                  |
| TOMPKINS, Elaine V.   | senior instructor emerita                                    |   |
| TOMPKINS, Phillip K.  | professor emeritus   |   |
| TRACY, Karen          | department chair; professor                                  | BS, Pennsylvania State University; MA, Bowling Green State University; PhD, University of Wisconsin   |
| WHITE, Cindy H.       | associate dean of undergraduate studies; associate professor | BA, MA, Texas Tech University; PhD, University of Arizona   |



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## Faculty: Critical Media Practices

| Name               | Title               | Education   |
|--------------------|---------------------|---|
| ESPELIE, Erin      | assistant professor | BS, Cornell; MFA, Duke University   |
| EWEN, Hunter       | instructor          | BS, BA, Case Western & Cleveland Institute of Music; MM and DMA, University of Colorado Boulder |
| HAMMONS, Christian | instructor          | BA, University of Colorado; MA, New York University; PhD, Southern California University        |

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## Faculty: Information Science

| Name             | Title                                 | Education  |
|------------------|---------------------------------------|--|
| BRUBAKER, Jed    | assistant professor                   | BS, University of Utah; MA, Georgetown; PhD, University of California Irvine       |
| FIESTER, Casey   | assistant professor                   | BS, MS, PhD, Georgia Institute of Technology; JD, Vanderbilt                       |
| PALEN, Leysia A. | department chair; associate professor | BS, University of California, San Diego; MS, PhD, University of California, Irvine |
| PAUL, Michael J. | assistant professor                   | BS, University of Illinois Urbana; MSE, PhD, Johns Hopkins                         |
| SZAFIR, Danielle | assistant professor                   | BA, University of Washington; MS, PhD, University of Wisconsin Madison             |
| VOIDA, Amy       | assistant professor                   | BAE, Arizona State University; MS, PhD, Georgia Institute of Technology            |
| VOIDA, Stephen   | assistant professor                   | BS, Arizona State University; MS, PhD, Georgia Institute of Technology             |

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## Faculty: Intermedia Art, Writing and Performance

| Name          | Title               | Education  |
|---------------|---------------------|--|
| AMERIKA, Mark | director; professor | BA, University of Florida; MFA, Brown University |

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## Faculty: Journalism

| Name                 | Title                                | Education   |
|----------------------|--------------------------------------|---|
| ACKLAND, Len         | professor emeritus                   |   |
| BERGEN, Lori         | dean; professor                      | BS, MS, Kansas State University; PhD, Indiana University  |
| BRINKMAN, P. Delbert | dean emeritus and professor emeritus |   |
| BROWNE, Jeffrey      | instructor                           | BJ, University of Nebraska-Lincoln; ME, University of Florida.                                  |
| DAUGHERTY, Paul      | instructor                           | BA, MA, University of Colorado Boulder  |
| FERRUCCI, Patrick    | assistant professor                  | BA, Providence College; MJ, Emerson College; PhD, University of Missouri Columbia               |
| JONES, Stephen B.    | assistant dean; senior instructor    | BA, MA, West Virginia University; PhD, University of Utah                                       |
| KAPLAN, Frank L.     | professor emeritus                   |   |
| KIM, Hun Shik        | associate professor                  | BA, Chung-Ang University; MA, PhD, University of Missouri                                       |
| KODAS, Michael       | instructor                           | BS, University of Missouri-Columbia.  |
| KUCZUN, Sam          | professor emeritus                   |   |
| McDEVITT, Michael J. | professor                            | AB, University of California, Berkeley; MA, San Jose State University; PhD, Stanford University |

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|-----------------------|-----------------------------|---|
| MORITZ, Marguerite J. | professor emerita           | BS, MS, PhD, Northwestern University  |
| RAYBON, Patricia      | professor emerita           |   |
| RYAN, Kathleen        | associate professor         | BA, University of California, Santa Barbara; MA, University of Southern California; PhD, University of Oregon         |
| SKEWES, Elizabeth A.  | associate professor         | BA, University of California, Los Angeles; MA, Ohio State University; PhD, Syracuse University                        |
| VOAKES, Paul S.       | department chair; professor | BA, University of California, Davis; MJ, University of California, Berkeley; PhD, University of Wisconsin–Madison     |
| WHITT, Jan            | professor                   | BA, MA, Baylor University; PhD, University of Denver  |
| YULSMAN, Thomas       | professor                   | BA, Harpur College, State University of New York at Binghamton; MS, Columbia University Graduate School of Journalism |



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## Faculty: Media Studies

| Name                   | Title  | Education  |
|------------------------|--|--|
| BERGGREEN, Shu-Ling C. | associate professor  | BA, Fu-Zen University; MS, Southern Illinois University; PhD, University of Tennessee  |
| CALABRESE, Andrew      | professor  | BA, Denison University; MA, PhD, Ohio State University   |
| ECHCHAIBI, Nabil       | department chair; associate professor                            | BA, Mohammed V University, Morocco; MA, PhD, Indiana University, Bloomington   |
| HOOVER, Stewart        | professor  | BA, McPherson College; MA, PhD, University of Pennsylvania   |
| McDEVITT, Michael J.   | professor  | AB, University of California, Berkeley; MA, San Jose State University; PhD, Stanford University                                  |
| McLEAN, Polly E.       | associate professor  | BA, Richmond College, City University of New York; MS, Columbia University; PhD, University of Texas                             |
| MODY, Bella            | James de Castro Chair in Global Media Studies; professor emerita | BA, St. Xavier's College, Ranchi University, India; MA Communication, University of Pennsylvania; PhD, Gujarat University, India |
| PECK, Janice A.        | associate dean of graduate studies; professor                    | BA, University of Utah; MA, University of Washington; PhD, Simon Fraser University   |
| ROWLAND, Willard D.    | dean emeritus and professor emeritus                             |  |
| SKEWES, Elizabeth A.   | associate professor  | BA, University of California, Los Angeles; MA, Ohio State University; PhD, Syracuse University                                   |
| STEVENS, Rick          | associate professor  | BS, Abilene Christian University; PhD, University of Texas   |

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|--------------------|--------------------|---|
| TRACEY,<br>Michael | professor          | BA, University of Exeter; PhD, University of<br>Leicester |
| TRAGER,<br>Robert  | professor emeritus |   |

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## College of Music



**Robert Shay, dean**

301 UCB • phone: 303-492-7505 • fax: 303-492-5619

website: [colorado.edu/music](http://colorado.edu/music)

The College of Music provides specialized training designed to prepare students for a variety of careers in music. The college offers three undergraduate degrees, three certificate programs and four graduate degrees; numerous performance opportunities are also available.

Established by the Regents of the University of Colorado in 1920, the College of Music is a fully accredited member of the National Association of Schools of Music.

### Mission

The mission of the College of Music at CU-Boulder is to promote excellence in music through distinguished instruction in performance, composition, musicology, theory and teacher preparation, and to provide opportunities for performance, creative activities, research and scholarship, and teaching.

The college is dedicated to:

- providing music majors and non-majors the opportunity to develop their knowledge, understanding and ability in the various aspects of music at a level appropriate to their needs and interests;
- preparing students for careers as performers, composers, scholars, teachers, administrators and other professionals in the field of music;
- broadening and deepening the knowledge and understanding of music through research, teaching, creative activities and publication; and
- enriching the lives of students and faculty as well as the community, state, nation and the world with performances of a wide variety of music presentations and publications.

The College of Music is an academic community committed to maintaining a climate of mutual respect and collegiality.

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The widely varied functions of music in the world today present many challenging and interesting opportunities for teachers, performers, creative artists, technicians and commercial personnel. While these different pursuits require specialized emphases, the faculty of the College of Music recognize the musical and educational experiences that are common to all. Therefore, each curriculum of the College of Music is designed to present music as an integrated whole. Solo performance and technique, ensemble performance, historical and theoretical studies, concert and recital opportunities and elective courses both inside and outside the college are intended to give students a balanced approach to musical understanding and musicianship.

The college maintains a ratio of approximately one tenure-track faculty member for every 10 students. This enables students to benefit from dynamic, personal interaction with their professors. The college also offers students regular academic advising to ensure that they complete their degrees without unnecessary delay.

In addition to training in the various professions of music, the college provides general music studies and activities for the non-major; broad cultural programs (concerts, recitals, lectures) for the university and Boulder communities; favorable conditions for research in music; and service activities to the state and nation.

The Bachelor of Arts in Music, Bachelor of Music and Bachelor of Music Education degrees are granted by the university, upon recommendation of the faculty of the College of Music, to those who have successfully completed prescribed requirements.

Students must complete an online graduation application and schedule a final checkout appointment by December 15 for May/August graduation and by October 1 for December graduation.

## Undergraduate Education in Music

The undergraduate degrees in music emphasize knowledge and awareness of:

- solo performance and technique, including the various musical styles used in compositions for students' musical instruments or voice;
- each composition performed, notation and editorial signs used in the compositions performed, and repertoire for the students' performance medium;
- ensemble performance, including familiarity with major composers in the student's performance medium and the techniques necessary to blend a number of individual musicians into an ensemble;
- concert and recital opportunities, including literature composed for different performance forces;
- theoretical studies, including tonal harmony, counterpoint, voice-leading and notation; formal principles and analytical techniques for tonal music; and instruments in score, including the concert pitch of transposing instruments and nomenclature used in scores; and
- historical studies, including representative works in the canon of musical literature from chant to the present, the general outlines of the history of music from the Middle Ages to the present, music in the United States and musical cultures other than those of Europe.

In addition, students completing any of the degrees in music are expected to acquire the ability to:

- perform solo and ensemble repertoire demonstrating musical artistry, technical proficiency

and stylistic understanding;

- demonstrate an understanding of theoretical studies, including sight-reading and ear training; and
- demonstrate an understanding of historical studies including the analysis of stylistic periods and music of non-Western cultures.

## Graduate Degree in Music

All graduate degrees in music are granted by the Graduate School of the University of Colorado upon the recommendation of the faculty of the College of Music and approval by the administrative officers of the Graduate School. The information supplied here is supplemental to and must be read in conjunction with the information contained in the Graduate School section. Other information regarding rules applying to graduate degree students in music may be found online at [www.colorado.edu/music/academics/graduate-degrees](http://www.colorado.edu/music/academics/graduate-degrees).

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## Major Fields & Degrees

**Undergraduate degrees** include the bachelor of music (BM), the bachelor of arts in music (BA) and the bachelor of music education (BME). Students may also elect to earn a certificate in jazz studies, music technology or music entrepreneurship in conjunction with their degree. In addition to a substantial core of studies in music, the BA in music program allows a wide choice of study in areas outside of music. BM areas of concentration include: composition, musicology, performance and jazz studies. The major emphasis areas in the BME program are: choral, choral-general, instrumental and instrumental-general.

Incoming freshmen and transfer students in the College of Music are declared as music majors at the beginning of their first semester. There is no minor in music.

Students may pursue double degrees in music and an outside field such as engineering, business, etc. Questions may be directed to the associate dean for undergraduate studies, College of Music, **303-492-8468**, or [ugradmus@colorado.edu](mailto:ugradmus@colorado.edu).

**Graduate degrees** include the master of music (MM), the master of music education (MME), doctor of musical arts (DMA) and doctor of philosophy (PhD). Major fields in the master of music and doctor of musical arts degrees are conducting, composition, music theory (MM only), jazz studies, pedagogy and performance. The master of music education degree is designed to provide advanced instruction for teachers in the elementary and secondary schools. The PhD is a research degree for the fields of musicology and music education.

Graduate degrees are offered through the Graduate School and additional information can be found in the Graduate School section as well as in the curricula listed for the college.

Correspondence regarding details not included in this publication should be directed to the associate dean for graduate studies, **303-492-8468** or [gradmusic@colorado.edu](mailto:gradmusic@colorado.edu).

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## Facilities

The College of Music has several beautiful performance halls, including the 2,000-seat Macky Auditorium, the 500-seat Grusin Music Hall, the 270-seat Music Theatre and the 120-seat Chamber Hall. The college is located primarily in the Warner Imig Music Building, a large complex of practice rooms, faculty studios, offices, ensemble rehearsal areas, seminar facilities and classrooms. An addition to the east side of the building features a 4,300 square foot rehearsal space with a 35-foot ceiling and acoustical draping. Additional rehearsal and classroom facilities are located in Macky.

The college's outstanding Howard B. Waltz Music Library is considered to be among the nation's most comprehensive. The library contains over 150,000 volumes, scores, recordings and periodicals. Computerized facilities are provided for listening to recordings and workstations are available for computer-based reference searching.

The college also features extensive facilities for music technology and electronic music study. The Computer-Assisted Music Laboratories (I and II) are multi-purpose labs designed primarily for classroom instruction. They feature numerous workstations, each with a Musical Instrument Digital Interface, sampling keyboard and a computer. The CRUNCH Lab is a fully-featured electronic music project studio. This lab is optimized for computer music research (including live interactive performance systems), as well as sound recording and editing projects and audio/video production. The Class Piano Laboratory is equipped with 12 digital pianos.

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## Performances

Each year the College of Music presents over 400 concerts by students, faculty and guest. In addition to individual musical pursuits, students at all levels have the opportunity to perform in a variety of outstanding ensembles including orchestras, choirs, bands, world music ensembles, chamber and early music groups, jazz ensembles and combos, opera productions and musicals. Many of these groups have been invited to perform at prestigious national and international events. Recitals by students and faculty are supplemented by visits from world-class guest artists, all of which provide the Boulder community with the chance to hear some of the finest music being performed today. The vast majority of these excellent performances are free and open to the public.

Other music programs presented by CU Presents include:

- Artis Series
- Eklund Opera Program
- Takács Quartet Series
- Holiday Festival

For a schedule of all College of Music performances, call 303-492-8008 or visit [colorado.edu/music](http://colorado.edu/music).

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## Student Organizations

Additional organizations include CU Trombone Society, CU Trumpet Alliance and Diverse Musicians Alliance.

The student body of the College of Music has its own government, represented by the College of Music Student Government and the Graduate Music Student Council. Honorary music fraternities are Sigma Alpha Iota, Mu Phi Epsilon and Kappa Kappa Psi. Pi Kappa Lambda, a national music honor society, and the Music Teachers National Association both have active chapters within the College of Music. Music education majors are eligible for membership in student chapters of the National Association for Music Educators, the American Choral Directors Association and the American String Teachers Association. Additional organizations include CU Trombone Society, CU Trumpet Alliance and Diverse Musicians Alliance.

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## Entrepreneurship Center

The Entrepreneurship Center for Music is a national leader in professional development for musicians. The EMC equips today's music students with the skills and tools they need to create sustainable careers in the arts. EMC students are encouraged to develop entrepreneurial skills to explore the vast opportunities inherent in a changing marketplace, and to develop plans to implement career-enhancing ventures across the artistic spectrum. Offerings include courses for credit, an undergraduate Certificate in Music Entrepreneurship, workshops and internships with a wide range of arts organizations and businesses nationwide.

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## Academic Excellence

### Honors at Graduation

Students achieving a cumulative GPA of 3.70-3.79 graduate with honors, 3.80-3.89 with high honors and 3.90-4.00 with highest honors. These students are recognized at commencement.

### Scholarships and Awards

A number of scholarships and awards are designed specifically for students in the College of Music. Undergraduate music majors are eligible for scholarships or renewal of their scholarships as long as they make satisfactory degree progress by (a) demonstrating adequate performance in weekly applied lessons, ensemble and scholarship auditions, applied proficiencies/juries, and recitals/previews, (b) maintaining at least a 3.0 cumulative grade point average in those classes that count toward the music degree and (c) successfully completing at least two-thirds of the credit hours attempted while a music major at CU-Boulder.

Graduate students must enroll as full-time students, maintaining a 3.00 GPA, and make adequate progress toward their degrees. The college offers approximately 100 graduate assistantships as well as graduate fellowships and a variety of endowed scholarships for graduate students.

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# Academic Standards

## Academic Ethics

Students are expected to conduct themselves in accordance with the highest standards of honesty and integrity. Cheating, plagiarism, illegitimate possession and disposition of examinations, alteration, forgery, or falsification of official records and similar acts or the attempt to engage in such acts are grounds for suspension or expulsion from the university.

In particular, students are advised that plagiarism consists of any act involving the offering of the work of someone else as their own. It is recommended that students consult with their instructors as to the proper preparation of reports, papers, etc., in order to avoid this and similar offenses. Students are expected to be acquainted with and abide by provisions of the University of Colorado Boulder Honor Code.

## Scholastic Requirements

To remain in good academic standing, a student must maintain at least a 2.00 cumulative grade point average (GPA) and make satisfactory progress toward the degree as defined by the College of Music and area faculty.

Academic probation is an official warning that a student's grades are unsatisfactory. Any undergraduate student who has a cumulative or semester grade point average below 2.00 is automatically placed on probation for the following three semesters. (Cumulative grade point average is calculated on grades earned at this university.) If a probationary student's grade point averages (semester and cumulative) at the end of any probationary semester and the cumulative probationary period are not 2.00 or above, automatic suspension results. Any undergraduate student who has a cumulative or semester grade point average below 1.00 also is automatically suspended without a probationary period.

While on suspension, students may not register for regular day classes during the fall or spring semester on any CU campus and are not considered eligible for graduation. To regain good academic standing, suspended students must earn a semester GPA of 2.00 or higher and raise their cumulative GPA to 2.00 or above during the following term by successfully completing at least 12 credits (with no withdrawals, no incomplete grades, and no courses taken *pass/fail*) through the Division of Continuing Education and Professional Studies or summer session.

Courses taken at other campuses or institutions will not be used for purposes of reinstatement, but credits earned may be transferred according to normal procedures and policies after reinstatement and readmission. Suspended students who raise their cumulative GPA to 2.00 or above may then petition for readmission and receive a personal hearing before the associate dean. Suspended students who do not raise their cumulative GPA to 2.00 or above are dismissed from the college and university. Students who have been dismissed must reapply for

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admission to the university after being reinstated by the college.

Undergraduate music majors are eligible for scholarships or renewal of their scholarships as long as they make satisfactory progress in their major (as determined by the faculty), demonstrate satisfactory proficiency in jury exams and auditions, enroll in ensemble and maintain a minimum cumulative GPA of 3.00. Students who have a cumulative GPA below 3.00 will be placed on scholarship probation for a maximum of two semesters (consecutive or cumulative), provided the GPA improves each semester. Students on scholarship probation who do not earn a cumulative GPA of 3.00 or higher by the end of the probationary period will have their scholarships revoked.

## Appeals

Students have the right to appeal decisions of academic dishonesty and to petition for exceptions to the academic policies stated in this catalog. Appeals should be directed to the Associate Dean for Undergraduate Studies. College of Music policies are in addition to the campus policies.

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# Undergraduate Admission & Enrollment Policies

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## Admission Requirements

In addition to the entrance requirements of the university outlined in Undergraduate Admission in the General Information section, freshman and transfer students must meet College of Music entrance requirements. Successful College of Music applicants have extensive prior experience in music (including private study), the ability to read and sight-read music notation, an understanding of music fundamentals or basic music theory and elementary piano skills. Students with appropriate skill in piano sight reading and keyboard harmony may be able to test out of all or part of the keyboard musicianship requirement included in their degree plan. Students with an AP Music Theory test score of 4 are credited with one semester of music theory and aural skills, and those with a test score of 5 are credited with two semesters.

## Auditions

An audition is required for all prospective undergraduate music majors. Undergraduate auditions are held in Boulder on selected Saturdays in February. Alternate audition dates may also be scheduled if necessary. If travel distance is prohibitive, prospective students may substitute a high-quality recording. Applicants should identify themselves by name and list selections and titles at the beginning of the recording. In order for students to be fully considered for financial assistance, live auditions should be completed and recordings should be received by February 21. Students should prepare a 10–20 minute audition program in accordance with the audition requirements that are listed on the College of Music website: [www.colorado.edu/music/admissions/prospective-undergraduates/undergraduate-auditions](http://www.colorado.edu/music/admissions/prospective-undergraduates/undergraduate-auditions).

Contact the Undergraduate Office at **303-492-8468** or [ugradmus@colorado.edu](mailto:ugradmus@colorado.edu) for more information.

Admissions decisions for music composition applicants are based on a review of scores and

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sound recordings for at least three contrasting works. If the portfolio of scores and recordings is considered acceptable for admission to the music composition program, applicants are then invited to schedule an instrumental/voice audition.

Admissions decisions for music education applicants are based on academic qualifications, audition results and an interview conducted by two or more music education faculty members. Interviews address written and verbal communication skills, motivation and goals related to music teaching, prior music teaching experiences and affective characteristics associated with effective music teachers. For more information about music education interviews, visit [www.colorado.edu/music/departments/music-education](http://www.colorado.edu/music/departments/music-education) and contact the music education chair.

## Provisional Admission

Applicants who meet all admission requirements except the minimum academic preparation standards (MAPS) may petition the associate dean for undergraduate studies for admission as a provisional student.

## Transfer Students

Transfer students from within the university and from other universities must meet the general requirements of the university and the specific requirements of the College of Music, including the audition. See Undergraduate Admission in the General Information section for specific requirements.

## Attendance Requirements

Successful work in the College of Music is dependent on regular attendance in all classes. At the beginning of each semester, instructors will inform students of policies governing grading and attendance in each class. Students are expected to attend classes and comply with the attendance requirements specified by their instructors. For ensembles and other performance classes, attendance at dress rehearsals, major concerts and other approved/sanctioned performances, as listed in the course syllabus, also is required.

## New Student Convocation

New Student Convocation is an extension of the CU-Boulder campus and College of Music orientation programming. Convocation sessions are designed to provide new undergraduate music majors with the knowledge and skills necessary to be successful in making progress toward a music degree. Freshman music majors are required to attend all 10 convocation sessions. Transfer student attendance is not required, but individuals are strongly encouraged to attend and participate in any convocation sessions that may be particularly interesting or relevant to their future success.

## Ensembles

All undergraduate students enrolled in applied music must participate in a university ensemble appropriate to and required by their degree program. (Students enrolled in conducting courses must concurrently be enrolled in a conducted ensemble.) Voice performance majors are not required to be in ensembles during the semester of their senior recital, and bachelor of music education students are exempt from ensemble participation during the student teaching semester. Any student who studies applied music beyond degree requirements must participate concurrently in a university ensemble. Double majors need be in only one ensemble at a time.

## Sophomore Proficiency

Students must pass a variety of jury tests and proficiency exams during their degree work. Each

applied area has different requirements, so students need to consult the chair of their area and/or studio professor. However, all students must pass a sophomore proficiency exam. Students who cannot pass this exam receive an incomplete grade and cannot progress to the junior level of applied study until the proficiency is achieved. Studio professors provide students with proficiency and repertoire requirements.

## Course Load

The normal academic load for an undergraduate student in the College of Music is 15–17 semester hours. Schedules of fewer than 12 or more than 19 hours must have approval of the associate dean for undergraduate studies of the College of Music.

See limitations on registration under the Graduate School section for graduate student course load stipulations.

## Dropping a Course

Students should adhere to the deadlines for dropping a course in the registration handbook distributed each semester. After a certain date each semester, a special action form signed by the instructor and associate dean for undergraduate studies is required to drop a course.

## Pass/Fail Option

The *pass/fail* option for 12 credits is open only to undergraduate students. Music education students may only use the *pass/fail* option for student teaching. *Pass/fail* hours are to be selected from nonmusic courses and are in addition to those that may be taken in honors. Courses so elected are taken according to the *pass/fail* policies of the college or school concerned.

*Pass/fail* hours that transfer students can apply toward degree requirements from departments within the university are limited to 1 in every 8 semester hours earned in the College of Music.

## Residence Requirement

Of the hours required for an undergraduate degree, the last 56 credits must be completed in residence in the College of Music. This may be reduced by the associate dean for undergraduate studies for excellent work done in this university and for high scholarship exhibited at previous institutions attended. In no case shall the minimum be fewer than 40 hours distributed over three semesters. At least 9 hours in applied music (private instruction) must be earned in this college for the degrees bachelor of music and bachelor of music education, and 6 hours for the bachelor of arts in music.

## Student Work

A copy of all scholarly student papers that generate credit (dissertations, theses, projects, lecture recitals and other document-producing activities), whether undergraduate or graduate, is placed in the Music Library. More than one copy may be required in individual degree programs. To ensure that degree requirements have been met and the document is appropriate for placement in the Music Library, all faculty-approved documents must be presented to the appropriate associate dean's office at least two weeks before the graduation date.

Any recital required for graduation is recorded. Arrangements are to be made through the

College of Music Concerts Office, and a recording fee is charged. The original recording is placed in the Music Library.

## Stay Connected Program/Withdrawal

The online Schedule of Courses indicates the deadlines for withdrawal from the university and the financial penalties incurred with each. Students wishing to withdraw or apply to the Stay Connected Program should follow appropriate university guidelines (contact the office of the registrar or the associate dean of music). Those who stop attending class without officially withdrawing will receive *F*s in each of their courses.

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# Graduate Degree Admission & Enrollment Policies

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## Admission Requirements

Admission requirements for specific degree programs that supplement the Graduate School requirements are discussed in the degree program descriptions that follow. Students are urged to take the general (verbal, quantitative, analytical) portions of the Graduate Record Examination (GRE). GRE scores are required as part of the application to the PhD programs and MM in music theory, and they are recommended for the DMA programs and Master of Music Education degree.

## Preliminary Examinations

Just before the beginning of their first semester of work toward a master's or doctoral degree, students are given preliminary exams covering the major field, several areas of music theory and music history. Specific requirements vary with the student's degree and program. Students pursuing the master's and doctoral degrees in voice also must pass proficiency requirements in piano and diction (English, French, German and Italian).

Results from the major-field examination serve as one basis for recommending specific course work in the program. The major-field examination in musicology includes essay questions, score analysis and identification of terms. Conducting majors should be knowledgeable in areas of repertoire, score analysis and conducting techniques. Performance majors are examined in the areas of technique, repertoire, stylistically informed performance and pedagogy. Students enrolled in the master's degree in Jazz Performance and Pedagogy must demonstrate knowledge of jazz theory and history and jazz keyboard proficiency.

## College Teaching and Professional Development

Most graduate degrees in music require coursework in music pedagogy. Students who plan to teach at the college level are urged to be involved in the many offerings of CU Boulder's

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renowned Graduate Teacher Program. Workshops, observations, consultations, and other professional development opportunities are scheduled throughout the academic year. These include campus-level offerings as posted at the GTP website ([www.colorado.edu/gtp](http://www.colorado.edu/gtp)), as well as music-specific events organized by the Lead TAs in the College of Music. The GTP offers three certificates that graduate students may pursue during their studies at CU Boulder: the Certificate in College Teaching (CCT), [Professional Development Certificate for Preparing Future Faculty \(PDC:PFF\)](#), and Professional Development Certificate for Preparing Future Professionals in Business, Government, Industry and the Arts (PDC:BGIA). For details, see [www.colorado.edu/gtp/certificates](http://www.colorado.edu/gtp/certificates).

## Financial Aid

In addition to the opportunities for financial aid described in the Graduate School section, the College of Music grants merit aid in the form of teaching assistantships and graduate part-time instructorships (GPTI) to numerous graduate students each year. The assistantships and instructorships, which are usually one-quarter time 25%, include both a stipend and the waiver of 5 or 6 credit hours of tuition each semester. There are also scholarships offered by the individual departments and external fellowships awarded through the Graduate School. All prospective students who have completed their applications by December 1 will automatically be considered for available scholarships and assistantships.

## English Language Requirements

A student who is noticeably deficient in the use of the English language may not obtain an advanced degree from the University of Colorado. Satisfaction of this requirement depends not so much upon ability to pass formal tests, although these may be required, as upon the consistent use of good English in all oral and written work.

Therefore, the TOEFL exam is required of ALL international graduate applicants whose native language is not English. *This includes applicants who have already completed a degree or studied in an English-speaking country for any length of time.* An acceptable score must be reported directly to the CU-Boulder Office of Admissions by the December 1 deadline in order for the applicant to be considered.

The College of Music has an additional requirement that all admitted students whose language is not English are required to take an English placement exam with the English as a Second Language (ESL) department upon arrival on campus and to abide by the recommendations made.

## Graduate Auditions

Auditions are required for all performance and performance/pedagogy programs. A personal audition is strongly preferred, but students may be accepted into most programs by submitting a recorded audition. Note that some studios require a preliminary, recorded audition before a student may be invited to schedule an audition on campus. For specific information and audition dates, refer to the website ([www.colorado.edu/music/prospective-graduate-students/auditions](http://www.colorado.edu/music/prospective-graduate-students/auditions)) or contact the office of the associate dean for graduate studies at **303-492-2207** or [gradmusc@colorado.edu](mailto:gradmusc@colorado.edu).

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## Programs of Study & Degrees

The College of Music provides specialized training designed to prepare students for a variety of careers in music. The college offers three undergraduate degrees, three certificate programs, four graduate degrees and three professional certificates.

**The course codes for these programs are EMUS, MUSC, PMUS and TMUS.**

|                              |                                |
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| Music Education              | BMusEd, MMusEd, PhD            |
| Music Theory                 | MMus                           |
| Musicology                   | BMus, PhD                      |
| Music Composition            | BMus, MMus, DMusA              |
| Music Performance            | BMus, MMus, DMusA, certificate |
| Music Performance & Pedagogy | MMus, DMusA                    |
| Jazz Studies                 | BMus, DMusA                    |
| Conducting                   | MMus, DMusA                    |

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# Music

## Bachelor of Arts in Music (BA)

The bachelor of arts in music degree has as its goal a broad education in music within a liberal arts context. Although students may elect to pursue special interests, the primary emphasis is on the development of basic musicianship, an ability to perform music and a broad knowledge of the foundations and principles of music as an art. The bachelor of arts in music may be completed with or without an emphasis in musicology and world musics.

Students may elect to pursue a second degree in a nonmusic field in addition to the BA degree in music; double degrees typically require more than four years to complete.

A minimum of 120 semester hours with an overall GPA of 2.00 must be earned for the BA in music degree. Of these hours, at least 68 (66 for musicology emphasis) must be in nonmusic courses. Thirty must be at the 3000 or 4000 level. A minimum of 44 hours (50 for musicology emphasis) is required in music courses.

The normal pattern for private applied instruction in this degree is one half-hour lesson per week for 2 semester hours of credit. Not more than 16 semester hours (12 for musicology emphasis) of credit in private instruction may be used toward the degree.

Students registered for applied music must participate in an ensemble as recommended by their applied faculty. A maximum of 4 credit hours (6 for musicology emphasis) in ensemble can apply to the BA in music degree.

A recital may be given with permission of the chair of the applied faculty area and the student's advisor.

## Minimum Requirements

In addition to the general requirements listed above, the following specific requirements must be met:

- Three credits of English composition.
- Basic proficiency in one foreign language equal to three semesters at the university level. This requirement also may be fulfilled by three years of study in high school in one language or by passing a university proficiency examination.
- Nonmusic electives to fulfill the minimum requirement of 68 semester hours of credit. Of the nonmusic electives, 37 semester hours of credit must be fulfilled through the College of Arts and Sciences core curriculum. The arts and sciences core curriculum for the BA degree includes:
  - 3 credit hours of written communication

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- 3 credit hours of historical context
- 3 credit hours of human diversity
- 3 credit hours of United States context
- 3 credit hours of contemporary societies
- 3 credit hours of ideas and values
- 6 credit hours of literature and the arts
- 13 credit hours of natural science

## Courses and Curricula

For the BA in music degree, students must complete the courses listed below. More detail is given on the degree sheet available from the associate dean of undergraduate studies.

### *Required Courses and Semester Credit Hours*

#### **Freshman Year**

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1105, 1205 Keyboard Musicianship 1 and 2—2
- MUSC 1XXX applied instruction (lessons and literature class)—4
- Ensemble—2
- Foreign language—3
- Written communication—3
- Non-music electives—9

#### **Sophomore Year**

- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2988 Introduction to Music Research—1
- MUSC 2997 Sophomore Proficiency—1
- MUS 2XXX applied instruction (lessons and literature class)—4
- Ensemble—2
- Non-music electives—18

#### **Junior Year**

- MUSC 3802, 3812 History of Music 1 and 2—6
- Upper-division theory elective (3000 or 4000 level theory classes, except MUSC 4101)—2
- Non-music electives—22

#### **Senior Year**

- Elective in music history, 4000 level—3
- Non-Western music, 2000/4000 level—3
- Non-music electives—20

## Bachelor of Arts in Music with an Emphasis in Musicology and World Musics

### *Required Courses and Semester Credit Hours*

#### **Freshman Year**

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1105, 1205 Keyboard Musicianship 1 and 2—2
- MUSC 1XXX applied instruction (lessons and literature class)—4
- Written communication—3
- Ensemble—2
- Foreign language—3
- Non-music electives—9

#### **Sophomore Year**

- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2772 World Musics—3
- MUSC 2782 World Musics—3
- MUSC 2988 Introduction to Musical Research—1
- MUSC 2997 Sophomore Proficiency—1
- MUSC 2XXX applied instruction (lessons and literature class)—2
- Ensemble—2
- Non-music electives—15

#### **Junior Year**

- MUSC 3802, 3812 History of Music 1 and 2—6
- 4000-level theory elective—2
- Ensemble—2
- Non-music electives—20

#### **Senior Year**

- MUSC 4112 Ethnomusicology—3
- 4000-level music history elective—3
- Non-music electives—20

## Bachelor of Music (BM)

The four-year professional curriculum leading to the bachelor of music degree emphasizes creative skill, academic achievement and artistic performance in music. Concentration areas

are offered in **performance, composition, musicology and jazz studies**. Performance areas include **voice, piano, jazz piano, organ, harpsichord, string instruments, harp, classical guitar, woodwinds, brass and percussion**.

A half recital in the junior year and a full recital in the senior year are required of students in the performance concentration areas, except voice theatre. Students should check with their advisor about preview policies.

A senior thesis is required of students in musicology. Music composition students must complete a senior project, as must voice students with an emphasis in musical theatre (senior recital, major role or direction/design of a major show). Student advisors must approve senior thesis and senior project plans.

Ensemble and chamber music requirements are specified in the degree plan for each concentration as approved by applied area faculty. Exceptions to these requirements must be approved by the major advisor and associate dean in consultation with area chairs and ensemble conductors.

The bachelor of music degrees include requirements in theory, history and literature of music. Elective study in most degrees requires 30 nonmusic credits, including 3 in English composition, and 12 free electives that may be music or non-music courses. A suggested course sequence is shown below. (More detail is given on the degree sheets available on the undergraduate studies website at [www.colorado.edu/music/undergraduate-degrees/advising](http://www.colorado.edu/music/undergraduate-degrees/advising).)

## Written Communication

Students pursuing the bachelor of music degree will be required to take one 3-hour course in English composition through the Program for Writing and Rhetoric or the English department. Courses such as First-Year Writing and Rhetoric, Freshman Writing Seminar or Introduction to Creative Writing fulfill the requirement. The credit hours are applied in the liberal arts electives category. Students are strongly encouraged to complete this requirement by the end of their freshman year.

## Courses and Curricula

All degrees require 120 credit hours.

### Brass and Percussion Performance Concentration Area

#### *Required Courses and Semester Credit Hours*

#### **Freshman Year**

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1XXX Applied brass/percussion instruction (lessons and literature class)—6
- PMUS 1105, 1205 Keyboard Musicianship 1 and 2—2
- Ensemble—2
- Written communication—3
- Non-music electives—6

#### **Sophomore Year**

- MUSC 2101, 2111 Theory 3 and 4—4

- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2997 Sophomore Proficiency—1
- MUSC 4918 Building Your Music Career—2
- PMUS 2XXX Applied brass/percussion instruction (lessons and literature class)—5
- Chamber Music —2
- Ensemble—2
- Non-music electives—13

### **Junior Year**

- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 2071 Instrumentation—2
- MUSC 3176 Conducting 1—2
- MUSC 3997 Junior Recital—1
- PMUS 3XXX Applied brass/percussion instruction (lessons and literature class)—6
- Chamber Music—2
- Ensemble—2
- Upper-division Theory Elective (3000 or 4000 level theory classes, except MUSC 4101)—2
- Non-music electives—9

### **Senior Year**

- MUSC 4081 Introduction to Music Technology—3
- MUSC 4997 Senior Recital—1
- PMUS 4XXX Applied brass/percussion instruction (lessons and literature class)—6
- Chamber Music—2
- Ensemble—2
- Non-Western Music 2000/4000 level—3
- Music electives—3
- Non-music electives—9

## **Composition Concentration Area**

### ***Required Courses and Semester Credit Hours***

#### **Freshman Year**

- PMUS 1526 Composition (and Composition Seminar)—6
- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- Applied lessons—4
- Written communication—3
- Ensemble—2

- Non-music electives—6

### **Sophomore Year**

- MUSC 2071 Instrumentation —2
- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2997 Sophomore Proficiency—0
- PMUS 2526 Composition (and Composition Seminar)—6
- Applied lessons—4
- Ensemble—2
- Non-music electives—14

### **Junior Year**

- MUSC 3176 Conducting 1 —2
- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 4001 New Music Styles and Practices—2
- MUSC 4011 16th Century Counterpoint—2
- MUSC 4041 Orchestration—2
- PMUS 3526 Composition (and Composition Seminar)—6
- Ensemble—2
- Non-music electives—10

### **Senior Year**

- MUSC 4021 18th Century Counterpoint—2
- MUSC 4061, 4071 Tonal Analysis and Post-tonal Theory and Analysis—4
- PMUS 4526 Composition (and Composition Seminar)—6
- Ensemble—2
- Non-Western music, 2000/4000 level—3
- Non-music electives—7

## **Classical Guitar Performance Concentration Area**

### ***Required Courses and Semester Credit Hours***

#### **Freshman Year**

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1326 Guitar Musicianship—1
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- MUSC 2366 Introduction to Accompanying—2
- PMUS 1105, 1205 Keyboard Musicianship 1 and 2—2
- PMUS 1566 Applied guitar instruction (lessons and literature classes)—8

- Written communication—3
- Non-music electives—6

### **Sophomore Year**

- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2997 Sophomore Proficiency—1
- PMUS 2566 Applied guitar instruction (lessons and literature classes)—7
- Ensemble—2
- Music electives—3
- Non-music electives—15

### **Junior Year**

- MUSC 3176 Conducting 1—2
- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 3997 Junior Recital—1
- MUSC 4061 Tonal Analysis —2
- PMUS 3566 Applied guitar instruction (lessons and literature classes)—7
- Ensemble—2
- Upper-division theory or history elective (3000 or 4000 level theory classes, except MUSC 4101)—2/3
- Non-music electives—8

### **Senior Year**

- MUSC 4106 Guitar Literature—2
- MUSC 4997 Senior Recital—1
- PMUS 4566 Applied guitar instruction (lessons and literature classes)—7
- Ensemble—2
- Non-Western music, 2000/4000 level—3
- Non-music electives—10

## **Harp Performance Concentration Area**

### ***Required Courses and Semester Credit Hours***

#### **Freshman Year**

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1105, 1205 Keyboard Musicianship 1 and 2 —2
- PMUS 1576 Applied harp instruction (lessons and literature class)—8
- Written communication—3

- Ensemble—2
- Non-music electives—9

### **Sophomore Year**

- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2997 Sophomore Proficiency—1
- PMUS 2105, 2205 Keyboard Musicianship 1 and 2—2
- PMUS 2576 Applied harp instruction (lessons and literature class)—7
- Ensemble—2
- Non-music electives—12

### **Junior Year**

- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 3997 Junior Recital—1
- MUSC 3176 Conducting 1—2
- MUSC 2071 Instrumentation—2
- PMUS 3576 Applied harp instruction (lessons and literature class)—7
- Chamber Music—1
- Ensemble—2
- Non-music electives—10

### **Senior Year**

- MUSC 4997 Senior Recital—1
- PMUS 4576 Applied harp instruction (lessons and literature class)—7
- Chamber Music—2
- Ensemble—2
- Non-Western Music 2000/4000—3
- Upper-division theory elective (3000 or 4000 level theory classes, except MUSC 4101)—2
- Non-music electives—9

## **Harpichord Performance Concentration Area**

### ***Required Courses and Semester Credit Hours***

#### **Freshman Year**

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1586 Applied Harpsichord Instruction (lessons and literature classes)—6
- University Ensemble—2

- Written communication—3
- Non-music electives—12

### **Sophomore Year**

- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2997 Sophomore Proficiency—1
- MUSC 4405 Basso-Continuo Accompaniment (fall)—2
- PMUS 2586 Applied Harpsichord Instruction (lessons and literature classes)—5
- University Ensemble—2
- Non-Western music history—3
- Performance minor—4
- Non-music electives—9

### **Junior Year**

- MUSC 3176 Conducting 1 (fall)—2
- MUSC 4011 16th Century Counterpoint—2
- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 3997 Junior Recital—1
- PMUS 3586 Applied Harpsichord Instruction (lessons and literature classes)—6
- University Ensemble—2
- Non-music electives—9
- Music Electives (special studies focusing on harpsichord literature and pedagogy recommended)—2

### **Senior Year**

- MUSC 4061 Tonal Analysis (fall)—2
- MUSC 4852 17th Century and Early 18th Century Music—3
- MUSC 4021 18th Century Counterpoint (fall)—2
- PMUS 3586 Applied Harpsichord Instruction (lessons and literature classes)—6
- MUSC 4997 Senior Recital—1
- Upper-division music history elective—3
- University Ensemble—2
- Non-music electives—7

## **Organ Performance Concentration Area**

### ***Required Courses and Semester Credit Hours***

#### **Freshman Year**

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2

- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1616 Applied organ instruction (lessons and literature class)—6
- Ensemble—2
- Performance minor—2
- Written communication—3
- Non-music electives—6

### **Sophomore Year**

- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2265 Service Playing Techniques—2
- MUSC 2997 Sophomore Proficiency—1
- MUSC 3176 Conducting 1—2
- PMUS 2616 Applied organ instruction (lessons and literature class)—7
- Ensemble—2
- Performance minor—2
- Non-music electives—8

### **Junior Year**

- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 3997 Junior Recital—1
- MUSC 4011 or 4021 16th/18th Century Counterpoint—2
- MUSC 4285, 4295 Organ Survey—6
- PMUS 3616 Applied organ instruction (lessons and literature class)—7
- Ensemble—2
- Non-music electives—8

### **Senior Year**

- MUSC 4011 or 4021 16th/18th Century Counterpoint—2
- MUSC 4997 Senior Recital—1
- PMUS 4616 Applied organ instruction (lessons and literature class)—7
- Non-Western music, 2000/4000 level—3
- Ensemble—1
- Non-music electives—14

## **Piano Performance Concentration Area**

### ***Required Courses and Semester Credit Hours***

#### **Freshman Year**

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2

- MUSC 1325 Sight Reading for Piano—1
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- MUSC 2365 Introduction to Accompanying—2
- PMUS 1636 Applied piano instruction (lessons and literature classes)—6
- Written communication—3
- Non-music electives—11

### **Sophomore Year**

- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2325 Applied Harmony for the Keyboard—2
- MUSC 2997 Sophomore Proficiency—1
- PMUS 2636 Applied piano instruction (lessons and literature classes)—5
- PMUS 4105 Supervised Accompanying—2
- Non-music electives—15

### **Junior Year**

- MUSC 3176 Conducting 1 (fall)—2
- MUSC 3345/3355 Piano Pedagogy 1 and 2—4
- MUSC 3802/3812 History of Music 1 and 2—6
- MUSC 3997 Junior Recital—1
- MUSC 4061 Tonal Analysis or MUSC 4071 Post-tonal Theory and Analysis—2
- PMUS 3636 Applied piano instruction (lessons and literature classes)—6
- Band, orchestra or choir—2
- Performance minor—4
- Upper-division theory elective (3000 or 4000 level theory classes, except MUSC 4101)—2
- Non-music electives—6

### **Senior Year**

- MUSC 4325, 4335 Piano Literature 1 and 2—4
- MUSC 4997 Senior Recital—1
- PMUS 4636 Applied piano instruction (lessons and literature classes)—6
- PMUS 4105 Supervised Accompanying—2
- Non-Western music, 2000/4000 level—3
- Non-music electives—6

## **Jazz Piano Performance Concentration Area**

### ***Required Courses and Semester Credit Hours***

### **Freshman Year**

- EMUS 1427 Jazz Ensemble—2
- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1325 Sight Reading for Piano—1
- MUSC 2365 Introduction to Accompanying—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1636 Applied Piano Instruction (lessons and literature classes)—4
- PMUS 1806 Applied Jazz Piano Instruction (lessons and literature classes)—6
- Written communication—3
- Non-music electives—6

### **Sophomore Year**

- EMUS 1427 Jazz Ensemble—2
- EMUS 1437 Jazz Combo—1
- HIST 2437 African American History—3
- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4 —2
- MUSC 2997 Sophomore Proficiency—1
- MUSC 3081 Jazz Theory and Aural Foundations —3
- MUSC 3997 Classical Recital—1
- PMUS 2636 Applied Piano Instruction (lessons and literature classes)—4
- PMUS 2806 Applied Jazz Piano Instruction (lessons and literature classes)—5
- Non-music electives—6

### **Junior Year**

- EMUS 3427 Jazz Ensemble—1
- EMUS 3437 Jazz Combo—2
- MUSC 3176 Conducting 1—2
- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 3061, 3071 Jazz Improvisation 1 and 2—4
- PMUS 3806 Applied Jazz Piano Instruction (lessons and literature classes)—6
- Non-music electives—8

### **Senior Year**

- EMUS 3642 History of Jazz—3
- EMUS 3437 Jazz Combo—2
- MUSC 4997 Jazz Senior Recital—1
- MUSC 4031 Jazz Scoring and Arranging —2
- PMUS 4806 Applied Jazz Piano Instruction (lessons and literature classes)—5
- Two credits selected from MUSC 3345, 3355 (Piano Pedagogy 1 and 2), MUSC 4325, 4335

(Piano Literature 1 and 2) or one seminar of piano pedagogy or literature and MUSC 3253  
Jazz Techniques for the Music Educator—2

- Non-music electives—11

## Performance with Secondary Emphasis in Jazz (Available for Trumpet, Trombone and Saxophone)

*Required Courses and Semester Credit Hours*

### Freshman Year

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2 —2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1105, 1205 Keyboard Musicianship—2
- Applied Instruction (lessons and literature class)—6
- University Ensemble—2
- Written communication—3
- Non-music electives—6

### Sophomore Year

- MUSC 2101, 2111 Theory 3 and 4 —4
- MUSC 2121, 2131 Aural Skills 3 and 4 —2
- MUSC 2997 Sophomore Proficiency—1
- PMUS 1515 Jazz Piano Class—2
- MUSC 3081 Jazz Theory/Aural Foundations—3
- Applied Instruction (lessons and literature class)—6
- University Ensemble—2
- EMUS 1507 Chamber Music—2
- Music electives (Performance minor for saxophone students)—4
- Non-music electives—6

### Junior Year

- MUSC 3061 or 3017 Jazz Improvisation 1 or 2—2
- MUSC 3176 Conducting 1—2
- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 3997 Junior Recital—1
- Applied Instruction (lessons and literature class)—6
- University Ensemble—1
- EMUS 3507 Chamber Music—1
- EMUS 3427 Jazz Ensemble—1
- EMUS 3437 Jazz Combo—1
- Non-music electives—10

## Senior Year

- MUSC 4997 Senior Recital—1
- MUSC 3273 Jazz Techniques for the Music Educator—2
- MUSC 4031 Jazz Arranging 1—2
- EMUS 3427 Jazz Ensemble—2
- EMUS 3437 Jazz Combo—2
- Applied Instruction (lessons and literature class)—6
- Non-Western Music or History of Jazz—3
- Non-music electives—12

## Jazz Studies Concentration Area

### *Required Courses and Semester Credit Hours*

### Freshman Year

- ETHN 2001 Foundations of Ethnic Studies—3
- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- MUSC 3061 Jazz Improvisation 1—2
- PMUS 1105, 1205 Keyboard Musicianship 1 and 2—2
- PMUS 1XXX Applied Instruction—8
- Ensemble—2
- Written communication—3
- Non-music electives—3

### Sophomore Year

- HIST 2437 African American History—3
- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 3081 Jazz Theory/Aural Foundations—3
- MUSC 3642 History of Jazz—3
- MUSC 2997 Sophomore Proficiency—1
- PMUS 1515 Jazz Piano Class—2
- PMUS 2XXX Applied Instruction—8
- Ensemble—4
- Non-music electives—3

### Junior Year

- MUSC 3802, 3812 History of Music 1 and 2—6

MUSC 3071 Jazz Improvisation 2—2

- MUSC 4031, 4091 Jazz Arranging 1 and 2—4
- MUSC 3997 Junior Recital—1
- PMUS 3XXX Applied Instruction—5
- Ensemble—2
- Non-music electives—11

### Senior Year

- MUSC 4997 Senior Recital—1
- PMUS 4XXX Applied Instruction—5
- Non-Western Music, 2000/4000 level—3
- Ensemble—3
- Music electives—2
- Non-music electives—11

### String Performance Concentration Area: Double Bass, Viola, Violin and Violoncello

#### *Required Courses and Semester Credit Hours*

### Freshman Year

- EMUS 1327 Orchestra—2
- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1XXX Applied string instruction (lessons and literature classes)—8
- PMUS 1105, 1205 Keyboard Musicianship 1 and 2—2
- Written communication—3
- Non-music electives—6

### Sophomore Year

- EMUS 1327 Orchestra—2
- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2997 Sophomore Proficiency—1
- MUSC 3273 String Pedagogy—2
- PMUS 2XXX Applied string instruction (lessons and literature classes)—7
- PMUS 2105, 2205 Keyboard Musicianship 3 and 4—2
- Non-music electives—10

### Junior Year

- EMUS 3327 Orchestra—2

- MUSC 2071 Instrumentation —2
- MUSC 3176 Conducting 1—2
- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 3997 Junior Recital—1
- PMUS 3XXX Applied string instruction (lessons and literature classes)—7
- PMUS 4517 Orchestral Repertoire—2
- Chamber music—1
- Non-music electives—10

### Senior Year

- EMUS 3327 Orchestra—2
- MUSC 4997 Senior Recital—1
- PMUS 4XXX Applied string instruction (lessons and literature classes)—7
- Chamber music—2
- Non-Western music, 2000/4000 level—3
- Upper-division theory or musicology elective (not MUSC 4101)—2-3
- Non-music electives—10

### Voice Performance Concentration Area

One year of study at the university level of each of two foreign languages is required of vocal performance majors.

#### *Required Courses and Semester Credit Hours*

### Freshman Year

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1544, 1554 Italian/English Diction—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1105, 1205 Keyboard Musicianship 1 and 2—2
- PMUS 1726 Applied Voice Instruction (lessons and literature classes)—6
- Ensemble—2
- Written communication—3
- Non-music electives—6

### Sophomore Year

- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2997 Sophomore Proficiency—1
- PMUS 2105, 2205 Keyboard Musicianship 3 and 4—2
- PMUS 2726 Applied Voice Instruction (lessons and literature classes)—6

- Ensemble—2
- Non-music electives (including foreign language)—13

## Junior Year

- MUSC 3176 Conducting 1—2
- MUSC 3193 Pedagogy for Young Voices—2
- MUSC 3464, 3444 German/French Diction—2
- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 3997 Junior Recital—1
- PMUS 3726 Applied Voice Instruction (lessons and literature classes)—7
- Ensemble—2
- Upper-division theory elective (3000 or 4000 level theory classes, except MUSC 4101)—2
- Non-music electives (including foreign language)—14

## Senior Year

- MUSC 4997 Senior Recital—1
- PMUS 4726 Applied Voice Instruction (lessons and literature classes)—7
- PMUS 4137, 4147 Opera Theatre 1 and 2—2
- Ensemble—1
- Non-Western music, 2000/4000 level—3
- Non-music electives—9

## Voice Performance with Elective Studies in Music Theatre

### *Required Courses and Semester Credit Hours*

### Freshman Year

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1544, 1554 Italian/English Diction—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1105, 1205 Keyboard Musicianship 1 and 2—2
- PMUS 1726 Applied Voice Instruction (lessons and literature classes)—6
- Ensemble—2
- Theatre/dance elective—1
- Written communication—3
- Non-music electives (including foreign language)—6

### Sophomore Year

- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2997 Sophomore Proficiency—1

- PMUS 2105, 2205 Keyboard Musicianship 3 and 4 —2
- PMUS 2726 Applied Voice Instruction (lessons and literature classes)—6
- THTR 1019 and 1029 Foundations of Theatre 1 and 2—6
- Beginning ballet—1
- Ensemble—1
- Non-music electives (including foreign language)—10

### **Junior Year**

- MUSC 3176 Conducting 1—2
- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 3193 Pedagogy for Young Voices—2
- PMUS 3167 Opera Theatre Stagecraft—3
- PMUS 3726 Applied Voice Instruction (lessons and literature classes)—6
- PMUS 4137 Opera Theatre 1—1
- PMUS 4147 Opera Theatre 2—1
- PMUS 4167 Opera Theatre Lab—1
- THTR 2003 Acting 1—3
- THTR 3053 Acting 2—3
- Ensemble—1
- Non-music electives—3

### **Senior Year**

- MUSC 4101—2
- PMUS 4157 Opera Practicum—2
- PMUS 4167 Opera Theatre Lab—1
- PMUS 4726 Applied Voice Instruction (lessons and literature classes)—6
- Non-Western music, 2000/4000-level—3
- Senior project (or major role, or design or direction of a major production)—0
- Theatre and dance elective—3
- Upper-division theory elective (3000 or 4000 level theory classes except MUSC 4101)—2
- Non-music electives—9

## **Woodwind Performance Concentration Area**

### ***Required Courses and Semester Credit Hours***

#### **Freshman Year**

- MUSC 1101, 1111 Theory 1 and 2 —4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1XXX Applied wind instruction (lessons and literature classes)—6

- PMUS 1105, 1205 Keyboard Musicianship 1 and 2—2
- Ensemble—2
- Written communication—3
- Non-music electives—6

### **Sophomore Year**

- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2997 Sophomore Proficiency—1
- PMUS 1XXX Applied wind instruction (lessons and literature classes)—7
- Chamber music—2
- Ensemble—2
- Music electives—4
- Non-music electives —12

### **Junior Year**

- MUSC 2071 Instrumentation—2
- MUSC 3176 Conducting 1—2
- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 3997 Junior Recital—1
- PMUS 1XXX Applied wind instruction (lessons and literature classes)—7
- Chamber music—2
- Ensemble—2
- Upper-division theory elective (3000 or 4000 level theory classes except MUSC 4101)—2
- Non-music electives—7

### **Senior Year**

- MUSC 4997 Senior Recital—1
- PMUS 1XXX Applied wind instruction (lessons and literature classes)—7
- Chamber music—2
- Ensemble—2
- Non-Western music, 2000/4000 level—3
- Non-music electives—12

### **Musicology Concentration Area**

In addition to the requirements applying to all bachelor of music curricula, a second year proficiency is required in one foreign language.

#### ***Required Courses and Semester Credit Hours***

### **Freshman Year**

- HIST 1010, 1020 History of Western Civilization—6

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1105, 1205 Keyboard Musicianship 1 and 2 —2
- Applied instruction (lessons and literature classes)—4
- Ensemble—2
- Written communication—3
- Non-music electives—3

### **Sophomore Year**

- HIST 1010, 1020—6
- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2121, 2131 Aural Skills 3 and 4—.2
- MUSC 2997 Sophomore Proficiency—1
- Applied instruction (lessons and literature classes)—4
- Ensemble—2
- Non-music electives—18

### **Junior Year**

- MUSC 3176 Conducting 1—2
- MUSC 3802, 3812 History of Music 1 and 2—6
- Applied instruction (lessons and literature classes)—4
- Ensemble—2
- Non-Western music 2000/4000 level—3
- Music history (4000 level)—3
- Non-music electives—12

### **Senior Year**

- MUSC 4011 16th Century Counterpoint and MUSC 4021 18th Century Counterpoint or MUSC 4081 Music Technology—4
- MUSC 4061 Tonal Analysis and MUSC 4071 Post Tonal Analysis—4
- MUSC 4957 Senior Thesis —4
- TMUS 4403 Special Studies —2
- Music history (4000 level)—12

## **Double Major in Music Performance**

Eligible students in the College of Music, with approval of faculty in the relevant areas or departments, may complete a double major in music performance. Normally, such programs take at least five years to complete. Students pursuing a double major in music performance must complete at least 15 additional credit hours beyond the 120 credit hours required for a single performance major. Requirements pertaining to applied study, chamber music,

sophomore proficiency, junior recital and senior recital must be fulfilled separately for each degree; up to four credits of university ensemble can be applied to both majors when appropriate and with faculty/advisor approval. Students completing all requirements are awarded a single bachelor of music degree with two majors. The decision to earn more than one degree or major in the College of Music should be carefully weighed, as it may be more advantageous for a student to complete a single degree/major and then begin work on a graduate degree in music.

## Double Degrees in Music and an Outside Major

Students may complete requirements in two fields and receive two degrees from the university. Such double degree programs are available combining music with business, engineering or disciplines in the College of Arts and Sciences. Students must make application for a double degree program in both the College of Music and the Leeds School of Business, the College of Engineering and Applied Science or the College of Arts and Sciences. Any other combined program must be arranged by consulting both schools or colleges.

## Certificate Programs

### Certificate in Jazz Studies

The Jazz Program offers a Certificate in Jazz Studies for undergraduate music majors. The certificate program consists of an intense 18-hour curriculum in both academic and performance areas, concluding with a jazz recital. Courses include jazz theory and aural foundations, improvisation, history of jazz, scoring and arranging, jazz piano, jazz techniques for the music educator, jazz combo and jazz ensemble.

### Certificate in Music Technology

The certificate in music technology provides students with an opportunity to study music technology in greater depth than music degrees currently allow. This certificate program requires 18 credit hours, including five music technology courses, an interdisciplinary performance course and an independent project (a composition, performance or research project) under the supervision of a member of the Music Technology faculty. For more information, contact John Drumheller at [drumhell@colorado.edu](mailto:drumhell@colorado.edu).

### Certificate in Music Entrepreneurship

The Certificate in Music Entrepreneurship, which is open to music majors only, will include a Minor in Business (12 credits) plus six academic and experiential credits within the College of Music. Interested students should elect participation in the certificate program by no later than the end of the sophomore year. For more information, contact Jeff Nytech at [jeff.nytech@colorado.edu](mailto:jeff.nytech@colorado.edu).

### Professional Certificate in Opera and Solo Vocal Performance

This program provides instruction and experiences for a select number of young artists, most of whom have already completed a master's degree in performance. Participants in the certificate program will concentrate significantly on the performance aspect of their work. This program is considered a path to a specialized career in solo vocal performance.

### Professional Certificate in String Quartet Performance

The Professional Certificate in String Quartet Performance is designed to provide instruction and experiences for young artists who have already completed a master's degree or its equivalent in performance. Students are generally accepted into the certificate program as part

of a pre-formed string quartet, which will apply for admission into the College of Music graduate program as a unit.

## Professional Certificate in Woodwind Performance

This program is designed to emphasize performance experiences for truly outstanding young artists who have already completed a master's degree or its equivalent in woodwind performance. The professional certificate is intended for students who plan on careers in performance and admission and is highly selective.

## Graduate Degree Program(s)

### Master of Music (MM)

The major fields for this degree are **composition, conducting, music theory, performance and the combined major of performance/pedagogy**. Conducting students may concentrate in choral, orchestral or wind symphony/band. Performance and performance/pedagogy majors may concentrate in brass instruments, early keyboard, jazz, piano, percussion, organ, harpsichord, string instruments (including harp and guitar), voice or woodwind instruments.

Major work in the conducting degrees includes advanced conducting, analytical studies, score reading, orchestration, arranging, conducting practica and research and writing. In music theory, course work and two thesis papers are required. In pedagogy, courses in the psychology of music learning, the pedagogy and literature of one's performing area and a written thesis are required. In performance, students complete applied study, recitals and courses that investigate the repertoire of their performance areas. All master's degree students are required to take a course in bibliographic research and 6 credits outside their major area.

Brass, conducting, percussion, string, voice and woodwind majors are required to participate in a music ensemble. Committee chairs advise students concerning the appropriate choice of ensemble.

**Prerequisites.** As noted in the Graduate School section, students should have completed undergraduate preparation equivalent to that expected for the bachelor's degree at this university. Normally this is a bachelor of music degree in the proposed area of concentration.

Before admission, composition majors should submit representative scores and recordings (CD format), and a list of completed compositions. Theory majors should submit two scholarly writing samples that demonstrate ability in critical analysis, appropriate research techniques and skill in the cogent use of English. For further details, see the Application Process section of the website. Performance majors must submit a repertoire list and arrange for an audition, or submit a non-returnable recording of their performance. Conducting majors must submit a videotape or DVD of their performance. Refer to "Graduate Auditions" above for further details.

**Program of Study.** The master of music (MM) degree, which the Graduate School considers a Plan II program, requires a minimum of 30–32 semester hours of graduate course work, including thesis projects. Many students find it necessary to exceed this minimum in order to meet the musical and academic standards demanded by the MM qualifying examination. Outlines of specific programs may be obtained online at [music.colorado.edu/students/graduate/degrees](https://music.colorado.edu/students/graduate/degrees).

Each student's program is directed by a three-member advisory committee headed by the major advisor (the student's major professor). A second member is chosen from the major area, and a third from outside the major area. (The major areas are music education, music theory, composition and performance.) By the second semester of residence, the student should complete a tentative degree plan and obtain the approval of the advisory committee and the associate dean for graduate studies. Students must complete the master's degree within four

years of matriculation into the program.

**Examinations.** In addition to preliminary examinations, master's degree students in music must take the master's qualifying examination. The procedures, guidelines for registration and deadlines for taking these examinations are announced by the Music Graduate Office.

**Recital/Thesis Requirements.** The recital/thesis requirement for the MM in composition is the composition (during the period of graduate study) of several works of major proportion, at least one of which must receive public performance. For the major in conducting, the requirement is a public practicum and a performance-related or other scholarly document. For the major in music theory, it is two thesis papers. For the major in performance, presentation of two public recitals constitute the requirement. For the major in performance and pedagogy, a full-length recital and a research document in pedagogy are required.

## Dual Master's Degree in Music

Students may apply for a dual master's degree that combines any two master's programs in the College of Music. The student must apply separately and be admitted by the faculty in each of the degree programs under their respective admissions procedures and standards. The student must be accepted to both degree programs at the time of the initial application. With the exception of thesis credits, courses that fulfill requirements in both degree programs need only be taken once to be counted for both. A minimum of 45 credit hours must be earned. For most students, it is far preferable to pursue the DMA or PhD degree after completing a master's degree, rather than to pursue a dual master's degree.

## Doctor of Philosophy (PhD)

The doctor of philosophy (PhD) in music degree is offered through the Graduate School for students who seek a terminal degree with an emphasis on research. The two principal areas of study are **music education** and **musicology** (including ethnomusicology).

**Prerequisites.** Students applying to the PhD program should have a bachelor's degree or equivalent in a music field related to their intended area of study. Applicants for the PhD with an emphasis in music education should hold an MME degree. Letters of recommendation, representative research papers and satisfactory scores on the GRE (the general test) are required elements of the student's application for the degree. Upon entrance to the degree program, students must pass the preliminary examinations and begin working toward basic requirements.

### Doctor of Philosophy: Musicology (PhD)

For the musicology student, the doctor of philosophy in music degree is intended to emphasize research in music history, music theory, ethnomusicology or some other aspect of music in culture. The musicology faculty encourages students entering the graduate program, whether from the bachelor's or master's level, to pursue the PhD, the benchmark of professional education within the field. A minimum of 30 semester hours in courses numbered at 5000 or above is required (although the minimum number is almost always exceeded). At least 4 doctoral seminars (7000 level) in musicology and music theory (3 plus 1, 1 plus 3, or 2 plus 2) must be taken at the University of Colorado Boulder as part of this course work. Up to 21 semester hours of graduate work taken at another institution may be considered for transfer. The College of Music requires proficiency in two foreign languages appropriate to the student's program of study. Normally the language requirement is met by a translation examination scheduled twice a semester through the graduate music office.

**Dissertation Requirements.** A student must complete a total of at least 30 credit hours of dissertation credit (beyond course work), with not more than 10 of these hours in any one semester. Furthermore, not more than 10 hours of dissertation credit earned prior to a student's

advancement to candidacy may be applied toward the required 30 credit hours. The dissertation itself should be an original and worthwhile contribution to knowledge in the field of musicology. It is expected that the student work closely with a major professor who will serve as the first reader and critic before it is submitted to the other dissertation committee members.

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## Music Education

### Bachelor's Degree Program(s)

#### Bachelor of Music Education (BMusEd)

The purpose of the four-year professional program leading to the bachelor of music education (BME) degree is to prepare students to teach music in elementary and secondary schools. Students completing this degree program qualify for a Colorado K–12 music teaching license. Students also may apply for teaching licenses in other states that have reciprocity agreements with Colorado.

Because of the varying challenges and opportunities associated with teaching music in K–12 school contexts, the undergraduate music education curriculum strikes a balance between specialization and generalization. BME students must demonstrate a sufficiently broad knowledge of the entire music program/curriculum, but also possess the specialized skills necessary to be a successful general music, choir, orchestra, or band instructor.

#### Courses and Curricula

Four basic curricular options are provided for students pursuing the bachelor of music education degree: **choral**, **choral-general**, **instrumental**, and **instrumental-general** emphases. The choral-general and instrumental-general emphases include a larger concentration of course work and field experiences related to elementary general music teaching, while the choral and instrumental emphases involve more specialized course work and field experiences related to the teaching of choir, orchestra, or band classes at the secondary level. Within each degree emphasis, students have a limited number of elective credits that may be used to further customize degree work according to their interests and needs.

As first-year students, BME students complete core studies in music and liberal arts. The first music education courses and early field experiences are completed during the sophomore year. During the junior year, students enroll in capstone methods courses and specialized electives that allow for more detailed and sustained study of curricular models, instructional materials, and teaching methods. Internships and full-time student teaching provide culminating experiences during the senior year, as students work in partnership with experienced public school teachers and assume the role and responsibilities of a professional music educator. Internship and student teaching placements are chosen in consultation with faculty advisors and the music education chair.

#### Degree Requirements

A minimum of 126 semester hours with a cumulative GPA of 2.75 must be earned for the BME degree, with no grade below C- in a course. In addition to 40 semester hours of teacher education course work and 150 clock hours of early field experience, music education majors complete 24 semester hours in liberal arts disciplines (English composition, literature and arts, mathematics, social sciences, natural sciences) and 62 hours in music (music theory and aural

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skills, musicology and ethnomusicology, applied study, ensemble, keyboard and voice, and conducting). Core requirements in liberal arts and music are designated by the music education faculty and approved by the College of Music curriculum committee.

## Admission to the Teacher Education Program

Teacher education is a campuswide function at the University of Colorado. Admission to the music education program in the College of Music does not constitute admission to the teacher education program. Students must apply to the School of Education through the music education chair no later than the second semester of the junior year or by the time 65 credits have been completed toward the BME degree (including approved transfer credits). Students may not register for certain education courses and student teaching until they are admitted to the teacher education program.

Requirements for recommended admission to the teacher education program are:

- Minimum GPA of 3.00 in music and music education, and a minimum cumulative GPA of 2.75.
- Minimum grade of C- in MUSC 2103.
- Twenty-five hours of documented, supervised field experience.
- Satisfactory functional piano ability as demonstrated by passing the proficiency examination or completing prescribed course work.
- Satisfactory performance ability as demonstrated by meeting the sophomore proficiency requirements in an applied area of study.
- Recommendation by the music education faculty. An interview with each student is held by the members of the music education faculty during the first semester of the sophomore year to review the student's progress and qualifications for admission to the teacher education program.

For further information, please refer to the *Handbook for Undergraduate Studies in Music Education*, which can be obtained at the music education website at [music.colorado.edu/departments/music-education](http://music.colorado.edu/departments/music-education).

## Student Teaching

Students wishing to receive a student teaching assignment must complete an application and submit it to the School of Education through the chair of the music education faculty early in the semester preceding the student teaching semester. Prerequisites for student teaching are:

- Admission to the teacher education program.
- A minimum GPA of 3.00 in music and music education, and a minimum cumulative GPA of 2.75.
- Completion of all required music education and education courses in the music education curriculum.
- Satisfactory performance ability as demonstrated by passing the junior recital.
- Passing score on the PLACE Music Assessment.
- Recommendation by the music education faculty.

## Choral Music Emphasis

Students must take keyboard or voice as the primary applied area, or petition the music education faculty for an exception. A minimum of five of the seven semesters of required ensemble registration must be in a conducted choral ensemble (University Singers, University

Choir, Collegiate Chorale, or Women's Chorus). For keyboard majors, two semesters of independent accompanying may be applied to the ensemble requirement. Students must be enrolled in a conducted choral ensemble when concurrently enrolled for Conducting.

#### ***Required Courses and Semester Credit Hours***

#### **Freshman Year**

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1XXX applied instruction (lessons and literature classes)—6
- PMUS 1105/PMUS 1184 Piano/Voice Class—2
- Ensemble—2
- Written communication—3
- Non-music core requirements—6
- Non-music electives—6

#### **Sophomore Year**

- EDUC 3013 School and Society—3
- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2103 Introduction to Music Education—3
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2997 Sophomore Proficiency—1
- MUSC 3133 Teaching General Music 1—2
- MUSC 3193 Vocal Pedagogy for Young Voices—2
- PMUS 2XXX applied instruction (lessons and literature classes)—5
- PMUS 2205/PMUS 1184 Piano/Voice Class—2
- Ensemble—2
- Non-music core requirements—6
- Non-music electives—3

#### **Junior Year**

- EDUC 4023 Differentiating Instruction in Diverse Secondary Classrooms—3
- MUSC 1544 Italian Diction—1
- MUSC 1554 English Diction—1
- MUSC 3013 String Class—1
- MUSC 3023 Woodwind Class or MUSC 3033 Brass Class—1
- MUSC 3176, 3186 Conducting 1 and 2—4
- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 3997 Junior Recital—1
- MUSC 4143 Developing Children's Choirs—2

- MUSC 4203 Music Methods Practicum—1
- MUSC 4313 Teaching Choral Music—3
- PMUS 3XXX applied instruction (lessons and literature classes)—7
- Conducted choral ensemble—2
- Upper-division theory elective (3000 or 4000 level theory class, except MUSC 4101)—2

### Senior Year

- EDUC 4112 Educational Psychology: Adolescent Development or EDUC 4411 Educational Psychology: Elementary—3
- EDUC 4732 Student Teaching—8
- MUSC 3444 French Diction—1
- MUSC 4103 Introduction to Student Teaching—1
- MUSC 4153 Percussion Class—1
- MUSC 4163 Choral Literature for School Ensembles—2
- MUSC 4193 Student Teaching Seminar—1
- Non-Western music, 2000/4000 level—3
- PMUS 4XXX applied instruction (lessons and literature classes)—3
- Ensemble—1

### Choral—General Music Emphasis

Students must take keyboard or voice as the primary applied area, or petition the music education faculty for an exception. A minimum of six of the seven semesters of required ensemble registration must be in a conducted choral ensemble (University Singers, University Choir, Collegiate Chorale, or Women's Chorus), and one semester must be in a world music ensemble. For keyboard majors, two semesters of independent accompanying may be applied to the ensemble requirement. Students must be enrolled in a conducted choral ensemble when concurrently enrolled for Conducting.

#### *Required Courses and Semester Credit Hours*

### Freshman Year

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1XXX applied instruction (lessons and literature classes)—6
- PMUS 1105/PMUS 1184 Piano/Voice Class—2
- Ensemble—2
- Written communication—3
- Non-music core requirements—6
- Non-music electives—6

### Sophomore Year

- EDUC 3013 School and Society—3

- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2103 Introduction to Music Education —3
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2997 Sophomore Proficiency—1
- MUSC 3133 Teaching General Music 1—2
- MUSC 3193 Vocal Pedagogy and Literature for Young Voices—2
- PMUS 2XXX applied instruction (lessons and literature classes)—5
- PMUS 2205/PMUS 1184 Piano/Voice Class—2
- Ensemble—2
- Non-music core requirements—6
- Non-music electives—3

### **Junior Year**

- EDUC 4023 Differentiating Instruction in Diverse Secondary Classrooms —3
- MUSC 3013 String Class —1
- MUSC 3023 Woodwind Class or MUSC 3033 Brass Class—1
- MUSC 3123 Teaching Choral Music—3
- MUSC 3176, 3186 Conducting 1 and 2—4
- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 3997 Junior Recital—1
- MUSC 4113 Teaching General Music 2—3
- MUSC 4143 Developing Children's Choir or MUSC 4163 Choral Literature (fall)—2
- MUSC 4203 Music Methods Practicum—1
- PMUS 3XXX applied instruction (lessons and literature classes)—7
- Conducted choral ensemble—2
- Upper-division theory elective (3000 or 4000 level theory classes, except MUSC 4101)—2

### **Senior Year**

- EDUC 4112 Educational Psychology: Adolescent Development or EDUC 4411 Educational Psychology: Elementary—3
- EDUC 4732 Student Teaching—8
- MUSC 4103 Introduction to Student Teaching—1
- MUSC 4153 Percussion Class—1
- MUSC 4193 Student Teaching Seminar—1
- MUSC 4583 Inclusive Music Classroom—2
- PMUS 4XXX Applied instruction (lessons and literature classes)—3
- Non-Western music, 2000/4000 level—3
- Ensemble—1

### **Instrumental Music Emphasis (Band)**

Students must take wind/brass/percussion as the primary applied area, or petition the music education faculty for an exception. A minimum of five of the seven semesters of required ensemble registration must be in a conducted instrumental ensemble (Symphony Orchestra, Wind Symphony, Symphonic Band or Concert Band) and one semester must be in marching band. Freshmen are strongly encouraged to be in marching band (EMUS 1287) their first semester. Students must be enrolled in a conducted instrumental ensemble when concurrently enrolled for Conducting.

#### ***Required Courses and Semester Credit Hours***

#### **Freshman Year**

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1XXX applied instruction (lessons and literature classes)—6
- PMUS 1105, 1205 Keyboard Musicianship—2
- Ensemble—2
- Written communication—3
- Non-music core requirements—6
- Non-music electives—6

#### **Sophomore Year**

- EDUC 3013 School and Society—3
- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2103 Introduction to Music Education—3
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2997 Sophomore Proficiency—1
- MUSC 3133 Teaching General Music 1—2
- MUSC 3153 Teaching Woodwind Instruments—2
- MUSC 3163 Teaching String Instruments—2
- PMUS 1184 Voice Class—1
- PMUS 2XXX applied instruction (lessons and literature classes)—6
- Ensemble—2
- Non-music core requirements—6
- Non-music electives—3

#### **Junior Year**

- EDUC 4023 Differentiating Instruction in Diverse Secondary Classrooms—3
- MUSC 3176, 3186 Conducting 1 and 2—4
- MUSC 3193 Vocal Pedagogy for Young Voices—2
- MUSC 3223 Teaching Brass Instruments—2
- MUSC 3253 Jazz Techniques for the Music Educator—2

- MUSC 3363 Marching Band Techniques—2
- MUSC 3802, 3812 History of Music1 and 2—6
- MUSC 3997 Junior Recital—1
- MUSC 4153 Percussion Class—1
- MUSC 4203 Music Methods Practicum—1
- MUSC 4443 Teaching Instrumental Music—3
- PMUS 3XXX applied instruction (lessons and literature classes)—5
- Ensemble—2

### Senior Year

- EDUC 4112 Educational Psychology: Adolescent Development or EDUC 4411 Educational Psychology: Elementary—3
- EDUC 4732 Student Teaching—8
- MUSC 4103 Introduction to Student Teaching—1
- MUSC 4193 Student Teaching Seminar—1
- PMUS 4XXX applied instruction (lessons and literature classes)—3
- Ensemble—1
- Non-Western music, 2000/4000 level—3
- Upper-division theory elective (3000 or 4000 level theory classes, except MUSC 4101)—2

### Instrumental Emphasis (Strings)

Students must take strings as the primary applied area, or petition the music education faculty for an exception. A minimum of five of the seven semesters of required ensemble registration must be in a conducted instrumental ensemble (Symphony Orchestra or Campus Orchestra). Students must be enrolled in a conducted instrumental ensemble when concurrently enrolled for Conducting.

#### *Required Courses and Semester Credit Hours*

### Freshman Year

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1105, 1205 Keyboard Musicianship—2
- PMUS 1XXX applied instruction (lessons and literature classes)—8
- Ensemble—2
- Written communication—3
- Non-music core requirements—6
- Non-music electives—6

### Sophomore Year

- EDUC 3013 School and Society—3

MUSC 2101, 2111 Theory 3 and 4—4

- MUSC 2103 Introduction to Music Education—3
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2997 Sophomore Proficiency—1
- MUSC 3133 Teaching General Music 1—2
- MUSC 3153 Teaching Woodwind Instruments—2
- MUSC 3163 Teaching String Instruments—2
- MUSC 3273 String Pedagogy and Literature—2
- PMUS 1184 Voice Class (spring)—1
- PMUS 2XXX applied instruction (lessons and literature classes)—7
- Ensemble—2
- Non-music core requirements—3
- Non-music electives—3

### Junior Year

- EDUC 4023 Differentiating Instruction in Diverse Secondary Classrooms—3
- MUSC 3176, 3186 Conducting 1 and 2—4
- MUSC 3193 Vocal Pedagogy for Young Voices—2
- MUSC 3223 Teaching Brass Instruments—2
- MUSC 3253 Jazz Techniques for the Music Educator—2
- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 3997 Junior Recital—1
- MUSC 4153 Percussion Class—1
- MUSC 4203 Music Methods Practicum—1
- MUSC 4443 Teaching Instrumental Music—3
- PMUS 3XXX applied instruction (lessons and literature classes)—7
- Ensemble—2
- Non-music core requirements—3

### Senior Year

- EDUC 4112 Educational Psychology: Adolescent Development or EDUC 4411 Educational Psychology: Elementary—3
- EDUC 4732 Student Teaching—8
- MUSC 4103 Introduction to Student Teaching—1
- MUSC 4193 Student Teaching Seminar—1
- PMUS 4XXX applied instruction (lessons and literature classes)—3
- Ensemble—1
- Non-Western music, 2000/4000 level—3
- Upper-division theory elective (3000 or 4000 level theory classes, except MUSC 4101)—2

## Instrumental—General Music Emphasis

Students must take keyboard, strings, or wind/brass/percussion as the primary applied area, or petition the music education faculty for an exception. For keyboard majors, a minimum of four of the seven semesters of required ensemble registration must be in a conducted instrumental ensemble (Symphony Orchestra, Chamber Orchestra, Wind Symphony, Symphonic Band, Concert Band, or Campus Band), one semester must be in a conducted choral ensemble, and one semester must be in a world music ensemble. One semester of independent accompanying may be applied to the ensemble requirement. For string majors, a minimum of five of the seven semesters of required ensemble registration must be in a conducted instrumental ensemble, one semester must be in a conducted choral ensemble, and one semester must be in a world music ensemble. For woodwind, brass, and percussion majors, a minimum of four of the seven semesters of required ensemble participation must be in a conducted instrumental ensemble, one semester must be in marching band, one semester must be in a conducted choral ensemble, and one semester must be in a world music ensemble. Freshmen are strongly encouraged to be in marching band (EMUS 1287) their first semester. Students must be enrolled in a conducted instrumental ensemble when concurrently enrolled for Conducting.

### *Required Courses and Semester Credit Hours*

#### **Freshman Year**

- MUSC 1101, 1111 Theory 1 and 2—4
- MUSC 1121, 1131 Aural Skills 1 and 2—2
- MUSC 1802 Introduction to Musical Styles and Ideas—3
- PMUS 1105, 1205 Keyboard Musicianship—2
- PMUS 1XXX applied instruction (lessons and literature classes)—6
- Ensemble—2
- Written communication—3
- Non-music core requirements—6
- Non-music electives—6

#### **Sophomore Year**

- EDUC 3013 School and Society—3
- MUSC 2101, 2111 Theory 3 and 4—4
- MUSC 2103 Introduction to Music Education—3
- MUSC 2121, 2131 Aural Skills 3 and 4—2
- MUSC 2997 Sophomore Proficiency—1
- MUSC 3133 Teaching General Music 1—2
- MUSC 3153 Teaching Woodwind Instruments or MUSC 3223 Teaching Brass Instruments—2
- MUSC 3163 Teaching String Instruments—2
- PMUS 1184 Voice Class—1
- PMUS 2XXX applied instruction (lessons and literature classes)—6
- Ensemble—2
- Non-music core requirements—6
- Non-music electives—3

## Junior Year

- EDUC 4023 Differentiating Instruction in Diverse Secondary Classrooms—3
- MUSC 3176, 3186 Conducting 1 and 2—4
- MUSC 3193 Vocal Pedagogy for Young Voices—2
- MUSC 3253 Jazz Techniques for Music Educator or MUSC 4583 Inclusive Music Classroom —[2]
- MUSC 3802, 3812 History of Music 1 and 2—6
- MUSC 3997 Junior Recital—1
- MUSC 4113 Teaching General Music 2—3
- MUSC 4153 Percussion Class—1
- MUSC 4203 Music Methods Practicum—1
- MUSC 4443 Teaching Instrumental Music —3
- PMUS 1184 Voice Class—1
- PMUS 3XXX applied instruction (lessons and literature classes)—5
- Ensemble—2

## Senior Year

- EDUC 4112 Educational Psychology: Adolescent Development or EDUC 4411 Educational Psychology: Elementary—3
- EDUC 4732 Student Teaching—8
- MUSC 3253 Jazz Techniques for Music Educator) or MUSC 4583 Inclusive Music Classroom—[2]
- MUSC 4103 Introduction to Student Teaching—1
- MUSC 4193 Student Teaching Seminar—1
- PMUS 4XXX applied instruction (lessons and literature classes)—3
- Ensemble—1
- Non-Western music, 2000/4000 level—3
- Upper-division theory elective (3000 or 4000 level theory classes, except MUSC 4101)—2

## Graduate Degree Program(s)

### Master of Music Education (MMusEd)

The master of music education (MME) program addresses the professional development needs of music teachers in the field. Master of music education students are challenged to develop a greater understanding and mastery of music teaching-learning processes, to improve personal musicianship, and to become committed leaders within the music education profession.

**Prerequisites.** Applicants are expected to provide evidence of undergraduate preparation equivalent to that required for the bachelor of music education degree at this university. Applicants also must possess a music teaching certificate/license or agree to work toward a Colorado music teaching license. GRE scores are not required for admission, but can be helpful in determining merit-based financial aid. Individuals who wish to pursue music performance or conducting as their cognate area must demonstrate at least senior-level proficiency on their particular medium, through an audition.

**Program of Study.** Students earning the MMusEd degree must complete a minimum of 30 hours of course work, including 12 hours in music education, 12 hours in music, and 6 hours of electives in a specialization area or other areas of interest. Of the 12 hours in music, a two-hour course in bibliography and research is required as well as six hours of study in a cognate area, which includes musicology, music theory, or performance (including conducting and jazz studies).

The music component of the degree should assist students in developing their musical knowledge and skills. One member of the student's graduate advisory committee should be from the cognate area, and it is assumed that at least some part of the student's study is with that faculty member. All music studies must be at the 5000-level or above. Under special circumstances, up to 6 credit hours at the 4000-level may be applied to the open electives portion of the degree.

As a master of music education degree candidate, each student must produce a culminating paper that focuses on a topic of vital interest or importance. This paper may be developed as part of the requirements for a music education course or may take the form of a master's thesis. Culminating papers or theses are defended during final oral examinations.

Students typically complete the degree in two academic years, or one academic year plus two summers. Degree work must be completed within four years of the semester in which the student is accepted into a degree program and begins studies. Because most master's-level music education courses are offered in late afternoons, students who live within commuting distance can earn a significant portion of credit toward the degree while continuing to work full time.

## Doctor of Philosophy: Music Education (DMusEd)

The doctor of philosophy degree in music, with music education as a field of specialization, is offered through the Graduate School for students who demonstrate both superior commitment to the music education profession as well as scholarly potential. This degree program requires that individuals think abstractly, generalize knowledge, apply research results to areas of specialization, and communicate effectively in both oral and written forms. Course work emphasizes the study of historical, philosophical, psychological, and sociological foundations of music education; the theoretical and pedagogical principles of music teaching and learning; curriculum development; testing and assessment; and research techniques. Graduates typically pursue careers in music education at the college level or supervisory positions in elementary and secondary schools.

**Course Work.** A minimum of 45 semester hours of courses numbered 5000-level or above (15 of which may be transferred from the master's degree) and a minimum of 30 hours of doctoral dissertation credit are required for the PhD degree.

**Dissertation Requirements.** A dissertation based on original investigation, demonstrating mature scholarship, must be completed by each candidate. Following the successful completion of the comprehensive examination, the student designates a dissertation committee, develops a dissertation prospectus, and presents it to the committee for approval. After the dissertation has been accepted, a final oral examination on the dissertation and related topics is conducted by the student's dissertation committee.

## Dual Degree Programs

### Dual Degree in Music Performance and Music Education

Qualified music majors who have been approved by the relevant major departments may elect to complete a dual major in music performance (woodwinds, brass and percussion, strings,

voice, or jazz emphasis) and music education (instrumental or choral tracks). Requirements for these dual degree program range from 139 to 148 credit hours, and a minimum of 10 semesters of study (including one semester of full-time student teaching) is typically necessary to complete all requirements.

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# Musical Arts

## Graduate Degree Program(s)

### Doctor of Musical Arts (DMA)

The doctor of musical arts (DMA) is a professional degree for creative and performing students who possess the talent as well as the breadth of knowledge, background, outlook, and scholarly capacity requisite to a doctoral program. Fields of study are composition, instrumental conducting and literature, literature and performance of choral music, performance, and performance/pedagogy. Performance and/or performance/pedagogy concentration areas are brass instruments, guitar, harpsichord, organ, percussion, piano, string instruments, voice, and woodwind instruments. Outlines of specific programs may be obtained online at [www.colorado.edu/music/academics/graduate-degrees](http://www.colorado.edu/music/academics/graduate-degrees) and from the office of the associate dean for graduate studies.

**Prerequisites.** Entrance requirements include a master's degree in music or demonstrated background comparable to that of the master of music degree at this university. All graduate applicants must complete an audition, interview, or some other demonstration of their ability in the major field. If at all possible, a visit to the campus is strongly encouraged. As part of the application, composition majors should submit representative scores and recordings (CD format), and a list of completed compositions. Performance majors should submit a repertoire list and arrange for a personal audition and interview, if at all possible. (Some areas require applicants to send a pre-audition screening recording of their performance.) Conducting majors must submit a DVD of their performance. All DMA applicants must also submit a scholarly writing sample that demonstrates ability in critical thinking, appropriate research techniques, and skill in the cogent use of English. Full details concerning audition and application requirements may be found online at [music.colorado.edu/apply/graduate](http://music.colorado.edu/apply/graduate).

**Program Requirements.** The following program description supplements the requirements applying to all graduate students found in the Graduate School section and in the introductory section on Graduate Degree Programs in this College of Music section. Information on quality of work, credit by transfer, application for admission to candidacy, comprehensive examination, and final examination found under the PhD description is applicable to the DMA degree. DMA degree work must be completed within six years of first registration.

- **Advisory Committee.** Each DMA program is directed by a five-member advisory committee headed by the major advisor, who is usually the student's main studio teacher. At least one member must hold the PhD degree in musicology, music theory, or music education.
- **Residence Requirements.** The minimum residence requirement is six semesters of work beyond the attainment of an acceptable bachelor's degree. Two semesters of residence credit may be allowed for a master's degree from another institution of approved standing, but at least four semesters of residence credit, two of which must be consecutive in one academic year, must be earned for course work and/or dissertation work taken at this university.

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- Not more than one-half semester of residence credit may be earned in a summer session. Students must be registered full-time to earn residence credit. For employed students, only those with one-fourth time or less in work that does not contribute directly to their degree program may earn full residence credit.
- **Continuous Registration.** After the residence requirements for the doctor of musical arts program have been satisfied, a student must enroll for fall and spring semesters of each year until attaining the degree. If a student has enrolled in all required dissertation courses but has still to complete the work, he or she should enroll in TMUS 8019 Precandidate for Doctor of Musical Arts Degree, or TMUS 8029 Candidate for Doctor of Musical Arts Degree, until the degree is completed.
- **Degree Plan.** A degree plan approved by the advisory committee will be presented to the associate dean for graduate studies no later than the second semester of residence. The student's major professor is responsible for helping the student formulate this plan. The plan should include designated members of the student's doctoral committee, projected remedial and supporting course work, proposed dissertation projects, and tentative dates for the comprehensive and final examinations.
- **Language Requirement.** Each DMA student must satisfy a foreign language requirement, and the one foreign language used to satisfy the requirement must be approved by the student's advisory committee. Additional language work is required for voice students. The language requirement must be completed before students may take the comprehensive exam. Advanced competence in music technology may be approved as an alternative to the foreign language requirement. Appropriate courses and projects are prescribed by the college's music technology faculty. International students whose native language is not English are exempt from the requirement.
- **Course Requirements.** Students must take a minimum of 30 hours of course work, of which at least 18 hours are dissertation projects. Students take two doctoral topic classes (at the 6000 level), one each in musicology and music theory; prerequisites are stipulated by the theory and musicology faculties. Some areas require specific course work prior to or in conjunction with work on dissertation projects. In other instances students may be advised to take course work in preparation for the comprehensive examination. Applied music instruction may be elected for the duration of the residency requirement.
- **Dissertation.** The DMA dissertation consists of a specified number of performances, projects, and documents. The student's permanent advisory committee must approve all dissertation projects.



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## Faculty: Music

| Name             | Title   | Education  |
|------------------|---|--|
| AAHOLM, Phillip  | professor emeritus  |  |
| AUSTIN, James R. | associate dean for undergraduate studies, professor (music education)   | BME, University of North Dakota; MAEd, PhD, University of Iowa   |
| BARBOSA, Eduardo | instructor (jazz bass)  |  |
| BERG, Margaret   | associate professor (music education)                                   | BS, Case Western Reserve University; BM, Cleveland Institute of Music; MME, University of Cincinnati; PhD, Northwestern University |
| BERNSTEIN, Giora | professor emeritus  |  |
| BRODY, James     | associate professor (oboe); director, Musician's Wellness Program       | BM, Ohio State University; MM, Indiana University  |
| BRUNS, Steven M. | associate dean for graduate studies, associate professor (music theory) | BME, Northern State University (SD); MM, PhD, University of Wisconsin, Madison   |
| CABALLERO, Carlo | associate professor (musicology)  | BA, Pomona College; PhD, University of Pennsylvania  |
| CARTHY, Nicholas | associate professor (opera); music director, Eklund Opera Program       | Studies at the Guildhall School of Music and the Mozarteum Salzburg  |
| CHANG, Phillip   | senior instructor (music theory)  | BA, Florida State University; MA, PhD, Eastman School of Music   |
| CHELLIS, Matthew | assistant professor (voice)   | BMA, University of Michigan; MM, Manhattan School of Music   |

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|                      |  |   |
|----------------------|--|---|
| CONLON, Joan Catoni  | professor emerita  |   |
| COOPER, Peter        | senior instructor (oboe)   | BM, Northwestern University   |
| COOPERSTOCK, Andrew  | professor (piano)  | BM, University of Cincinnati; MM, Juilliard School; DMA, Peabody Conservatory of Music        |
| CORBUS, David        | instructor (jazz guitar)   | BM, New York University   |
| CREMASCHI, Alejandro | associate professor (piano pedagogy)                                     | BA, University of Maryland, Baltimore County; MM, DMA, University of Minnesota, Twin Cities   |
| DAVIS, John          | associate dean for administration; professor (jazz studies)              | BA, Metropolitan State College; MM, University of Denver; DA, University of Northern Colorado |
| DOCKENDORF, Matthew  | instructor (conducting, music education); assistant director of bands    | BME, University of Minnesota; MM, The Ohio State University; DMA, Michigan State University   |
| DRUMHELLER, John     | senior instructor (composition, music technology)                        | BME, Montana State University; MM, DMA, University of Colorado Boulder                        |
| DUNN, J. Michael     | associate professor (tuba, euphonium)                                    | BS, Tennessee Technological University; MM, Arizona State University                          |
| EAKIN, Charles       | professor emeritus   |   |
| ECKERT, Erika        | associate professor (viola)  | BM, Eastman School of Music   |
| ELLSWORTH, Oliver    | professor emeritus   |   |
| ERHARD, Paul         | professor (double bass)  | BM, Eastman School of Music; MM, DMA, Juilliard School  |
| FARR, Elizabeth      | professor (organ, harpsichord); director, Historical Performance Studies | BM, Stetson University; MM, Juilliard School; DMA, University of Michigan                     |
| FINK, Robert         | dean emeritus and professor emeritus                                     |   |
| GALM, John           | professor emeritus   |   |
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|-----------------------|--|--|
| GENTRY, Gregory       | associate professor (choral studies); director, choral studies             | BME, University of Denver; MM, DMA, University of Missouri, Kansas City                          |
| GLYDE, Judith         | professor emerita  | BM, Hartt College of Music; MM, Manhattan School of Music  |
| GONZALEZ, Luis        | professor emeritus   |  |
| GOODE, Bradley M.     | associate professor (jazz trumpet)   | BM, University of Kentucky; MM, DePaul University  |
| GRAHAM, Larry         | professor emeritus   |  |
| GUNTHER, John         | director of jazz studies; associate professor (saxophone, clarinet, flute) | BM, MA, Berklee College of Music; MA, University of Miami; PhD, New York University              |
| HARBISON, Kevin       | instructor (music technology)  | BM, Cleveland Institute of Music   |
| HARRIMAN, Janet       | lecturer (harp)  | BM, College of Wooster; MM, Cleveland Institute of Music   |
| HATA, Kuniaki         | professor emeritus   |  |
| HAYES, Deborah        | professor emerita  |  |
| HEIL, Leila           | assistant professor (music education)                                      | BM, Colorado State University; MM, Arizona State University; PhD, University of Colorado Boulder |
| HSU, Hsing Ay         | instructor; director, Pendulum New Music Series                            | BM, Juilliard School of Music; MM, Yale School of Music  |
| ISHIKAWA, Yoshiyuki   | professor (bassoon)  | BME, MM, Northwestern University; DMA, University of Michigan                                    |
| ITASAKA-KEISTER, Mami | instructor; co-director, Japanese Traditional Music Ensemble               | BA, English literature, Komazawa University, Tokyo   |
| JACKSON, Dennis       | professor emeritus   |  |
| JENKINS, Jeff         | instructor (jazz piano)  |  |
| JENNINGS, Christina   | associate professor (flute)  | BM, MM, Juilliard School; DMA, Rice University   |
| KEARNS, William       | professor emeritus   |  |
|                       |  |  |

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|--------------------------|---|---|
| KEISTER, Jay             | associate professor (ethnomusicology); co-director, Japanese Traditional Music Ensemble | BA, California State University, Fullerton; MA, PhD, University of California, Los Angeles      |
| KELLOGG, Daniel          | associate professor (composition)   | BM, Curtis Institute of Music; MM, DMA, Yale School of Music                                    |
| LASMAWAN, I Made         | instructor; director, Balinese Gamelan Ensemble   | SMKar, Skar, Indonesian Traditional Performing Arts College                                     |
| LEHNERT, Doris Pridonoff | professor emerita   |   |
| LEHNERT, Oswald          | professor emeritus  |   |
| LEONG, Daphne            | associate professor (music theory)  | BM, University of Saskatchewan; MA, MM, PhD, Eastman School of Music                            |
| LEWIS, Gary              | professor (conducting); director, orchestral studies                                    | BME, University of Oklahoma; MM, Texas Tech University  |
| LUHRING, Alan            | professor (retired)   |   |
| MALIN, Yonatin           | associate professor (music theory)  | BA, Harvard University; PhD, University of Chicago  |
| MALIN, Yonatan           | associate professor of Music Theory and Jewish Studies                                  | BA, Harvard University; PhD, University of Chicago  |
| MALOY, Rebecca           | associate professor (musicology)  | BM, University of Illinois, Champaign-Urbana; MM, PhD, Cincinnati College Conservatory of Music |
| MASON, Patrick           | professor (voice)   | BM, Peabody Conservatory of Music, MM, University of Nebraska at Lincoln                        |
| McCARTHY, Kevin          | professor emeritus  |   |
| McDONALD, Margaret       | associate professor (collaborative piano)   | BM, MM, University of Minnesota, Twin Cities; DMA, University of California Santa Barbara       |
| MCKEE, Paul              | associate professor (jazz trombone, arranging/composition)                              | BME, University of Northern Iowa; MM, University of Texas, Austin                               |
| MCKINNEY,                | associate professor,  | BS, Duquesne University; MA, Indiana  |

|                   |  |  |
|-------------------|--|--|
| Donald            | conducting; associate director, bands  | University of Pennsylvania; DMA, University of Michigan  |
| MCMURRAY, Allan   | distinguished professor emeritus   | BA, California State University, Long Beach; MM, University of Wisconsin. Additional study, University of Michigan                       |
| MIRANDA, Martina  | associate professor (music education)  | BA, Trinity International University; MA, San Francisco State University; PhD, Musical Arts in Music Education, Arizona State University |
| MOTEKI, Mutsumi   | associate professor (voice, opera)   | BA, Kunitachi College of Music; MM, Westminster Choir College; DM, University of Michigan  |
| MYER, Tom         | associate professor (saxophone)  | BS, University of Wisconsin–LaCrosse; MM, North Texas State University   |
| NGUYEN, Alexandra | associate professor (collaborative piano)                                      | BS, McGill University; DMA, MM, Eastman School of Music  |
| NIMS, Abigail     | assistant professor (voice)  | BM, Ohio Wesleyan University; MM, Westminster Choir College  |
| NYTCH, Jeff       | assistant professor (composition); director, Entrepreneurship Center for Music | BA, Franklin and Marshall College; MA, DMA, Rice University  |
| OKIGBO, Austin    | assistant professor (ethnomusicology); director, World Vocal Ensemble          | BPhil, Pontifical Urban University, Rome; MM, Westminster Choir College; PhD, Indiana University, Bloomington                            |
| PANN, Carter      | associate professor (composition)  | BM, Eastman School of Music; MM, DMA, University of Michigan   |
| PETERSON, Patti   | associate professor (voice)  | BM, Salem College; MM, DMA, University of Colorado Boulder   |
| PINKOW, David     | professor emeritus   |  |
| RAMSEY, Andrea    | assistant professor (conducting); associate director, choral studies           | BME, Arkansas Technical College; MM University of Kansas; PhD, Michigan State University   |
| RICKELS, David B. | assistant professor (music education)  | BM, MM, DMA, Arizona State University  |

|                          |   |  |
|--------------------------|---|--|
| RIIS, Thomas             | professor (musicology);<br>director, American Music<br>Research Center  | BA, Oberlin College; MA, PhD, University<br>of Michigan  |
| ROEDER,<br>Matthew       | associate professor<br>(conducting, music<br>education); associate<br>director of bands; director,<br>Golden Buffalo Marching<br>Band | BM in Music Education, Miami University;<br>MM, Music Education/Conducting,<br>Peabody Conservatory of Johns Hopkins<br>University; DMA (wind conducting),<br>University of Colorado Boulder |
| ROMAINE, Paul            | instructor (jazz, drum set)   | BS, University of Colorado Denver  |
| ROMERO,<br>Brenda        | associate professor<br>(musicology,<br>ethnomusicology)   | BM, MM, University of New Mexico; PhD,<br>University of California, Los Angeles  |
| SABLE, Barbara<br>Kinsey | professor emerita   |  |
| SAWCHUK, Terry           | associate professor<br>(trumpet)  | BM, MM, University of Michigan   |
| SCOTT, F.<br>Wayne       | professor emeritus  |  |
| SHAFFER,<br>Kristen      | instructor (music theory)   | BM, Lawrence University; MM, Chicago<br>College of Performing Arts; M.Phil/MA,<br>Yale University; PhD, Yale University  |
| SHER, Daniel             | dean emeritus; professor<br>(piano)   | BM, Oberlin College Conservatory of<br>Music; MS, Juilliard School; EdD,<br>Columbia University  |
| SILVER, Daniel           | associate professor<br>(clarinet)   | BM, Northwestern University; MM,<br>University of Michigan   |
| SMITH, Jeremy            | associate professor<br>(musicology)   | BA, Washington College; MFA, University<br>of California, Irvine; PhD, University of<br>California, Santa Barbara  |
| SPERA, Nicoló            | assistant professor<br>(classical guitar); director,<br>Ritter Family Classical<br>Guitar Program                                     | Artist Diploma, University of Denver;<br>Additional studies at Conservatory of Aosta<br>and Accademia Musicale Tema  |
| SPILLMAN,<br>Robert      | professor emeritus  |  |
| STANLEY,<br>William      | associate professor<br>(trombone)   | BME, University of Kansas; MM, DMA,<br>University of Illinois  |
| THEODORE,                | associate professor   | BA, Amherst College; MM, Yale School of  |

|                    |                              |   |
|--------------------|------------------------------|---|
| Michael            | (composition)                | Music; PhD, University of California, San Diego   |
| THORNTON, Michael  | associate professor (horn)   | BM, Temple University; additional studies at Manhattan School of Music and Juilliard School                       |
| WALTER, Douglas    | professor (percussion)       | BM, University of North Texas; MM, University of Michigan; DMA, Temple University                                 |
| WATERS, Keith      | professor (music theory)     | BM, University of North Carolina, Greensboro; MM, New England Conservatory of Music; PhD, Eastman School of Music |
| WETHERBEE, Charles | assistant professor (violin) | BM, Curtis Institute of Music   |
| WOLZIEN, Charles   | professor emeritus           |   |

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Students follow the basic major requirements described above, but instead of taking electives they complete the 12-credit-hour certificate offered through the ATLAS Technology, Art and Media program. This provide students with an opportunity for an in-depth exploration of contemporary digital media cultures.

### **Documentary Practices concentration**

Students follow the basic major requirements described above, but instead of taking electives they complete 12 hours of prescribed course work within CMDP focusing on documentary storytelling.

### **Music Technology concentration**

Students follow the basic major requirements described above, but instead of taking electives they complete 18 hours of prescribed course work within CMDP focusing on Music Technology.

### **Performance Media concentration**

Students follow the basic major requirements described above, but instead of taking electives they complete courses that develop a performance vocabulary and explore the historical and cultural contexts of performance through project-based courses exploring the design and implementation of media installations. The capstone project will be a large-scale performance or installation.

### *Required Courses and Semester Credit Hours*

Students will take the foundational courses in theory and practice, CMDP 1400: Introduction to Contemporary Media Cultures (3 hours) and CMDP 2500: Introduction to Media Practices (4 hours) before proceeding to advanced courses in media production. Critical studies courses require that students take CMDP 1400. In addition to the basic requirements, students in this major may elect to focus on a specific area of concentration. Students may also elect to follow a comprehensive approach to media production provided by a nine credit hour elective structure. Students from within or outside the college may pursue course work within CMDP, provided they meet course prerequisites, though seating priority is given to declared majors. With advisor and faculty guidance, CMDP majors may elect to design a 12 credit hour concentration derived from areas within the college. All students will be required to take the capstone course Concepts and Practices of New Media (3 hours) in their final year. Credit distribution for BA in Media Production: Critical Media Practices courses (12 credit hours); Interdisciplinary Media Production requirements (13 credit hours); and Production electives (9 credit hours) or an CMDP concentration (12–18 credit hours).

### Required Studio Courses (13 credit hours):

- CMDP 2500: Introduction to Media Practices (3 hours)
- CMDP 2600: Creative Media Making (3 hours)
- CMDP 3500: Digital Photographic Practices (3 hours)
- CMDP 4900: Concepts and Practices of New Media (3 hours)

### Studio Electives Courses (Rotating Electives):

- CMDP 2510: Critical Media Practices Workshop I (1-3 hours)
- CMDP 2710: Media Production Methods and Ideas (3 hours)
- CMDP 2720: Animation (3 hours)
- CMDP 2810: Documentary Media Poetics (3 hours)

- Information Science
- Intermedia Art, Writing and Performance
- Journalism
- Media Studies

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- CMDP 2860 / MUSC 2081: Performance Audio Recording (2 hours)
- CMDP 2870 / MUSC 2091: Recording Design (2 hours)
- CMDP 3510: Critical Media Practices Workshop II (1-3 hours)
- CMDP 3610: Contemporary Image Making Practices (3 hours)
- CMDP 3620: Images and Stories (3 hours)
- CMDP 3720 / ENGL 3856 / ATLAS 3519: Multimedia Composition (3 hours)
- CMDP 3810: Engaged Documentary Media Practices (3 hours)
- CMDP 3820: Introduction to Performance Media (3 hours)
- CMDP 3830: Performance Design for Media (3 hours)
- CMDP 3840: Sound Practices (3 hours)
- CMDP 3860 / MUSC / MUEL 4081: Introduction to Electronic Music (3 hours)
- CMDP 3910: Media Production Topics (3 hours)
- CMDP 3990: Media Professional Seminar (2 hours)
- CMDP 4610: Small Screen Storytelling (3 hours)
- CMDP 4620: Media Installations and Environments (3 hours)
- CMDP 4630: Fundamentals of Computational Media (3 hours)
- CMDP 4640 / ENGL 4116 / ATLAS 4519: Multimedia Sound (3 hours)
- CMDP 4810: Advanced Documentary Media Practices (3 hours)
- CMDP 4820: Ethnographic Media (3 hours)
- CMDP 4860 / MUSC 4111: Composing at the Computer (2 hours)
- CMDP 4870 / MUSC / MUEL 4121: Sound Practices Topics (3 hours)
- CMDP 4905: Independent Study (3 hours)
- CMDP 4920: Media Production Internships (3 hours)

Required Media Production Critical Studies Courses (9 credit hours):

- CMDP 1400: Introduction to Contemporary Media Cultures (4 hours)
- CMDP 2100: Approaches to Historical Media Practices (3 hours)
- CMDP 2400: Media Aesthetics (3 hours)

Media Production Critical Studies Electives:

- CMDP 3210: Interactive Digital Cultures (3 hours)
- CMDP 3350: Modes of Documentary Media History (3 hours)
- CMDP 3410: Topics in Media Studies (3 hours)
- CMDP 3450: Critical Perspectives in Media Practices (3 hours)
- CMDP 4110: Cultures of Digital Sound (3 hours)
- CMDP 4220: Digital Archives in Media Practices (3 hours)
- CMDP 4310: Screen Culture and Globalization (3 hours)
- CMDP 4320: Media Engagement in Digital Diasporas (3 hours)
- CMDP 4410: Topics in Contemporary Screen Technologies (3 hours)

- CMDP 4450: Contemporary Issues in Documentary Media (3 hours)

## Graduate Degree Program(s)

### Graduate Study in Critical Media Practices

The department offers programs of study leading to the MFA in interdisciplinary documentary and PhD in emergent technologies and media art practices. Interested students should contact the department for current admission and degree requirements.

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## Media Studies (MDST)

Contemporary media practitioners, both professional and amateur, influence the values and behaviors of national and global populations, challenging and shaping the authority, legitimacy and control exercised by governments and other powerful social institutions. Because of this, media and cultural studies are central to research about the complex intersections of culture, politics and economics from the local to the global levels. Appropriately, the Department of Media Studies emphasizes the history, nature and impact of mediated sounds, images and texts from a wide range of inter- and cross-disciplinary perspectives.

The Department of Media Studies examines ways of thinking about and conducting research into the intersection of media, communication and cultural practices in both historical and contemporary perspectives. Encompassing humanistic, social scientific and artistic approaches to the study of media and culture, and interdisciplinary in its theoretical and methodological approaches, the degree spans traditional boundaries between theory and practice. It fosters media “literacy” in the broadest sense by providing students with critical skills to analyze contemporary media and culture, along with technical, aesthetic and intellectual principles that facilitate strong media practices.

**Course code for this program is MDST.**

### Bachelor's Degree Program(s)

## Bachelor's Degree in Media Studies

The goal of the media studies BA is to prepare students to become intellectually engaged critics of their media environment through a commitment to rigorous scholarship and creative media practice. Students will exit the program with a vital edge as innovative, critical professionals and well-rounded, independent thinkers.

### Required Courses and Semester Credit Hours

Students pursuing the BA in Media Studies complete 13 courses, for 39 credit hours.

Four required courses comprise the MDST core:

- Media Literacy (3 hours)
- Media Research (3 hours)
- Media and Communication History (3 hours)
- Digital Culture and Politics (3 hours)

Students would then take the following courses offered by MDST, other departments or programs in CMCI or departments outside CMCI:

- Arts & Sciences
- Business
- Education
- Engineering & Applied Science
- Environmental Design
- Law
- Media, Communication and Information
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    - Advertising, Public Relations and Media Design
    - Communication
    - Critical Media Practices
    - Information Science
    - Intermedia Art, Writing and Performance
    - Journalism
  - **Media Studies**
- Residential Academic Program (RAP)
- Faculty: CMCI
  - Advertising, Public Relations and Media Design
  - Communication
  - Critical Media Practices

- Advanced Research Methods (3 hours)
- Media Practice (6 hours)

The Media Practice component consists of courses involving hands-on work in the CMCI Departments of Advertising, Public Relations and Media Design; Journalism; Information Science or Critical Media Practices; or in the Technology, Arts and Media program in ATLAS.

Students will additionally explore an area of emphasis by taking four courses (for 12 credit hours) in one of the following:

- Media and Culture
- Media and Politics
- Global and International Media
- Multimedia Practice: Design and Production
- Media History and Archaeology
- Media Leadership: Management and Entrepreneurship
- Media Technology and Society
- Images and Screen Studies
- Self-Designed Emphasis (requires faculty approval)

Courses meeting this requirement could come from anywhere within CMCI or across the CU Boulder campus curriculum.

MDST requires an internship (3 hours) in a field of the student's choice, and a capstone project (3 hours), both usually completed in the senior year.

## Graduate Degree Program(s)

The department offers programs of study leading to the MS and PhD in media studies. Interested students should contact the department for current admission and degree requirements

- Information Science
- Intermedia Art, Writing and Performance
- Journalism
- Media Studies

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## Graduate School



**John Stevenson, dean**

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school websites: [www.colorado.edu/graduateschool](http://www.colorado.edu/graduateschool) and  
[www.colorado.edu/admissions/graduate/](http://www.colorado.edu/admissions/graduate/)

Graduate work at the University of Colorado began on a small scale in 1892. Following years of development, the Graduate School was organized in 1909 with a separate faculty. Each of the three campuses of the University of Colorado system now offers graduate degree programs, and a dean is in residence on each campus. The Graduate School at CU-Boulder is governed by its own set of [Graduate School Rules](#).

Currently overseeing over 100 graduate and professional programs, the Graduate School works to guarantee a standard of quality and cohesion across all disciplines, ensuring the continuing integrity and value of a CU-Boulder graduate degree. The Graduate School also helps make possible the many connections between the campus and outside constituencies, in the state, the nation and the world.

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## Funding for Graduate School

CU-Boulder administers various forms of financial assistance for graduate students: fellowships, traineeships, scholarships, research and teaching assistantships and awards from outside agencies.

### Financial Aid for Graduate Study

The University of Colorado offers several types of financial assistance for graduate students who demonstrate financial need. Students apply for assistance by submitting a financial aid application (the FAFSA) as soon as possible after January 1.

Colorado residents may be eligible for the Colorado Graduate Grant program and the Graduate Fee Grant program. Both are automatically considered with the FAFSA application.

Graduate students may apply for long-term loans through the Stafford Loan (formerly GSL) program or the Perkins Loan program (formerly the National Direct Student Loan) and for part-time jobs through the college work-study program.

### Graduate Part-Time Instructors and Teaching Assistants

Many departments employ graduate students as graduate part-time instructors (GPTIs) or as teaching assistants (TAs). GPTIs must possess a master's degree or the equivalent and have demonstrated competence in classroom teaching. Teaching assistants are not required to have previous teaching experience. In order to be eligible to be a GPTI or a TA, one must be a full-time enrolled graduate student, with a cumulative GPA of at least 3.00. Compensation is based on the percentage of time worked, and includes a tuition waiver and partial insurance benefit.

### Research Assistants

In many departments, research activities provide opportunities for graduate students to work part time as research assistants. All research assistants must maintain a cumulative GPA of at least 3.00 and be full-time regularly enrolled graduate students. Compensation is based on percentage of time worked and includes a tuition waiver and partial insurance benefit.

### Other Funding Opportunities

Graduate Students are encouraged to seek funding by applying for fellowships and awards. While there are a number of fellowships and grants that are funded through the University, the majority are awarded by governmental agencies, private foundations and corporations. A partial list of extramural and University fellowships can be found on the Graduate School's

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website: [www.colorado.edu/GraduateSchool/funding/student.html](http://www.colorado.edu/GraduateSchool/funding/student.html). Students should also consult with directories of funding sources, such as the Annual Register of Grant Support and The Grants Register, both available in community or university libraries.

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## Research Institutes and Centers

Some important graduate study at CU-Boulder is done through, or in partnership with, research institutes and centers.

### Research Institutes

CU-Boulder has developed a longterm tradition of interdisciplinary collaboration throughout the university community and beyond. At the heart of this tradition is a system of world-class research institutes that create a dynamic environment for discovery and learning.

Since the first institutes emerged a half-century ago, research teams of faculty, students and external partners have tackled complex questions from multiple perspectives, leading to important advances in human knowledge. These learning enterprises offer common ground for scholars and students to collaborate on issues that confront the world—in such areas as climate; energy resources; atmosphere; outer space; human behavior; solar energy; the human mind; and atomic, molecular and optics studies.

CU-Boulder's 11 research institutes account for more than half of all sponsored research dollars at the university, and they employ some of the most productive researchers in the country. With more than 900 researchers and supporting staff, the institutes make a major contribution to the university's research and education missions as well as the local and area economy. Numerous graduate students are employed by the institutes, which contribute to the quality of graduate education at CU-Boulder.

- [Alliance for Technology, Learning and Society \(ATLAS\)](#)
- [BioFrontiers Institute](#)
- [Cooperative Institute for Research in Environmental Sciences \(CIRES\)](#)
- [Institute of Arctic and Alpine Research \(INSTAAR\)](#)
- [Institute for Behavioral Genetics \(IBG\)](#)
- [Institute of Behavioral Science \(IBS\)](#)
- [Institute of Cognitive Science \(ICS\)](#)
- [JILA](#) (formerly the Joint Institute for Laboratory Astrophysics)
- [Laboratory for Atmospheric and Space Physics \(LASP\)](#)
- [Renewable and Sustainable Energy Institute \(RASEI\)](#)
- [University of Colorado Museum of Natural History](#)

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### Research Centers

In addition to the large research institutes, there are nearly 90 [research centers](#) housed within academic departments or as subsets of the research institutes themselves. They can be found in all fields of the university, including humanities and the arts, social sciences, natural sciences, engineering, business and law.

The centers cover a broad range of topics, from multicultural education and astrophysics to glaciology and prevention of violence. They grant fellowships, sponsor internships, house archives for research, conduct competitions with cash awards, host public debates and programs and support graduate study in many other ways.

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# Requirements for Advanced Degrees

## On This Page:

- [Graduate Faculty Appointments for Courses and Exams](#)
- [Master's Degrees](#)
- [Doctor of Philosophy, Doctor of Musical Arts and Doctor of Audiology](#)

A graduate student is responsible for becoming informed about and observing all regulations and procedures required by the graduate program pursued. Ignorance of a rule does not constitute a basis for waiving that rule. Any exceptions to the policies stated in this catalog must be approved by the dean of the Graduate School.

Additionally, all research must comply with campus and federal research regulations. See the research administration website at [www.colorado.edu/vcr](http://www.colorado.edu/vcr).

## Graduate Faculty Appointments for Courses and Exams

All courses, 5000-level or above, completed to fulfill graduate degree requirements must be taught by members of the graduate faculty. In addition, any faculty member serving on a master's or doctoral examination/defense committee must hold a current graduate faculty appointment. Membership on the university faculty does not automatically constitute an appointment to the graduate faculty. Contact your departmental graduate program assistant for questions concerning these appointments.

## Master's Degrees

A student enrolled in a master's program must satisfy the degree requirements of both the Graduate School and the major department. The requirements listed below are the minimum standards of the Graduate School; additional requirements are set forth by the major department.

## Minimum Requirements

The minimum requirement for the master's degree is 30 credit hours. A student may complete a Plan I (thesis) option, or a Plan II (course work) option. At least 24 hours must be completed at the 5000 level or above; these 24 hours must include a minimum of 4, but not more than 6, thesis hours for those students completing a Plan I degree. A maximum of 6 credit hours may be completed at the 3000 or 4000 level at the discretion of the academic department.

Independent study course work cannot exceed 25 percent of the course work required for the master's degree.

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## Master's Thesis

A thesis, which may be research or expository, critical or creative work, is required of every master's degree candidate under Plan I. Every thesis presented in partial fulfillment of the requirements for an advanced degree must accomplish the following:

- represent the equivalent of 4–6 semester hours of work, and
- comply in mechanical features with the specifications for theses and dissertations available in the Graduate School.

The final grade is withheld until the thesis is completed; if the thesis is not finished at the end of the term in which the student is registered, an in-progress (*IP*) grade is reported.

## Language Requirement

There is no campuswide foreign language requirement for the master's degree. The decision regarding the foreign language requirement for each graduate degree is the responsibility of the graduate program.

## Time Limit

Master's degree students have four years (six years for students pursuing an ME) from the semester in which they are admitted and begin course work to complete all degree requirements. The phrase "all degree requirements" includes the filing of the thesis with the Graduate School if Plan I is followed. Students who fail to complete the degree in this four-year period may be dismissed from their program with the concurrence of the major advisor and/or appropriate departmental personnel. To continue, the student must file a petition for an extension of the time limit with the dean of the Graduate School. Such petitions must be endorsed by the student's major advisor and/or other appropriate departmental personnel and may be granted for up to one year.

Students who have not completed the degree within their time limit, and who have received approval for an extension, must have any course work completed more than five years prior to the completion of the degree requirements evaluated by their department for relevance and applicability. At the discretion of the department the student may be required to validate these courses as part of the completion of their degree requirements.

Students who need to leave CU-Boulder for a period of time may apply to the Time Off Program for up to one year. Participation in the Time Off Program does not extend the student's time limit, but may be used as a reason to request an extension.

Students whose registration at CU-Boulder is interrupted by military service may apply to the dean of the Graduate School for an extension.

## Minimum Registration Requirement

Master's degree minimum registration requirements can be met only by full-time registration at CU-Boulder for at least two semesters, at least three summer sessions or a combination of at least one semester and two summer sessions/part-time semesters.

For purposes of deciding minimum registration credit toward a graduate degree, a student must be registered as a full-time student. One semester of minimum registration credit may be earned for full-time registration during the fall or spring semesters or two summer semesters/part-time semesters.

To be a full-time master's student, a student must carry one of the following course loads: a minimum of 5 credits of graduate course work, 8 credits of combined undergraduate and graduate course work, 12 hours of undergraduate course work, at least 1 master's thesis hour

or at least 1 hour of "Master's Candidate for Degree." Full- and half-time standards may be different for students receiving federal or state financial aid. Students should contact the Office of Financial Aid to see if these standards apply. These different standards are for financial aid purposes only.

## Candidacy and Graduation

To be granted a master's degree, a student must become a candidate for that degree by filing an Application for Admission to Candidacy with the Graduate School no later than the posted graduation deadlines during the semester in which he or she plans to have the degree conferred. Students must meet all posted graduation deadlines in order to receive a degree in any given semester.

## Comprehensive-Final Examination

Each candidate for a master's degree is required to take a comprehensive-final examination/thesis defense after the requirements for the degree have been substantially completed or to present an approved degree plan which meets the requirements of the field and represents an intellectually coherent graduate education as determined by the major department. The examination/defense may be given near the end of the student's last semester while the candidate is still taking required courses for the degree, provided satisfactory progress is being made in those courses. For students pursuing a Degree Plan Approval option, a final exam is not required. The approved degree plan must be approved by the department chair, graduate director and major advisor on the Degree Plan Approval Form. The Degree Plan Approval option is available only in select departments.

The following rules apply to the comprehensive-final examination:

1. A student must be registered on the Boulder campus as a regular degree-seeking student during the semester the examination is passed.
2. Notice of the examination/defense must be filed by the major department in the Graduate School at least two weeks prior to the examination/defense. The examination/defense must be scheduled no later than the posted deadline for the semester in which the degree is to be conferred.
3. The exam is given by a committee of three graduate faculty members appointed by the department with approval of the dean of the Graduate School. The chair of the committee must have a regular or tenured graduate faculty appointment.
4. The examination, which may be oral, written or both, must cover the thesis (which should be essentially complete), other work completed in courses and seminars in the major field and all work presented for the degree.
5. A student must have an affirmative vote from the majority of the committee members to pass. A student who fails the comprehensive-final examination may attempt it once more after a period of time determined by the examining committee.

## Doctor of Philosophy, Doctor of Musical Arts and Doctor of Audiology

The doctor of philosophy (PhD), the doctor of musical arts (DMusA) and the doctor of audiology (AuD) are the highest academic degrees conferred by CU-Boulder. The requirements stated below are minimal requirements for all candidates for the PhD degree; additional conditions are found in department announcements. Additional requirements for the doctor of musical arts are available from the College of Music. Additional requirements for the doctor of audiology are available from the Department of Speech, Language and Hearing Sciences.

## Admission

If a student is admitted to a master's program and wants to continue on to a doctoral program in the same department, they should consult their home department on the proper procedure.

## Minimum Course Requirement

The minimum requirements for the PhD or DMusA degree are 30 credit hours of course work at the 5000 level or above. Those students pursuing the PhD shall complete a minimum of 30 credit hours of dissertation work beyond the minimum course work requirement. The minimum requirements for the AuD degree are 97 credit hours of course work at the 5000 level or above.

Unless otherwise specified by departmental requirements, all courses taken at the 5000 level or above that were taken for the master's degree at CU-Boulder may be applied toward the PhD degree. Course work taken in pursuit of a doctoral degree cannot be applied toward a subsequent master's degree.

## Dissertation Credit-Hour Requirement

To complete the requirements for the PhD degree, a student must register for a minimum of 30 dissertation credit hours. Distribution of those hours is as follows:

1. A student may not register for more than 10 dissertation credit hours in any one semester.
2. Not more than 10 dissertation credit hours taken in semesters prior to the semester in which the comprehensive examination is passed may be counted in the 30 dissertation hours required for the degree.
3. Not more than 10 dissertation hours of credit taken the semester in which the comprehensive examination is passed may be included in the 30 dissertation credit hours required for the degree.

## Minimum Registration Requirement

The minimum registration requirement for doctoral students is six semesters beyond the attainment of an acceptable bachelor's degree. Two semesters of minimum registration credit may be allowed for a master's degree from an accredited institution; however, at least four semesters of minimum registration credit, two of which must be consecutive in one academic year, must be earned for work taken at CU-Boulder.

For purposes of deciding minimum registration credit toward a graduate degree, a student must be registered as a full-time student. One semester of minimum registration credit may be earned for full-time registration during the fall or spring semester or during two summer semesters. Doctoral students who have not passed the comprehensive examination are considered full time during the spring and fall semesters if they are enrolled for at least 5 credit hours of course work at the graduate level, 8 credit hours of combined undergraduate and graduate hours, 12 credit hours of course work at the undergraduate level or at least 1 doctoral dissertation hour. DMA students who have not passed their comprehensive exam may also be considered full time if they are taking 1 hour of course work numbered 8200–8399 or TMUS 8019. Doctoral students who have passed the comprehensive examination must register for at least 5 doctoral dissertation hours to be considered full-time students. DMA students who have passed their comprehensive examination must register for 1 hour of course work numbered 8200–8399 or TMUS 8029 to be considered full time. Doctor of audiology students are considered full-time students if they are enrolled for at least 5 credit hours of course work at the graduate level, 8 hours of course work of combined undergraduate and graduate hours or 12 credit hours of course work at the undergraduate level. Full- and half-time standards may be different for students receiving federal or state financial aid. Students should contact the Office of Financial Aid to see if these standards apply. These different standards are for financial aid purposes only.

## Preliminary Examination

Each department determines for itself (by examination or other means) that students who wish to study for the doctoral degree are qualified. The means by which each department makes this evaluation are specified in departmental requirements. Students who are thus evaluated are notified immediately of the results.

## Language Requirement

There is no campuswide foreign language requirement for the doctoral degree. The decision regarding the foreign language requirement for each graduate degree is the responsibility of the graduate program.

## Comprehensive Examination

Before admission to candidacy for the doctoral degree, students must pass a comprehensive examination in the field of concentration and related fields.

The following rules apply to the doctoral comprehensive examination.

1. Students must be registered (pass/fail or credit) on the Boulder campus as regular degree-seeking students when they pass the comprehensive examination.
2. Notice of the examination must be filed by the major department with the Graduate School at least two weeks before the examination.
3. The examination is conducted by an examining board appointed by the chair of the major department and approved by the dean of the Graduate School. The board consists of the major advisor and additional members as necessary to a minimum of five. The chair must have a regular or tenured graduate faculty appointment. Successful candidates must receive affirmative votes from a majority of the members of their examination board. A candidate who fails the examination may attempt it once more after a period of time determined by the examination board.
4. The examination, which may be oral, written or both, tests mastery of a broad field of knowledge, not merely formal course work. The oral part is open to members of the graduate faculty.

## Admission to Candidacy

A student must formally apply for admission to candidacy for the doctoral degree on forms supplied by the Graduate School upon passing the comprehensive examination. Before being admitted to candidacy a student must earn at least three semesters toward the minimum registration requirement, and pass the comprehensive examination.

## Continuous Registration Requirement

A PhD student is required to register continuously for a minimum of 5 dissertation hours in the fall and spring semesters of each year, beginning with the semester following the passing of the comprehensive examination and extending through the semester in which the dissertation is successfully defended (final examination). DMusA students must maintain continuous registration for at least 1 credit of course work numbered 8200–8399 (or TMUS 8029). AuD students must maintain continuous registration for appropriate course work in the fall and spring semesters of each year through the semester in which the final exam is passed.

1. A student not required to maintain full-time status and not using campus facilities may claim off-campus status, which allows registration for 3 rather than the minimum of 5 dissertation credit hours. Off-campus status (3 credits of dissertation hours) is considered part-time. All CU-Boulder considerations for part-time status apply.

2. A student who fails to register continuously for dissertation credit hours after passing the comprehensive examination must retake and pass the comprehensive examination in order to regain status as a student in good standing in the Graduate School. The department may require that the student validate course work more than five years old. At its discretion, the department may petition the dean of the Graduate School for a time limit for completion of all degree requirements of up to one year after the retaking of the comprehensive exam. The department must petition the dean of the Graduate School to waive the requirement to retake the comprehensive exam.
3. A PhD student must be registered full time for a minimum of 5 dissertation hours during the semester (including summer session) in which the dissertation defense is passed. DMusA students must be registered full time in course work numbered 8200–8399 ( or TMUS 8029) during the semester in which the dissertation defense is passed. AuD students must be registered full time for 5 hours of graduate level course work or 8 hours of combined undergraduate and graduate hours during the semester in which the final exam is passed.

## Dissertation Defense/Final Exam

After the PhD dissertation has been accepted for defense by the student's committee, a final examination on the dissertation and related topics is conducted. For DMA and AuD students, a final examination is conducted in place of the dissertation defense.

The following rules apply to the dissertation defense.

1. A student must be registered as a full-time, regular degree-seeking student at CU-Boulder, for a minimum of 5 dissertation hours during the semester in which the final examination is passed. DMusA students must be registered full time in course work numbered 8200–8399 (or TMUS 8029) during the semester in which the dissertation defense is passed. Doctor of audiology students should be registered during the final exam for 5 credit hours of course work at the graduate level or 8 hours of combined undergraduate and graduate hours.
2. Students must notify the Graduate School of their final oral examination at least two weeks before their scheduled examination date.
3. This examination is wholly or partly oral, the oral part being open to anyone.
4. The examination is conducted by a committee appointed by the chair of the major department and approved by the dean of the Graduate School, which consists of at least five persons, one of whom must be from outside the student's major department. Three of the members must be CU-Boulder graduate faculty. The chair and outside member of the committee must have regular or tenured graduate faculty appointments. The other committee members must have either regular or special graduate faculty appointments. The chair and a majority of the committee must be present on the Boulder campus for the examination. More than one dissenting vote disqualifies the candidate in the final examination.
5. A student who fails the examination may attempt it once more after a period of time determined by the examining committee.

## Dissertation Requirements

A PhD student must write a dissertation based upon original investigation, showing mature scholarship and critical judgment, as well as familiarity with tools and methods of research. The subject must be approved by the student's major department.

1. Every dissertation presented in partial fulfillment of the requirements for an advanced degree must represent the equivalent of at least 30 semester hours of work.
2. The student is responsible for notifying the Graduate School of the exact title of the dissertation on or before the posted deadlines during the semester in which the doctoral

degree is to be conferred.

3. The dissertation must comply in mechanical features with the specifications for theses and dissertations available in the Graduate School.
4. After the dissertation defense, the student is responsible for submitting the dissertation and signature page on or before the posted deadline during the semester in which the doctoral degree is to be conferred.

The final grade is withheld until the dissertation is completed. In progress (*IP*) grades are assigned during each semester until the defense is successfully completed and the final copy of the dissertation is accepted by the examination committee, at which time the final grade for all dissertation hours is submitted to the Graduate School.

## Time Limit

Doctoral degree students are expected to complete all degree requirements within six years from the semester in which they are admitted and begin course work in the doctoral program. The phrase "all degree requirements" includes the filing of the dissertation and all accompanying forms with the Graduate School. Students who fail to complete the degree in this six-year period may be dismissed from their program with the concurrence of the major advisor and/or appropriate departmental personnel. To continue, the student must file a petition for an extension of the time limit with the dean of the Graduate School. Such petitions must be endorsed by the student's major advisor and/or other appropriate departmental personnel and may be granted for up to one year. If the dean of the Graduate School and the department chair/program director cannot agree on whether a student should continue, the Graduate School's executive advisory council makes the final decision.

Students who need to leave CU-Boulder for a period of time may apply to the Time Off Program for up to one year. Doctoral students who are required to maintain continuous registration may petition for an exception in order to participate in the Time Off Program for parental leave or other extenuating circumstances. Participation in the Time Off Program does not extend the student's time limit, but may be used as a reason if applying for an extension.

Students whose registration at CU-Boulder is interrupted by military service may apply to the dean of the Graduate School for an extension of time.

## Graduation

Students must meet all posted graduation deadlines in order to receive a degree in any given semester.

## Sequestration of Dissertations

Dissertations approved by the departments and the Graduate School are released to ProQuest/UMI and kept on file electronically at Norlin Library.

Occasionally, the primary academic advisor, after consultation with the student, may find it necessary to sequester the student's dissertation to protect university rights to intellectual property. The university accepts the obligation to protect potentially publishable creative works and potentially patentable subject matter from premature public disclosure so as to preserve entitlement to patent protection while the technology is being evaluated. This sequestration should take place only when it is absolutely required and only for the minimum time necessary.

With just cause, the student may request that an embargo be placed on the publication/sale of the thesis for a reasonable amount of time. This request is made upon the electronic submission of the document.

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The Graduate School of the University of Colorado Boulder offers instruction leading to the following advanced degrees:

- Master of Arts (MA)
- Master of Business Administration (MBA) (through Leeds School of Business)
- Master of Engineering (ME)
- Master of Fine Arts (MFA)
- Master of Music (MMus)
- Master of Music Education (MMusEd)
- Master of Science (MS)
- Doctor of Audiology (AudD)
- Doctor of Musical Arts (DMusA)
- Doctor of Philosophy (PhD)

### Graduate Programs and Degrees

NOTE: Degrees listed in parentheses are non-terminal degrees.

|   |                 |
|---|-----------------|
| <a href="#">Aerospace Engineering Sciences</a>    | MS, PhD         |
| <a href="#">Anthropology</a>                      | MA, MA/MBA, PhD |
| <a href="#">Applied Mathematics</a>               | MS, PhD         |
| <a href="#">Architectural Engineering</a>         | MS, PhD         |
| <a href="#">Art and Art History</a>               | MA, MA/MBA, MFA |
| <a href="#">Asian Languages and Civilizations</a> | MA, PhD         |

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- Dual Degree Programs
- Distance Degree Programs
- Graduate Interdisciplinary Certificates

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| Astrophysical and Planetary Sciences | (MS), PhD           |
| Atmospheric and Oceanic Sciences     | MS, PhD             |
| Audiology                            | AudD                |
| Biochemistry                         | (MS), PhD           |
| Business Administration              | MS, MBA, PhD        |
| Business Analytics                   | MS                  |
| Chemical Engineering                 | ME, MS, PhD         |
| Chemical Physics                     | PhD                 |
| Chemistry                            | (MS), PhD           |
| Civil Engineering                    | MS, PhD             |
| Classics                             | MA, PhD             |
| Cognitive Science                    | PhD (joint only)    |
| Communication (through CMCI)         | MA, PhD             |
| Comparative Literature               | MA                  |
| Computer Science                     | ME, MS, MS/MBA, PhD |
| Creative Writing                     | MFA                 |
| Dance                                | MFA                 |
| Ecology and Evolutionary Biology     | MA, PhD             |
| Economics                            | (MA), PhD           |
| Education                            | MA, MA+, PhD        |

|  |                                   |
|--|-----------------------------------|
| Electrical Engineering                                   | ME, MS, PhD                       |
| Emergent Technologies and Media Art Practices            | PhD                               |
| Engineering Management                                   | ME                                |
| English  | MA, PhD                           |
| Environmental Studies                                    | JD/MS, JD/PhD, MS, MS/MBA, PhD    |
| Ethnic Studies   | PhD                               |
| Film Studies   | MFA (through Art and Art History) |
| Finance  | MS                                |
| French   | MA, PhD                           |
| Geography  | MA, PhD                           |
| Geological Sciences                                      | MS, PhD                           |
| Geophysics   | PhD                               |
| German Studies   | MA, MA/ MBA, PhD                  |
| History  | MA, PhD                           |
| Information and Communication Technology for Development | MS                                |
| Information Science                                      | MS, PhD                           |
| Interdisciplinary Documentary Media Practices            | MFA                               |
| Integrative Physiology                                   | MS, PhD                           |
| Intermedia Art, Writing and Performance                  | PhD                               |
| Journalism   | MA                                |

|  |  |
|--|--|
| Law  | JD, JD/Canadian LLB, JD/MBA, JD/MD, JD/MPA, JD/MS, JD/MST, JD/MURP, JD/PhD, LLM, MS, MSL |
| Linguistics  | MA, PhD  |
| Materials Science and Engineering                    | MS, PhD  |
| Mathematics  | MA, PhD  |
| Mechanical Engineering                               | ME, MS, PhD  |
| Media and Public Engagement                          | MA   |
| Media Research and Practice                          | PhD  |
| Molecular, Cellular and Developmental Biology (MCDB) | (MA), PhD  |
| Museum and Field Studies                             | MS   |
| Music  | MMus, MMusEd, DMusA, PhD   |
| Neuroscience   | PhD (joint only)   |
| Philosophy   | MA, PhD  |
| Physics  | (MS), PhD  |
| Political Science                                    | MA, PhD  |
| Psychology   | (MA), PhD  |
| Real Estate  | MS   |
| Religious Studies                                    | MA   |
| Sociology  | (MA), PhD  |
| Spanish  | MA, PhD  |
|  |  |

|   |                            |
|---|----------------------------|
| <a href="#">Speech, Language and Hearing Sciences</a> | MA, PhD                    |
| <a href="#">Strategic Communication Design</a>        | MA                         |
| <a href="#">Supply Chain Management</a>               | MS                         |
| <a href="#">Technology, Media and Society</a>         | PhD                        |
| <a href="#">Telecommunications</a>                    | JD/MS, ME, MS, MS/MBA, PhD |
| <a href="#">Theatre</a>                               | MA, MA/MBA, PhD            |

Inquiries regarding admission to graduate programs should be addressed to the graduate department in which the applicant wishes to study (see [admissions.colorado.edu/graduate](https://admissions.colorado.edu/graduate)).

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## Graduate Teacher Program

The Graduate Teacher Program is a division of the graduate school. Activities prepare graduate students to teach while on the CU Boulder campus and provide continued professional development opportunities as they move through their graduate programs. We help graduate students succeed on the job market and in higher education or the private sector as professionals once they graduate.

To that end, we offer:

- comprehensive college teacher training (workshops on teaching, individual consultation on any aspect of the graduate experience, video consultation on teaching in labs, recitations, and courses)
- workshops and guidance to support the scholarship of teaching and learning
- academic and nonacademic career preparation opportunities through conferences, seminars, poster sessions, and individual consultations on curriculum vitae, job letters, teaching statements, and interviewing skills
- special workshops and groups to support academic writing for publication and other topics

The Graduate Teacher Program also offers graduate students the opportunity to pursue three certificates. Requirements for each are posted on the GTP website at [www.colorado.edu/gtp](http://www.colorado.edu/gtp):

- The Certificate in College Teaching is designed for graduate students who teach laboratories, recitations, or courses as instructor-of-record on the Boulder campus.
- The Professional Development Certificate for Preparing Future Faculty (PDC/PFF) allows those who do not teach the chance to do a project to learn about postsecondary teaching or institutions.
- The Professional Development Certificate (PDC/BGIA), in collaboration with Career Services, is available for graduate students considering nonacademic career paths.

The Graduate Teacher Program works directly with 45 departments through the Lead Network, which manages 50 graduate student consultants. Lead consultants receive intensive training, provide video consultation on teaching for teaching assistants and GPTIs, and assist department faculty with discipline-specific TA training.

The Graduate Teacher Program's Collaborative Preparing Future Faculty Network (COPFFN) consists of 26 colleges and universities on the Front Range and provides opportunities to learn about various collegiate teaching environments. Graduate students may attend site visits to partner campuses, collaborate with a mentor on a partner campus, and attend the COPFFN Forum where COPFF Network faculty speak about their careers.

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The Graduate Teacher Program collaborates with the University Libraries to offer Provost's Fellowships for the University Libraries to graduate students who wish to explore academic librarianship as a career.

Additionally, international graduate students may request personal consultations on teaching, career planning, and referrals to ESL services.

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## Concurrent Bachelor's/Master's Degree Programs

Concurrent BS/MS and BA/MA degree programs are offered in several departments at CU-Boulder. These programs allow a student to receive both a bachelor's and master's degree in five years of study without compromising the academic integrity of either degree.

Currently approved concurrent degree programs in the **College of Arts and Sciences** are offered in:

- art and art history
- Chinese/Asian languages and civilizations
- classics
- ecology and evolutionary biology
- film studies/art history
- French
- German studies
- integrative physiology
- Japanese/Asian languages and civilizations
- linguistics
- mathematics
- mathematics/applied mathematics
- physics
- psychology (cognitive)
- religious studies
- Russian studies

Currently approved concurrent degree programs in the **Leeds School of Business** are offered in:

- accounting
- finance/accounting
- management/telecommunications

Currently approved concurrent degree programs in the **College of Engineering and Applied Science** are offered in:

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- aerospace engineering
- applied mathematics
- architectural engineering
- architectural engineering/civil engineering
- chemical engineering
- chemical and biological engineering/chemical engineering
- civil engineering
- computer science/telecommunications
- computer science
- electrical engineering
- electrical and computer engineering/electrical engineering
- engineering physics/physics
- environmental engineering/civil engineering
- management/telecommunications
- mechanical engineering

These concurrent degree programs are open only to highly qualified CU-Boulder undergraduates. Students are formally admitted at the end of their sophomore year or the beginning of their junior year. They are admitted through the admission procedure of their department and do not go through the normal process of admission to Graduate School. When students have completed the program requirements, they receive both a bachelor's and a master's degree simultaneously. Students wishing to continue studying toward a doctorate must formally apply for admission to the Graduate School. Students interested in a concurrent bachelor's/master's program should inquire in the department.

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## Dual Degree Programs

In an environment where there is a rapidly increasing desire for interdisciplinary and professional skills, receiving two master's degrees in complementary fields can be a real asset. Contact the individual departments for details.

### Combinations with MBA

- anthropology/MBA
- art and art history/MBA
- computer science/MBA
- environmental studies/MBA
- German studies/MBA
- telecommunications/MBA
- theatre/MBA

### Combinations within the Graduate School

- applied math/MCD Biology
- audiology/speech, language and hearing sciences (both through the Department of SLHS)
- engineering management/aerospace engineering
- engineering management/computer science
- engineering management/electrical engineering
- engineering management/mechanical engineering
- engineering management/telecommunications
- music (two areas)
- religious studies/Asian languages/history (any two)

### Combination with Law

- business administration/law
- environmental studies/law
- juris doctor/bachelor of laws with the University of Alberta faculty of law, Canada
- medicine/law

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## Distance Degree Programs

Students and working professionals can advance their careers with flexible, convenient graduate engineering education from Engineering Anywhere, a global distance education opportunity provided by the College of Engineering and Applied Science and the Center for Advanced Engineering and Technology Education (CAETE) for over 30 years. You can:

- Pursue a master's degree, a graduate specialized certificate or take individual courses in several engineering disciplines: aerospace engineering sciences, computer science, electrical engineering, engineering management and interdisciplinary telecommunications
- Choose to watch course lectures in full rich media whenever and wherever you are—studying when and where it's convenient for you
- Download lectures to virtually any portable device—ideal for the traveling professional
- Engage in discussions and activities with motivated, experienced peers
- Learn from practicing engineering and experienced research faculty with the latest information and methodology
- Balance family and work demands while achieving your academic goals
- Earn the education necessary to increase your earning potential
- Gain access to over 100 previously recorded courses via a virtual library for academic course work

Students may enroll in a course before being accepted into a graduate degree program but should apply for admission before finishing a third course. Courses taken before admission are considered transfer credit. Nine hours of transfer credit will be accepted toward a graduate degree program. All applicable courses taken after admission will count toward the degree requirements. All courses taken through distance education from Engineering Anywhere will fulfill residency requirements.

For more information visit [engineeringanywhere.colorado.edu](http://engineeringanywhere.colorado.edu), call 303-492-6331 or send an email to [engineeringanywhere@colorado.edu](mailto:engineeringanywhere@colorado.edu).

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## Graduate Interdisciplinary Certificates

For a current list of all Graduate Interdisciplinary Certificates, please visit:

<http://www.colorado.edu/admissions/graduate/programs/certificates>.

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Take your interests beyond the classroom through study abroad, honors, leadership, service learning, research and more.

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## Continuing Education

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- [Summer Session and Maymester at CU-Boulder](#)

The mission of the Division of Continuing Education is to provide quality, innovative, lifelong learning opportunities to a diverse student population by extending the educational resources of the University of Colorado Boulder. A variety of credit courses, noncredit programs, certificate programs and seminars are offered through Continuing Education, which also administers CU-Boulder's Summer Session. Only university-approved faculty teach in Continuing Education programs.

The office is located at 1505 University Avenue in Boulder, **303-492-5148** (or **1-800-331-2801**). The fax number is **303-492-5335**, and the website is [ce.colorado.edu](http://ce.colorado.edu).

### Evening Credit Program

Offered in conjunction with CU-Boulder's academic departments, the Evening Credit Program provides credit courses in the evening on the Boulder campus. These affordable, smaller-sized classes are provided through various departments including anthropology, communication, economics, English, film studies, art and art history, geography, mathematics, philosophy, psychology, sociology, Spanish, theatre and more.

### Online Credit Program

The Online Credit Program offers online courses representing and approved by more than 25 departments on campus. Term-based courses follow a traditional semester schedule and allow for rich interaction with the instructor and other classmates. Self-paced courses offer students the flexibility of progressing through the course at their own pace, and to finish in less than a full semester or take up to six months.

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## Applied Music Program

The Applied Music Program offers students the opportunity to earn CU credit for beginning or continuing music lessons on guitar, piano, voice, winds, brass, drums, percussion or strings. Instruction is available in individual or group sessions depending on the instrument.

## Individualized Instruction

Individualized Instruction provides an opportunity for students to receive credit for university courses by meeting with faculty members outside the regular classroom setting. This option may be used when the student cannot reasonably be expected to enroll in the main campus course.

## Post-Baccalaureate Health Professions Program

The Post-Baccalaureate Health Professions program is a partnership between the College of Arts and Sciences and the Division of Continuing Education. It is designed for career changers who were academically successful as undergraduates but have not completed the prerequisite science courses needed to apply to graduate medical programs. Students enter the program in a cohort and take all course work together. Academic advising, tutoring and preparation for applying to medical schools are provided.

## ACCESS and High School Concurrent Programs

In conjunction with CU-Boulder academic departments, ACCESS (Available Credit Courses for Eligible Special Students) enables nondegree students to enroll in Boulder main campus undergraduate and graduate credit courses after most degree-seeking students have registered. Colorado high school juniors and seniors interested in the challenge of university course work may enroll in ACCESS as part of the High School Concurrent Program. In addition to earning college credit, students may also earn credit toward high school graduation requirements.

## Extraordinary Program

Through Continuing Education, academic departments can offer special courses that target audiences both on and off campus and provide academic credit for those offerings. Once a course proposal is submitted, Continuing Education coordinates the approval process and provides administrative support to the course initiator. Programs initiated from outside the university community may be considered for approval as well as noncredit and certificate programs.

## CU Complete

The goal of CU Complete is to assist former students in the completion of degrees they began at CU-Boulder in the past. Advisors work with each student individually and offer a degree analysis, recommendations, resources and assistance in completing remaining requirements.

## Science Discovery

Science Discovery is a science education outreach organization designed to heighten student

interest and increase literacy in science, technology, engineering and math (STEM). Science Discovery connects K-12 students and teachers to current CU science through a broad array of programs including summer camps, after-school classes, in-school programs, teacher professional development workshops and Teen Science Cafés. Programs capitalize on CU-Boulder's scientific resources, facilities and expertise (including CU graduate and undergraduate students) in order to excite students about STEM, expose them to a variety of STEM careers and professionals and inspire a future generation of scientists and engineers. Science Discovery reaches more than 25,000 students and teachers throughout Colorado.

## International English Center

The International English Center (IEC) offers language learning, culture and academic preparation programs for international students planning to matriculate at universities and for members of the campus and local community with limited English proficiency. The IEC also contracts with corporate groups to provide language training and professional development courses.

## Outreach and Engagement: Reaching Off Campus and into Communities

Extending educational opportunities to the citizens of Colorado is a vital part of the university and a core mission of the Division of Continuing Education. Its Office of Outreach and Engagement serves the entire CU-Boulder campus by supporting a variety of outreach and engagement activities. These include administering the CU-Boulder Outreach awards for faculty-driven outreach and engagement projects, managing the campus-wide Outreach and Engagement website, organizing a range of local and statewide community programs and directing the Learn More About Climate initiative.

## Summer Session and Maymester at CU-Boulder

Summer Session offers over 500 campus courses and enrolls about 8,000 students in a relaxed, comfortable learning environment. Online and on-campus courses are available to students who wish to enhance or accelerate their academic progress. Courses are also open to students visiting from other colleges, teachers, high school students or others interested in pursuing their professional development or enrichment.

Maymester and Augmester are special three-week summer sessions immediately following the end of spring semester or immediately before fall semester begins. They provide intense, accelerated courses for those who need academic credits in an abbreviated time period.

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## Leadership, Certificate in the Study and Practice of

The certificate program in leadership development seeks to expand a students' capacity to be effective in leadership roles and opportunities during their time at CU and in their future professions. The program enhances a student's self-awareness, systemic thinking, creativity and problem-solving skills. This development unfolds over a student's undergraduate career and is maximized by a variety of courses and experiences that challenge, support and provide students with increased understanding of what they are learning and how it fits into the larger world. The Certificate in the Study and Practice of Leadership integrates the variety of experiences into a context that is likely to be useful when undertaking new leadership roles and responsibilities. Faculty and staff skilled at weaving those experiences and courses in connected and meaningful ways facilitate this developmental process.

A leadership certificate can enhance the undergraduate experience and better prepare students both as citizens and leaders in whatever profession they might seek to enter. The program recognizes the need for individuals to take leadership roles in all professions and sectors of society. It is the belief of the program that leadership can be learned in formal classes, community-based leadership opportunities, mentoring and internship settings, as well as through a range of collaborative leadership activities.

For more information about the Certificate in the Study and Practice of Leadership, see [leadershipRAP.colorado.edu/certificate-study-and-practice-leadership](http://leadershipRAP.colorado.edu/certificate-study-and-practice-leadership).

### Program Requirements

This certificate program has an 18-credit-hour requirement comprised of lower- and upper-division courses. Undergraduate students working toward this certificate are usually affiliated with one of the following academic programs:

- Leadership Residential Academic Program
- Presidents Leadership Class (PLC)
- INVST Community Studies (INVST)
- ROTC programs

Each of these programs has defined particular academic courses within their programs to be certificate requirements. Students may also apply elective courses from other disciplines on campus toward the total credits required for the certificate. Students in the leadership programs at PLC, INVST and the Leadership RAP are required to do an internship that is overseen by one of the program directors. Students in all four programs participate in either a 4-credit-hour capstone course during their senior year or a capstone project mentored by their academic program director. To qualify for the certificate, students must maintain a 3.00 GPA in the required course work.

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## Leadership Residential Academic Program

For certificate requirements, see [The Leadership RAP Program](#).

## Presidents Leadership Class

PLC certificate requirements are listed under the [Presidents Leadership Class](#).

## INVST Community Studies

- Selection criteria govern admissions
- Four required theory courses plus community based service-learning experiences (18–24 credits)
- Minimum of 15 hours of upper-division courses
- INVS 4932 Senior Capstone Course and/or Project
- Minimum total credit hours: 18 with a 3.00 GPA

## Reserve Officer Training Corps Programs

- Admission to CU-Boulder and ROTC required (Some courses are open to all CU-Boulder students)
- Required summer field training program(s)
- 4–8 required courses in ROTC (12–22 hours)
- Minimum of 15 hours of upper-division courses
- Additional courses from Recommended Leadership Courses to complete the 18-hour requirement
- Senior Capstone Course and/or Project (4 hours)
- Minimum total credit hours: 18 with a 3.00 GPA

## The Capstone Course and Project

The capstone project is designed to synthesize the leadership work students have completed during their undergraduate studies. Together with the program's faculty, students design a format that demonstrates their cumulative learning and development and reflects their leadership abilities. Like oral examinations at the graduate level, these projects are an opportunity for students to present a body of work that demonstrates what they have learned as they address some of the critical questions associated with leadership development and their role as a leader in the 21st century.

In the capstone course, Critical Issues in Leadership, LEAD 4000 or PRLC 4010, students explore leadership issues across disciplines. Leadership education is multi-disciplinary and students need to know how to assess research and writing from different perspectives. Students read, discuss and write critical evaluations of contemporary leadership theory from ethical, military, community building and business perspectives.

## Internships

Internships are an agreed-upon experience in a work setting that is driven by intentional learning goals and accompanied by sustained reflection. The internship provides students with an opportunity to apply the skills and knowledge gained through their leadership studies. During the semester students use the concepts and theories learned in the classroom to analyze and understand the host organization. In addition, students are asked to reflect on the complexities of leadership and the personal challenges that they face in practicing and refining their own leadership skills.

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# Leadership Residential Academic Program

## One Leadership RAP-Two Studies Programs

Both studies programs, the Chancellor's Leadership Studies Program (CLSP) and the Ethnic Living and Learning Community Leadership Studies Program (ELLC), focus on the study and practice of leadership for the purpose of educating culturally competent leaders who champion an ethic of civic and social responsibility. The RAP Leadership curriculum enables students to understand how institutions and communities solve problems and learn about the different leadership styles needed to work effectively in a variety of settings. As an essential element of their study, students learn about their own values and belief systems as well as the values and belief systems of others. **Culturally competent leadership** develops when students are able to integrate the knowledge of self and others into their practice of leadership. Students and instructors work to recognize that building community, collaboration, ethical reflection, respect and valuing diversity are hallmarks of contemporary leadership practice. The RAP Learning Community design includes: small personalized classes; leadership summits; educational and social events and community engagement and networking.

**Admission and Enrollment.** Students select one of the leadership programs in the Leadership RAP during the housing application process prior to beginning their first year. When students choose their residence hall they are given the option to enroll in one of these programs. Most participants reside at Kittredge Central; however, that RAP will accept commuter students. More information about these programs can be found at [leadershiprap.colorado.edu](http://leadershiprap.colorado.edu).

## The Ethnic Living and Learning Community Leadership Studies Program

The **ELLC** Program provides an opportunity for students to engage in an intentional multicultural leadership community in the residence hall and in classes. In community, students experience and learn about both the influence of culture on our daily lives and the skills necessary to become successful leaders in diverse groups and environments. ELLC students are required to take a three credit leadership course and a one credit practicum each semester. Credits earned from these courses may be applied toward graduation as well as a Certificate in the Study and Practice of Leadership or a [minor in leadership studies](#).

### Curriculum and Semester Credit Hours

- LDSP 1000 The Foundations of 21st Century Leadership (fall)-3
- LDSP 2410 The Dynamics of Privilege, Oppression and Empowerment in Leadership-3
- LDSP 2910 Field Practicum (1 credit each semester of freshman year)-1
- LDSP 1571 Topics in Leadership-1

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- LDSP 3100 Multicultural Leadership: Theories, Principles and Practices-3
- LEAD 4000 Leadership in Context and Emerging Challenges: A Capstone Experience-4

**Fees and Scholarship Opportunities.** There is a \$850 program participation fee. Some scholarships to cover the fee are available for students with financial need. A LEAD Alliance scholarship of \$1,500 per year is also available to qualifying ELLC students.

## The Chancellor's Leadership Studies Program

The **CLSP** is for students who want to make a positive impact on the lives of others. Students also explore ways to work more effectively in diverse groups and environments by: learning about various cultures and communities; exploring the influence of culture on our daily lives and beginning to develop the skills necessary to become successful leaders. CLSP students are required to take leadership classes both semesters. Credits earned from these courses may be applied toward graduation as well as a Certificate in the Study and Practice of Leadership or a [minor in leadership studies](#).

### CLSP Curriculum Semester Credit Hours

- LDSP 1000 The Foundations of 21st Century Leadership (fall)-3
- LDSP 1571 Topics in Leadership-1
- LDSP 2410 The Dynamics of Privilege, Oppression and Empowerment in Leadership-3
- LDSP 2910 Field Practicum-1
- LDSP 3100 Multicultural Leadership: Theories, Principles and Practices-3
- LEAD 4000 Leadership in Context and Emerging Challenges: A Capstone Experience-4

**Fees and Scholarship Opportunities.** There is an \$850 program participation fee. A limited number of scholarships are available for students with financial need.

## Certificate Program(s)

### Certificate in the Study and Practice of Leadership

ELLC and CLSP students in the Leadership RAP students who complete 10 credits of approved lower-division courses and 8 credit hours of approved upper-division courses with a 3.00 GPA as well as a pre-approved supervised internship are eligible to earn a Certificate in the Study and Practice of Leadership. The certificate shows on students' transcripts at graduation. For required courses and four-year program description, see [leadershiprap.colorado.edu/certificate-study-and-practice-leadership](http://leadershiprap.colorado.edu/certificate-study-and-practice-leadership).

## Minor Degree

### Leadership Studies Minor

ELLC and CLSP students in the Leadership RAP have a special pathway to the minor through taking LDSP classes. Students who complete 16 credit hours of Leadership Studies coursework with a 2.00 GPA are eligible to earn a Leadership Studies Minor. This includes a Foundations course of 3 credits, a capstone course of 4 credits and 9 credits of approved electives. For the Leadership RAP Pathway and required courses, see [leadershiprap.colorado.edu/certificate-study-and-practice-leadership/leadership-minor-pathway-rap-students/leadership-minor-hom](http://leadershiprap.colorado.edu/certificate-study-and-practice-leadership/leadership-minor-pathway-rap-students/leadership-minor-hom).

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## Library Research

Several courses in information access and library research methods are offered to students who wish to explore the structure, organization, retrieval and evaluation of information for their study and career needs. For more information, go to the [Courses](#) section and search for Library Research (LIBR).

**Course code for this program is LIBR.**

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## Norlin Scholars Program

The interdisciplinary Norlin Scholars Program is geared toward students interested in a liberal education. Norlin Scholars develop expertise in their chosen fields through research, deep engagement and self-reflection. Upon graduation, they're in a strong position for whatever comes next: the job market, graduate and professional schools or fellowships.

### What We Provide

Norlin Scholars Program offers to students who actively participate in our programming an undergraduate education that in whole or in part:

- cultivates a deeper sense of interconnectedness and interdependence
- inspires intentional inquiry
- engages questions in academic, profession, public and global contexts
- nurtures students' personal and professional growth
- invites multiple ways of knowing and making meaning
- deepens personal, cultural and social awareness
- honors joy, play, empathy, humor, compassion, spirit, curiosity and creativity as essential elements of knowing, learning, relating and being

### Benefits of Being a Norlin Scholar

Students can apply as high school seniors for a 4-year scholarship or as second year college students for a 2-year scholarship. Norlin applicants must apply to CU first, though you needn't be an admitted student.

Benefits of being a Norlin Scholar include:

- \$5000 scholarship per academic year
- additional funding for enrichment activities like research or study abroad
- small, invigorating core and elective courses
- research or creative projects with faculty
- access to top scholarship advising and guidance
- opportunities for professional training and development
- a stimulating, interdisciplinary peer group

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## How to Apply

The Norlin Scholars Program seeks curious individuals who see college as an opportunity for both personal and academic growth. If this is you, visit our website for application information.

<http://enrichment.colorado.edu/norlinscholars/>

Phone: 303-735-6802

Email: [suep@colorado.edu](mailto:suep@colorado.edu)

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# Peace Corps

## Peace Corps Master's International Programs

The Graduate School offers two Master's International (MI) programs developed in cooperation with the Peace Corps and with three academic units on the Boulder campus:

- education
- environmental studies

Students accepted into the graduate programs of these three units may choose to also apply for one of the MI programs that entail both graduate training and Peace Corps service to combine theory with practice while working overseas.

Interested students should begin by consulting the following websites and then contact graduate admissions in the specific unit of interest (education, environmental studies or business administration):

- Peace Corps national headquarters: [www.peacecorps.gov](http://www.peacecorps.gov)
- CU-Boulder Peace Corps Recruiting Office: <http://www.colorado.edu/peacecorps/masters-program>

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## Preprofessional Programs

Preprofessional advising resources have been developed at CU-Boulder to help undergraduate students, and previously graduated students, prepare for further study at professional schools. CU-Boulder does not offer preprofessional undergraduate majors or degrees. Completion of preprofessional prerequisites does not guarantee admission to a professional school. However, preprofessional advisors are well-equipped to provide information about professional schools within Colorado, and beyond, and can help students to prepare well for further professional study.

## Prehealth Programs

Students can prepare to enter the undergraduate professional health science program in nursing at the Anschutz Medical Campus of the University of Colorado by taking courses on the Boulder campus.

Students whose goals include entering the medical, dentistry, physical therapy, physician assistant, pharmacy or public health programs and schools at the Anschutz Medical Campus, or the veterinary medicine or occupational therapy programs at Colorado State University in Fort Collins, can complete any undergraduate major at CU-Boulder. In most cases, these students are required to complete a baccalaureate degree before entering professional school. In fact, a baccalaureate degree is recommended for most health professions.

At the time of application to a professional school, students are judged on several factors, including performance in undergraduate courses. For this reason, no required course may be taken on a *pass/fail* basis. Some fields require specific preprofessional examinations before application. For most fields, interviews are an essential part of the application process.

In all cases, admission committees are concerned with students' compassion, coping and decision-making abilities, intellectual capabilities, realistic self-appraisal, sensitivity in interpersonal relations and staying power (physical and motivational). In addition to formal course work, students should have experience in people-related activities (especially those related to their field of choice), so that they can be more certain of their motivation for health careers. Also, health-related activities expose premed and other health science hopefuls to various patients and illnesses. The health professions require, or strongly recommend, such experience.

Some of the professional programs at the Anschutz Medical Campus give preference to Colorado residents and residents of WICHE (Western Interstate Commission on Higher Education) states; interested students should check with individual programs for specific policies. Students from other states usually can obtain at CU-Boulder the preprofessional courses required by their state schools, but should check with those schools in advance. Students are encouraged to apply to their state school, as well as to other public and private professional schools, to increase their chances of gaining acceptance to the professional

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program of their choice.

During the preprofessional years, personal intellectual development leads many students to change professional goals. Since there are usually more applicants for these programs than there are spaces available, many students need to pursue alternative goals. Therefore, students should plan college programs to give themselves the greatest flexibility in considering other vocations.

Advising for preprofessional study in the health sciences is conducted through the Preprofessional Advising Office in the University Club. Check the prehealth advising website at [www.colorado.edu/advising/pre-health](http://www.colorado.edu/advising/pre-health) for information on prerequisite courses, events, volunteer opportunities, student prehealth organizations, applications and many other useful resources. Students should attend a prehealth advising session at orientation, then begin to follow the Pre-Health Pathway sequence of meetings early in their undergraduate careers to help plan course work and extracurricular experience in preparation for applying to programs of their choice. Current students and alumni may schedule prehealth meetings at [aacportal.colorado.edu](http://aacportal.colorado.edu). The Preprofessional Advising Office offers an extensive array of workshops and informational meetings, as well as a spring Health Professions Information Day.

## Prelaw

Students who plan to apply to law school upon completing their baccalaureate degree do not have to complete any specific course requirements for admission to law school. Instead, they should major in the discipline that best suits their intellectual interests and talents. Prelaw students should seek a rigorous and broad-based education that will ensure them a fundamental understanding of American society and its institutions. Students should become familiar with mathematical analysis and scientific reasoning, and develop excellent oral and written communication skills.

Prelaw advising is available in the Preprofessional Advising Office. In addition, the Preprofessional Advising Office sponsors a fall Law Fair, spring Law Day and a year-long speaker series. Contact the Preprofessional Advising Office in University Club 111 for more information. Check the prelaw website ([www.colorado.edu/prelaw](http://www.colorado.edu/prelaw)) for information on events, the student prelaw organization, applications and many other useful resources. Current students and alumni may schedule prelaw advising appointments at [aacportal.colorado.edu](http://aacportal.colorado.edu).

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## Presidents Leadership Class

The Presidents Leadership Class (PLC) is a specially designed, top scholar community and academic curriculum that focuses on leadership development through an exploration and honing of our five domains of leadership education. Skills are developed in interdisciplinary, academic and experiential environments and through exposure to the key industries of Colorado. Students from all schools and colleges participate in the Presidents Leadership Class curriculum as part of their regular course work.

The Presidents Leadership Class is a program of CU-Boulder and has a Board of Advocates representing Colorado business, educational, nonprofit and government communities.

### Admission and Enrollment

Admission to the Presidents Leadership Class is considered one of the highest honors awarded to incoming University of Colorado Boulder students. Most Presidents Leadership Class students are admitted prior to the beginning of their first year, however, a maximum of 10 spots are reserved for rising sophomores in a second point of entry. Selection criteria include academic excellence, demonstrated commitment outside of self, leadership potential and uniqueness of contribution to the incoming cohort. Each year, 50 first-year students are enrolled, comprising both Colorado residents and nonresidents. Instructions on how to apply to PLC are available on the PLC website. The application is part of the University of Boulder Scholarships Application through the Office of Financial Aid. The application is due by February 15 each year. To access the application, please visit [www.presidentsleadershipclass.org/about/applying](http://www.presidentsleadershipclass.org/about/applying).

Only students who are accepted into the Presidents Leadership Class are eligible to enroll in PLC courses (PRLC). Students receive arts and sciences core credit in ideals and values for PRLC 1810 Leadership and Ethics; and core credit in contemporary societies for PRLC 1820 Community Issues in Leadership.

### Academic Program

PLC understands the world to be a dynamic, ever-changing place that will do one thing consistently: create extraordinary challenges. Thus, the world needs leaders with the skills, mindsets and ethics necessary to do whatever it takes to meet the current and coming needs of our communities. PLC provides students with unique academic courses, purposeful experiential education and real-life experiences that:

- Support academic and professional excellence
- Grow critical thinking and analytical capabilities
- Develop extraordinary creativity

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- Hone abilities of implementation
- Cultivate moral reasoning, and instill an ethic of service and character

PLC provides opportunities by uniting the support of the university, local and statewide leaders. PLC operates as a "leadership laboratory" in which all students, staff, faculty and volunteers model and practice the core competencies and demonstrate the character traits that PLC strives to cultivate. The academic curriculum is supplemented by experiential learning and leading, a Wilderness Leadership Experience and a new Global Inquiry seminar.

For more information on the PLC Curriculum Strategy and the research behind it, go to [www.presidentsleadershipclass.org](http://www.presidentsleadershipclass.org).

## Required Courses

- PRLC 1810 Ethical Leadership
- PRLC 1820 Community Issues in Leadership
- PRLC 2820 Multilevel Issues in Leadership
- PRLC 3810 Global Issues in Leadership
- LEAD 4000 Leadership in Context and Emerging Challenges (required for the Minor in Leadership Studies)

## Scholarship Programs and Opportunities

PLC offers many scholarships to fully participating students over the course of their undergraduate career. Though the first-year award is modest, \$1,000, students do have the opportunity to apply or be nominated for a number of other scholarships that can substantially help fund their undergraduate education at the close of their freshman year. Below is a list of available scholarships primary to PLC students. All PLC allocated scholarships are dispersed through the Office of Financial Aid, and are calculated directly against the cost of tuition.

- William A. Douglas Endowment
- FirstBank Scholars
- Ball-PLC Scholars
- El Pomar-SLE
- Flanagan & Walker Scholarships
- Hoelscher Memorial Scholarship
- Annabelle K. Lutz Voss Scholars
- David A. Van Landschoot Family Scholarship
- Brian Watson Foundation Scholarship
- Tim Pestotnik Scholarship
- Leo Hill Endowment
- PLC Enrichment Fund Scholarship
- PLC Student Fellowship

## Leadership Studies Minor

The School of Education now offers a minor in leadership. The Leadership Studies Minor is a

valuable academic program available to all undergraduates regardless of major or college. The Leadership Studies Minor provides academically based leadership training that incorporates:

- Understanding the broad context of leadership theory
- Gaining a historical context of leadership
- Developing core competencies
- Practicing and observing leadership experiences
- Creation of a leadership ePortfolio

The Presidents Leadership Class provides a deliberate and unique pathway for its students to earn the Leadership Studies Minor. The course list below provides the requirements needed to earn the minor through PLC:

- PRLC 1810 Fulfills Foundations Course requirement (substitute for LEAD 1000)
- PRLC 1820 Fulfills Leadership Foundations requirement
- PRLC 2820 Fulfills Leadership Application requirement
- PRLC 3810 Fulfills Leadership in Context
- LEAD 4000 Capstone
- PLC ePortfolio fulfills Leadership Studies Minor ePortfolio requirement

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## Reserve Officers Training Corps

Enrollment in Reserve Officers Training Corps (ROTC) programs is open to both men and women, and ROTC lower-level leadership courses are open to all students whether or not they contract with ROTC.

All services provide undergraduate and selected graduate students with the opportunity to combine academic study with a military officer's educational program. The three services conduct courses in their respective areas leading to a regular or reserve commission upon graduation. The Navy also offers a program leading to a regular commission in the Marine Corps.

**The course codes for these programs are AIRR, MILR and NAVR.**

### Air Force Aerospace Studies

U.S. Air Force ROTC offers several programs leading to a commission in the U.S. Air Force upon receipt of at least a baccalaureate degree.

### Standard Four-Year Program

This standard program is designed for incoming freshmen, or any student with four years remaining until degree completion. It consists of three parts: the general military course (GMC) for lower-division (normally freshman and sophomore) students; the professional officer course (POC) for upper-division students (normally juniors and seniors); and the leadership laboratory (LLAB) attended by all cadets. Completion of a four-week summer field training program is required prior to commissioning.

### Modified Four-Year Program

Certain undergraduate and graduate students may be eligible for this program. It is offered to full-time, regularly enrolled degree students and requires at least five semesters of full-time college work (undergraduate or graduate level, or a combination). May only be available to students pursuing academic majors in demand. Those selected for this program must complete the field training program during the summer months as a prerequisite for entry into the professional officer course the following fall semester.

### Leadership Lab

All AFROTC cadets must attend leadership lab (two hours per week). The laboratory involves a study of Air Force customs and courtesies, drill and ceremonies, career opportunities and the life and work of an Air Force junior officer.

### Other Air Force ROTC Programs

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- Law
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Other programs are frequently available based on current Air Force needs. The unit administrative officer in Boulder (**303-492-3128**) can discuss the best alternatives. Interested students should make initial contact as early as possible to create the best selection opportunity, as selection is on a competitive basis. There is no obligation until a formal contract is entered.

## Air Force College Scholarship Program

Normally a scholarship board is held at the end of each semester for students who have at least one semester of full-time college credit. Prior participation in AFROTC may not be required to compete for these scholarships. Students can compete for scholarships in most academic majors. Students selected for this program receive scholarships that pay up to \$18,000 in tuition, a book allowance, nonrefundable educational fees and subsistence each month, tax-free. These scholarships are available in all academic disciplines and are two to three years in length.

## USAF Medical Programs

Qualified nursing students can compete for nursing scholarships. These scholarships can lead to a career as an Air Force officer, serving as a nurse. Students may also compete for a prehealth designator. If selected, they would receive a scholarship for medical school.

## Air Force ROTC Course Credit

AFROTC credit for graduation varies with each college. Students should contact the appropriate college for credit determination.

## Registration

CU-Boulder students who wish to register for AFROTC classes sign up for them through the normal course registration process.

## Military Science (U.S. Army)

The Department of Military Science is a leadership program leading to an officer's commission in the Active Army, Army Reserve, or National Guard in conjunction with an undergraduate or graduate degree. Military science courses supplement a regular degree program and offer practical leadership and management experience. Scholarships are available for those that qualify. Additionally, financial benefits may be available for enlisted soldiers.

## Four-Year Program

For college freshmen, the four-year program consists of two phases: the basic course (freshman and sophomore years) and the advanced course (junior and senior years).

**Basic courses (MSI & MSII)** cover Army history and organization as well as military leadership and management. Labs provide the opportunity to develop leadership experience while learning basic military skills. Participating in the basic courses incur no military obligation, except for those receiving an Army scholarship.

**Advanced courses (MSIII & MSIV)** cover leadership, tactics, and unit operations, training techniques, military law, and professional ethics. Additionally, a four-week summer leadership camp at Fort Knox, Kentucky is a requirement between the Junior and Senior year, and is a prerequisite for commissioning. Students enrolled in the advanced courses must have completed the basic courses (or the equivalent) and obtain permission from the professor of military science (PMS).

## Two-Year Program

For college students entering as a sophomore, the two-year program consists of the advanced courses, preceded by a four-week summer ROTC cadet initial entry training (CIET) at Ft. Knox, Kentucky. Inquiries into CIET should be directed to the Department of Military Science prior to completing the sophomore year. CIET is a paid internship and the academic equivalent to the MS1/MSII basic courses.

Prior service and enlisted soldiers who have completed basic training may be eligible to enroll in the advanced course without attending CIET or completion of the ROTC basic courses. Enlisted soldiers pursuing advanced placement must obtain permission from the PMS.

## Scholarship Programs

College freshmen, sophomores, and juniors may be eligible for four-, three-, and two-year scholarships, regardless of academic major. Interested students must enroll in Army ROTC and meet eligibility requirements, including an army physical fitness test.

High school scholarship applicants may be eligible for four- and three-year college scholarships. High school students can apply during their junior year and before January 10 of their senior year.

All scholarship recipients receive full tuition and fees, a \$1,200 book allowance and a stipend of \$300–500 per month during the academic year. Students interested in scholarships should contact the enrollment and scholarship officer at [armyrotc@colorado.edu](mailto:armyrotc@colorado.edu), **303-492-3549** or **303-492-6495**.

## Simultaneous Membership Program

College sophomore and juniors who want additional leadership training, may participate with an Army Reserve or Army National Guard unit as an officer trainee. Students participating in this program earn approximately \$240 in monthly drill pay, plus a monthly ROTC stipend of \$300–500. Additionally, SMP participants receive Army National Guard or reserve tuition benefits of up to \$4,500 per year. Enlisted and prior service students retain their authorized GI benefits.

## Army ROTC Course Credit

ROTC is an elective credit in most departments. Individual academic advisors verify if ROTC classes count toward the student's degree.

## Registration

Army ROTC classes begin with MILR prefix. Register for classes through the normal course registration process. For more information, contact the enrollment and scholarship officer at CU-Boulder at [armyrotc@colorado.edu](mailto:armyrotc@colorado.edu), **303-492-3459** or **303-492-6495**. See also the AROTC website at [www.colorado.edu/arotc](http://www.colorado.edu/arotc).

## Naval Science

Naval science course work is offered in the fall and spring semesters only. All naval science students enroll in NAVR 1010, 2020, 4010 and 4020. Those desiring commissions in the U.S. Navy additionally enroll in NAVR 3020, 3030, 3040 and 4030 for upper-division work. Those desiring commissions in the U.S. Marine Corps additionally enroll in NAVR 3101 and 4101 for upper-division work.

## Scholarship Programs

NROTC offers two-, three- and four-year scholarship programs, and two-year and four-year

college (non-scholarship) programs. Navy scholarships may be earned while students are enrolled in the college program. Scholarship students receive tuition and fees, a \$375 book allowance per semester and a \$250 per month subsistence allowance. This subsistence allowance gradually rises to \$400 by the student's senior year. College program students receive a \$350 per month subsistence allowance their junior year and \$400 per month subsistence allowance their senior year in the program.

Naval science (Navy option) scholarship students must complete one year of calculus, physics and English, one semester of American military history or national security policy and a cultural course. Students should check with their naval science instructor to determine specific course offerings that fulfill the above requirements.

## Degree Credits

The number of NROTC semester hours of credit that may count toward degree requirements is determined by the individual colleges. Students should therefore consider their college's policy when formulating their degree plan.

## Commissioned Service

Opportunities for commissioned service are presently available in the unrestricted line (surface, subsurface, aviation, special warfare and special operations) in the U.S. Navy. Opportunities in ground and aviation specialties are available in the U.S. Marine Corps. Students interested in other programs leading to commissions in either the U.S. Navy or U.S. Marine Corps are encouraged to contact the NROTC unit on campus. All commissioning programs require that the student be working toward, and receive, a college degree.

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### Undergraduate Admission

The Office of Admissions welcomes inquiries from prospective students regarding undergraduate admission. Through the admission process, the university seeks to identify applicants who will successfully complete a collegiate academic program. Admission is based on many criteria, including high school GPA or GED test scores, high school rank, the quality of course work, college entrance test scores, personal essays and the extent to which the [minimum academic preparation standards \(MAPS\)](#) have been met.

Inquiries relating to undergraduate admission to the University of Colorado Boulder may contact:

**Office of Admissions**, Regent Administrative Center 125, University of Colorado Boulder,  
552 UCB, Boulder, CO 80309-0552

**303-492-6301**

[apply@colorado.edu](mailto:apply@colorado.edu)

To find additional undergraduate admission information online, go to [colorado.edu/admissions](https://colorado.edu/admissions).

## Graduate Admission

Graduate School admission is handled by individual academic departments; see the [Graduate School](#) section of this catalog and specific college and school sections for details. For more information, go to [colorado.edu/admissions/graduate](http://colorado.edu/admissions/graduate).

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## Visiting the Campus

Prospective students and their families are welcome to visit the Office of Admissions in Regent Administrative Center 125, between 9:00 a.m. and 5:00 p.m. (summer hours are 8:30 a.m. to 4:30 p.m.), Monday through Friday, except on holidays. Daily information sessions, walking tours of the campus and special all-day visit programs are offered. Although interviews are not used in the decision-making process, you are invited to visit the campus.

The best time to see the campus is when classes are in session (September through mid-December and mid-January to early May, with the exception of spring break); see the [academic calendar](#) for specific dates. There are dates when information sessions, campus tours and visit programs are not held due to holidays or university closures. It is important to check our website for the most current information.

### Reservations

Reservations are required for all information sessions, tours and visit programs and can be made through your MyCUBoulder ([mycuboulder.colorado.edu](http://mycuboulder.colorado.edu)) account. For complete visit program descriptions, dates, reservation forms and campus maps, go to [www.colorado.edu/admissions/undergraduate/visit](http://www.colorado.edu/admissions/undergraduate/visit), or call **303-492-6301**. Visit program dates for future academic years are added to the website as they become available (usually in August each year).

### Daily Information Sessions and Campus Tours

Information sessions with an admission counselor are held Monday through Friday at 9:30 a.m. and 1:30 p.m. Following the information sessions are walking tours of the campus led by student guides, beginning at 10:30 a.m. and 2:30 p.m. Combined information sessions and tours are also held at 10:30 a.m. most Saturdays.

### Campus Visit Programs

An excellent way to become acquainted with the campus is to participate in one of the campus visit programs specially designed for prospective students and parents.

These programs, offered on selected Fridays and Saturdays throughout the year, provide prospective students and their families the chance to participate in information sessions, take a campus tour, learn more about residence hall life, talk with student and parent panels and meet with campus representatives, as well as attend classes or listen to a sample lecture. To make reservations for any or all of these visit programs, go to [www.colorado.edu/admissions/undergraduate/visit](http://www.colorado.edu/admissions/undergraduate/visit) or call the Office of Admissions at **303-492-6301**.

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## General Admission Information

### Choosing a Program of Study

When applying for admission, students need to choose a major in one of CU-Boulder's colleges or schools. Applicants who have not decided on a major can select an "open option" major. This allows students to explore different options during their first year of study. After this time, they will decide on a specific major for their remaining years. Students can also change their area of study, but this can result in additional course requirements that may add to the number of semesters necessary to complete a degree.

Although applicants can apply to only one CU-Boulder college or school, after enrollment they can apply for transfer to another Boulder college or school through the Intrauniversity Transfer (IUT) process. Criteria for transferring from one college or school to another are competitive, and each college or school establishes its own standards.

### Double Degrees, Double Majors, Minors and Certificate Programs

There are several programs that allow students to include additional areas of academic concentration beyond their chosen major. Two different degrees, either from the same college or school, or degrees from different colleges or schools, may be earned, providing certain conditions are met. Students are admitted to one major and degree program initially but may pursue a second degree as early as their first semester of enrollment. Minor programs are offered in a number of undergraduate departments and programs in the College of Arts and Sciences, the Leeds School of Business and the College of Engineering and Applied Science. Certificate programs in arts and sciences, business, engineering and music fields are also available.

### Preprofessional Study

Preprofessional advisors are available to help students interested in medicine, dentistry, physical therapy, veterinary medicine, nursing, pharmacy, physician assistant and other health professions or law. Students interested in these fields may apply to any of the majors open to new undergraduates, including the open option major in the College of Arts and Sciences. Students interested in one of the undergraduate or graduate health sciences programs offered at the University of Colorado Anschutz Medical Campus may complete preprofessional work on the Boulder campus. Admission is competitive, but preference to all health sciences programs is given to Colorado residents.

For more information, visit [www.colorado.edu/advising/pre-health](http://www.colorado.edu/advising/pre-health) or see Preprofessional Programs in the Other Academic Programs section.

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## Music Applicants

Prospective music majors must submit both an undergraduate application for admission to the Office of Admissions, and a College of Music supplemental application.

All music applicants are initially considered for admission to the College of Arts and Sciences Open Option major. Admission to a College of Music degree program (Bachelor of Arts in Music, Bachelor of Music Education, Bachelor of Music) is determined after the music audition and application evaluation process has been completed. Students who are admitted to the College of Arts and Sciences but not the College of Music will be able to keep their place in the College of Arts and Sciences.

Live auditions, which are preferred unless travel distance is prohibitive, are scheduled for selected Saturdays in January and February. Other live audition times may be arranged; high quality recordings also may be submitted in lieu of a live audition.

College of Music scholarships are awarded to music majors only. High school and college transfer students are automatically considered for merit-based music scholarships upon completion of the application process, including the audition. Transfer students who are receiving a music scholarship from their current institution must submit a scholarship release form before they can be awarded a music scholarship. To be assured of full consideration for scholarship awards, the audition should be completed by February 21.

The College of Music Supplemental Application Form, as well as more detailed information about audition requirements, faculty and degree programs, may be found at [www.colorado.edu/music/admissions](http://www.colorado.edu/music/admissions).

## Teacher Education Applicants

Through the School of Education, students interested in elementary or secondary school teaching may take programs approved for Colorado licensure in connection with Colorado Commission on Higher Education (CCH) approved majors offered at CU-Boulder.

Elementary teacher education includes kindergarten through sixth grade licensure. Secondary teacher education includes seventh through 12th grades with licensure in English, mathematics, science, social studies and the following foreign languages: French, German, Japanese, Latin, Russian and Spanish. Teacher education programs are also available in music education for kindergarten through 12th grade.

Teacher education program applicants who have completed a four-year undergraduate degree program must submit their application to the Office of Admissions. Those who have not received a bachelor's degree must apply to another CU-Boulder undergraduate degree program and submit their application and credentials to the School of Education. Undergraduate students who plan to pursue teacher education should declare this intent to the school's Office of Student Services as soon as possible after enrolling at CU-Boulder.

Refer to the School of Education section for more information about teacher education. Interested students may also visit [www.colorado.edu/education](http://www.colorado.edu/education), email [EdAdvise@colorado.edu](mailto:EdAdvise@colorado.edu) or write to the School of Education, Office of Student Services, University of Colorado Boulder, 249 UCB, Boulder, CO 80309-0249, for application and deadline information.

## College Readiness in English and Mathematics

The State of Colorado mandates that all undergraduate students entering public institutions of higher education in Colorado be screened for college readiness in reading, writing and mathematics. To pass the screening requirements, students must present minimum test scores.

Students who have successfully completed four years each of college preparatory English and college preparatory math courses are deemed to have met the respective requirements regardless of the test score.

Students who do not meet CU-Boulder's criteria for college readiness will be required to demonstrate readiness through an additional examination or to enroll in preparatory courses prior to completing the first 30 semester hours of course work on the Boulder campus. Students who have not demonstrated reading, writing and/or mathematics readiness will receive additional details after they confirm their intent to enroll at CU-Boulder.

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# Freshman Applicants

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Students are freshman applicants if they are currently enrolled in high school, or if they have earned a high school diploma or its equivalent and have not enrolled in a college or university since graduation.

## Admission Criteria

Many factors are considered in evaluating students' applications for admission to CU-Boulder. Although academic performance in high school (high school GPA and the quality of course work) is the most important indicator of success, other factors are also considered. These include students' college entrance test scores (either the SAT or ACT), the trend in their grades, the extent to which the minimum academic preparation standards (MAPS) are met, their personal essays and the potential contributions they may make to the campus community. For information on MAPS, see [MAPS table in this section](#).

Applicants whose records reflect nontraditional grading systems, unusual curricula or high school equivalency through the GED test will receive individual consideration and are urged to apply.

## College Entrance Tests

Applicants should take a college entrance test late in their junior year or early in their senior year of high school. CU-Boulder requires either the SAT or the ACT for admission consideration. The ACT Writing Test is not required for CU-Boulder admission consideration. The highest scores are used in the admission decision. If the same test is taken more than once, the scores are combined on each subsection to give the highest overall score. SAT subject test scores are not required. For more information, see the [How to Apply for Undergraduate Admission](#) section.

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## ALEKS Mathematical Skills Assessment

A solid grounding in basic mathematics is assumed for most CU-Boulder introductory science, engineering, business and social science courses. The questions in the ALEKS assessment helps students determine their level of preparation for many introductory courses, specifically so their likelihood of having a successful experience is enhanced. An ALEKS exam score is a prerequisite for many courses. This means a student cannot enroll in one of these courses unless he or she has taken the ALEKS exam and obtained the minimum required score for a particular course. Therefore, it is very important that students take their time and complete the assessment carefully, as it will affect the courses in which they may enroll. Because many colleges preregister students in required courses, it is highly recommended to complete the placement prior to June 1. Waiting to take the exam may make it difficult to get a student's necessary courses.

For further information, visit the Division of Academic Affairs at [www.colorado.edu/academicaffairs/AVCUEaleks.html](http://www.colorado.edu/academicaffairs/AVCUEaleks.html) or go to the New Student Welcome Programs Office at [welcome.colorado.edu](http://welcome.colorado.edu).

## Minimum Academic Preparation Standards (MAPS)

Students who graduated from high school in 1988 or later are expected to have completed courses that meet certain minimum academic preparation standards (MAPS) before enrolling at CU-Boulder. Students who attended a non-U.S. high school for two years or more are not subject to MAPS. Any MAPS deficiency will be considered during the admission review process. The MAPS for specific CU-Boulder colleges and schools are listed in this section.

Students may be admitted to CU-Boulder even though they have not met all the MAPS requirements. If that is the case, they are required to complete the appropriate MAPS courses once enrolled, and the credits may be applied toward graduation. *All MAPS deficiencies must be completed prior to graduation from CU-Boulder.* Students may also complete missing MAPS course work at other colleges or universities, through approved credit-by-examination programs or by testing out through the appropriate foreign language department.

## Policies Concerning MAPS Deficiencies

The policies of the Boulder campus with respect to completing MAPS course work after enrollment are as follows.

1. Appropriate missing MAPS course work is generally included in the hours for graduation.
2. All course work toward fulfillment of the MAPS must be taken for a letter grade.
3. It is strongly recommended that students enroll in and complete at least one MAPS course each term, beginning in the first term of enrollment, until such time as all MAPS are completed. This policy applies to new freshmen, transfer students and students transferring from other academic units on the Boulder campus and from other campuses of the university. Some colleges or schools may impose a sanction if the student does not complete one course per semester toward meeting MAPS deficiencies.
4. All students who first enroll in one academic unit at CU-Boulder and subsequently transfer to another unit are required to meet the MAPS specified for the new unit, irrespective of their completion of MAPS units in their previous college or school.
5. Students in double-degree programs must meet MAPS requirements of both degree-granting units.
6. Students must consult with a CU-Boulder academic advisor (or read their college or school's

academic publications) to determine which specific courses may be used to meet a MAPS requirement.

Also review the [MAPS table](#).

## Advanced Placement

CU-Boulder participates in the Advanced Placement program of the College Board. More than one-third of Boulder's entering freshmen submit Advanced Placement (AP) test scores each year. Official scores must be sent to the admissions office directly from the College Board for both first-year students and transfer students. *For a guide to specific equivalencies, refer to the [AP table](#).* For more information, write or call:

**AP Exams**, P.O. Box 6671, Princeton, NJ 08541-6671  
**609-771-7300** or toll free **888-225-5427**  
[aphighered.collegeboard.org](http://aphighered.collegeboard.org)

## International Baccalaureate

The International Baccalaureate (IB) Diploma programs provide preuniversity study. IB examinations, whether leading to a full IB diploma or to an IB certificate often qualify students for advanced standing at CU-Boulder. In general, credit is granted for approved IB examinations at the higher level with a score of 4 or better.

Students admitted to the University of Colorado Boulder who have graduated from high school having successfully completed an International Baccalaureate Diploma program shall be granted 24 semester hours of college credit. Students should check with their college or school to determine if or how the earned college credit applies toward degree requirements. No CU-Boulder tuition shall be charged for these credits. These credits shall be granted, however, only if the student receives a score of 4 or better on an examination administered as part of the IB Diploma program. If the student scores less than 4 on any IB subject test, the credit hours granted shall be reduced accordingly.

An official copy of the diploma with test scores must be sent to the admissions office directly from the IB organization. For a guide to specific equivalencies *refer to the table below*. For more information on test administration, write or call:

**International Baccalaureate Organization**, 475 Riverside Drive, 16th floor, New York, NY 10115  
**212-696-4464**  
[www.ibo.org](http://www.ibo.org)

For the most current information on how CU-Boulder evaluates IB credit, visit [colorado.edu/admissions/selection/credit](http://colorado.edu/admissions/selection/credit). Also review the [IB Table](#).

## Freshman Applicants Not Granted Admission

Students who are not granted admission as entering freshmen may consider transferring to CU-Boulder after successful study elsewhere. Students are encouraged to complete at least one full year of transferable college or university course work, including any courses outlined in the minimum academic preparation standards (MAPS) chart that were not met in high school.

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## Academic Excellence

### Dean's List

Students in the College of Arts and Sciences who have completed at least 12 credit hours of CU-Boulder course work for a letter grade in any single semester with a term GPA of 3.75 or better are included on the dean's list and receive a notation on their transcript and a letter from the dean.

### Graduation with Honors

The award of honors at graduation—*cum laude*, *magna cum laude*, or *summa cum laude*—is determined by the Honors Program of the college and is based on several criteria, including the quality of original scholarly work. Honors are not conferred on a graduate simply by virtue of high grades. Students pursuing multiple majors or multiple degrees must complete their honors program and defend their thesis by the published deadline for the term/year in which their first major or first degree is conferred. Students intending to pursue honors must register with the Honors Program by the deadlines published on the Honors Program website. Honors requirements must be complete prior to graduation. Students “walking” in May but graduating in August must complete honors requirements, including defending the thesis, by the Honors Program deadline for May graduation. Interested students should consult the Honors Program listing in this catalog or contact the Honors Program in Norlin Library.

### Graduation with Distinction

Students will graduate “With Distinction” if they have at least 30 credit hours completed at the University of Colorado Boulder and have a grade point average of 3.75 or higher for all course work completed at the University of Colorado. The average includes all grades except *P*.

### Phi Beta Kappa

Phi Beta Kappa is the nation's oldest and most prestigious honor society. The CU-Boulder chapter was established in 1904. Upper-division students whose undergraduate academic records fulfill certain requirements are eligible for election to membership in recognition of outstanding scholastic achievement in the liberal arts and sciences. Students are notified by mail of their nomination; students do not apply for Phi Beta Kappa membership.

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# Transfer Applicants

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Applicants are considered transfer students if they enrolled in any college-level course work (at another college or university, or other campus of the University of Colorado), full time or part time, since graduating from high school. Applicants are not considered transfer students if the only college-level classes they have taken were while enrolled in high school. To be considered for admission, transfer students must report all previous college work and have a high school diploma or its equivalent.

## Competitive Admission Criteria

Transfer applicants are considered for admission on the basis of transfer as well as freshman criteria, including minimum academic preparation standards (MAPS). All transfer applicants who graduated from high school in 1988 or later are expected to have completed MAPS requirements before enrolling at CU-Boulder.

CU-Boulder's aim is to offer highly qualified and intellectually curious transfer students the opportunity to continue pursuing their educational goals. We practice a holistic admission review process, taking into account a variety of primary academic and secondary factors as they relate to your projected success in our competitive academic environment. You will be considered on an individual basis relative to a prediction of your academic success in the college to which you apply. For more information on competitive transfer admission guidelines, visit [admissions.colorado.edu/undergraduate/apply/transfer](https://admissions.colorado.edu/undergraduate/apply/transfer).

## College of Arts and Sciences

A cumulative college GPA of 2.50 or better in appropriate general education courses is required. Students who complete 60 semester hours of transfer-level work with a cumulative GPA of 2.50 at a Colorado community college and who apply by the equal consideration deadline are assured admission to the College of Arts and Sciences. Students must complete all of the Minimum Academic Preparation Standards (MAPS) to be guaranteed admission.

NOTE: This information applies to students who entered college after spring 1988. For those students who entered college prior to summer 1988, contact the Office of Admissions.

## Leeds School of Business

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A cumulative college GPA of 3.00 or higher is required. Preference is given to students who have completed finite math (or college algebra), calculus, microeconomics and macroeconomics with competitive letter grades.

## School of Education

Students who have completed a bachelor's degree may apply for admission directly to the School of Education. All other undergraduate students must be admitted to another college or school before applying to a CU-Boulder teacher education program.

Visit [www.colorado.edu/education/prospective-students/undergraduate-licensure](http://www.colorado.edu/education/prospective-students/undergraduate-licensure) for additional information.

## Program in Environmental Design

A college GPA of 2.75 or higher is required. Admission preference is given to students who have taken college-level courses in the areas of architecture, planning or environmental studies. Completion of courses in related fields of social science, natural science, fine arts or humanities is also considered in the admission review.

## College of Engineering and Applied Science

Cumulative college GPA of 3.00 for all majors EXCEPT Mechanical Engineering, which requires a 3.30 cumulative college GPA. Transfer applicants must have taken courses relevant to an engineering curriculum, including at least two semesters of college-level calculus, along with two semesters of calculus-based physics with lab and/or college-level chemistry with lab. Chemical engineering and chemical and biological engineering applicants should have completed two semesters of college chemistry. Grades in math, science and engineering courses should be *B* or higher. *(Exception: Students [resident or non-resident] who apply for admission for a semester that occurs within 18 months of their high school graduation date may also be competitive without having taken the above coursework, as long as the high school academic record meets selected minimum criteria. In addition, if any college-level work has been completed, the overall GPA should be 3.10 or higher.)*

The college guarantees admission to any of its baccalaureate degree programs to students transferring from Colorado public institutions of higher education who meet the [College of Engineering and Applied Science Guaranteed Admission Criteria for Colorado Transfers](#).

## College of Media, Communication and Information

Admission to the College of Media, Communication and Information requires a transfer student to have a minimum of 24 semester hours of appropriate college-level course work completed or in progress and an overall GPA of 3.00 as well as a 3.00 average GPA in CMCI prerequisites. Applicants must have completed or be in progress in the equivalent of the two introductory courses for the following majors:

- Advertising, Public Relations, Media Design (Strategic Communication)--Contemporary Media Analysis; Principles of Advertising and Consumer Culture
- Communication--Public Speaking; Group Interaction
- Journalism--Contemporary Media Analysis; Principles of Journalism and Networked Communication
- Media Studies--Contemporary Media Analysis; Either Principles of Advertising and Consumer Culture or Principles of Journalism and Networked Communication

Consult the departmental websites for the prerequisite courses for the Department of Critical Media Practices and the Department of Information Science.

## College of Music

A college GPA of 2.75 or higher and an audition of all applicants is required. More information may be found in the [Undergraduate Admission](#) and [College of Music](#) sections.

## College Entrance Tests

Transfer students are required to submit SAT or ACT scores, except those who have completed 24 or more semester hours of transferable college-level work at the time they apply.

Students' highest scores are used in the admission decision. If the same test is taken more than once, the scores on each subsection are combined to give the highest overall score. SAT subject test scores are not required. For more information, see the How to Apply for Undergraduate Admission section.

## ALEKS Mathematical Skills Assessment

A solid grounding in basic mathematics is assumed for most CU-Boulder introductory science, engineering, business and social science courses. The questions in the ALEKS assessment helps students determine their level of preparation for many introductory courses, specifically so their likelihood of having a successful experience is enhanced. An ALEKS exam score is a prerequisite for many courses. This means a student cannot enroll in one of these courses unless he or she has taken the ALEKS exam and obtained the minimum required score for a particular course. Therefore, it is very important that students take their time and complete the assessment carefully, as it will affect the courses in which they may enroll. Because many colleges preregister students in required courses, it is highly recommended to complete the placement prior to June 1. Waiting to take the exam may make it difficult to get a student's necessary courses.

NOTE: ALEKS may be unnecessary if the students are transferring credit for math courses from another accredited institution. Some college level courses at other institutions may meet these prerequisites and some departments may still require ALEKS regardless of AP/IB or transfer credit. For questions, students should consult their academic advisor for their specific situation. Most students have at least one math course as a component of their general education requirements, and most will require completing the ALEKS assessment.

For further information, visit the Division of Academic Affairs at [www.colorado.edu/academicaffairs/AVCUEaleks.html](http://www.colorado.edu/academicaffairs/AVCUEaleks.html) or go to the Office of Orientation at [orientation.colorado.edu](http://orientation.colorado.edu).

## Minimum Academic Preparation Standards (MAPS)

Effective with students who graduated from high school in spring 1988 or later, CU-Boulder expects all transfer students to have completed courses that meet certain minimum academic preparation standards (MAPS). For MAPS requirements for specific CU-Boulder colleges and schools, see the [MAPS chart](#).

MAPS requirements not met in high school may be met through equivalent college-level course work before or after transfer to CU-Boulder. A semester course completed at the college level substitutes for a year of work in high school. Students who attended a non-U.S. high school for two years or more are not subject to MAPS.

## Opportunities for Colorado Transfer Students

A list of transferable state-guaranteed general education courses has been established for students pursuing arts and sciences majors. Contact your current Colorado school, the CU-Boulder Office of Admissions, or visit our website for more information.

Course equivalency information is available online at [colorado.edu/admissions/transfer](http://colorado.edu/admissions/transfer), and also through Colorado community college advising offices. This includes information on CU-Boulder admission requirements, graduation requirements and course equivalencies.

Students transferring to a program outside of the College of Arts and Sciences need to work with community college advisors and use the transfer information to assure that appropriate courses are taken prior to transfer. Students wishing to enter the Program in Environmental Design or the College of Engineering and Applied Science should be aware that because of the structure of the curriculum, they are encouraged to transfer as early as the beginning of the sophomore year. *Academic programs vary in terms of the maximum number of hours that may be transferred from a community or junior college.*

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## International Students

The university invites applications from qualified international students. International applicants are those who already have, or will be applying for, a temporary U.S. visa such as F-1 and J-1. Applicants who are United States citizens, permanent residents, asylees or refugees are not considered international. These students should follow application and admission procedures for undergraduates or graduates as described elsewhere in this catalog.

More than 2,600 international students from more than 100 countries study at CU-Boulder. Applications for admission are processed by the Office of Admissions. International students who wish to pursue a full-time program of study at the undergraduate or graduate level should go to the international student website at [www.colorado.edu/admissions/apply](http://www.colorado.edu/admissions/apply) for admission information and online application forms.

Assistance after admission is provided by International Student and Scholar Services, located in the Office of International Education ([www.colorado.edu/oie/iss](http://www.colorado.edu/oie/iss)). Boulder offers a full range of services to international students, including a host family program, orientation, special programs and activities for international students and personal attention to individual needs.

Intensive English instruction is also offered by the International English Center. For information, visit [iec.colorado.edu](http://iec.colorado.edu), email [ieccu@colorado.edu](mailto:ieccu@colorado.edu) or call **303-492-5547**.

Prospective graduate students should go to the website at [www.colorado.edu/graduate](http://www.colorado.edu/graduate) for information and application forms specific to the academic department in which they are interested. Prospective graduate students can also call the campus telephone operator at **303-492-1411** and ask to have the call transferred to the department of interest or write to the specific department, University of Colorado Boulder, Boulder, CO 80309.

## International Nondegree Students

The University of Colorado Boulder welcomes nondegree visiting international students from around the world. International students who are requesting a form I-20 (for an F-1 visa) are required to enroll full-time (6 credits in summer and 12 credits in fall and spring semesters). In order to maintain F-1 status, international students should not drop below full-time enrollment. Students on B-1/B-2 visas may be eligible to take one course. Visiting international students must meet academic prerequisites in order to enroll. Visiting international students who are not native speakers of English must also demonstrate English language proficiency by submitting valid TOEFL or IELTS scores, or by submitting proof that they completed at least one year of full-time academic study at a U.S. college or university or at an institution in a country where English is the native language (i.e., Australia, Canada).

Email [ceadvisor@colorado.edu](mailto:ceadvisor@colorado.edu) or [ssdean@colorado.edu](mailto:ssdean@colorado.edu) for additional information.

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### Readmit Students

CU-Boulder undergraduate degree-seeking students who have not attended the Boulder campus for three semesters (including summer) since their last graded semester must submit the undergraduate Application for Readmission to the Office of Admissions. No application fee is required. Students who have attended any other college or university since attending CU-Boulder must submit official transcripts directly from the issuing institution(s) to the Office of Admissions.

Students seeking readmission into a different college or school than that in which they were previously enrolled must note the requested change on their application. Otherwise, the university assumes that students will return to the same field of study, if eligible to do so. Students who request a change in college or school for which they are not eligible must request reconsideration for their previous program.

Former students in the College of Arts and Sciences wishing to return to the college must apply to their previous major. Students who wish to pursue a second undergraduate degree must apply to a major different from the one in which they received their degree. Students may not apply for a second bachelor's degree in the Leeds School of Business or the College of Media, Communication and Information.

Continuing undergraduate degree-seeking students who do not attend for three or fewer semesters (including summer), and who were not academically suspended are automatically eligible to return without having to readmit (does not apply to graduate students). This policy includes degree-seeking undergraduates who are only taking classes through Continuing Education. During these semesters of non-enrollment, students' CU-Boulder email and MyCUInfo accounts remain open. To return, students should register for classes during the regular enrollment period for the returning term. Students who received a refund of the confirmation deposit must repay it when returning. Consult the return chart at [www.colorado.edu/registrar/withdrawing-university](http://www.colorado.edu/registrar/withdrawing-university) for important details.

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## Nondegree Students

Students who wish to take University of Colorado Boulder courses but are not currently admitted to a degree program at the university are classified as "nondegree students." Students apply as nondegree students through the Division of Continuing Education (**303-492-5148** or [ce.colorado.edu](http://ce.colorado.edu)). Nondegree students may enroll in credit classes through the ACCESS (Available Credit Courses for Eligible Special Students) Program, the Evening Credit Program, the Online Credit Program, the Applied Music Program and Summer Session.

If students have been denied admission to an undergraduate degree program, they may not enroll as nondegree students in the ACCESS Program for the semester for which they sought degree program admission. Nondegree student admission does not guarantee future admission to any degree program.

Nondegree students may also enroll for courses on a *pass/fail* basis. These courses are counted toward hours of *pass/fail* course work permitted according to the rules of the college or school to which students are admitted once they achieve degree status.

Nondegree students must maintain a 2.00 cumulative GPA. Failure to maintain the required GPA will result in academic suspension.

High school students interested in taking courses at CU-Boulder apply as nondegree students through the High School Concurrent Program administered by the division.

International students who want to apply to the university as nondegree students should read the International Students section above. Students interested in teacher licensure should refer to the School of Education section.

## Nondegree Students Transferring to a Degree Program

Students who are currently enrolled or have been enrolled at any CU campus as nondegree students may apply for admission to an undergraduate degree program.

Students wishing to transfer to a graduate degree program should refer to the Graduate School section and individual college and school sections.

A degree-seeking applicant may transfer an unlimited number of credits taken as a nondegree student on any University of Colorado campus. However, applicability of these hours toward degree requirements is established by the colleges and schools. It is suggested that a student apply to a degree program as soon as admission requirements, including MAPS deficiencies, have been met. It is essential that former nondegree students actively seek academic advising from the appropriate dean's office once they have been accepted into a degree program.

## Second Undergraduate Degree Applicants

Students may apply for a second undergraduate degree at the University of Colorado Boulder, but should explore the various options in graduate study available at the university before doing so. Students applying for a second undergraduate degree must follow transfer admission guidelines, and those students who are admitted must keep in mind that all college and major requirements must be met in order to complete degree programs satisfactorily. Restrictions mandated by general university policies, as well as specific college and school policies, include the following:

1. Applicants may not apply to the major in which they received their first undergraduate degree.
2. Applicants must apply to a specific major; applications for an open option or undetermined

major cannot be considered.

3. Second undergraduate degree applicants in the Program in Environmental Design are encouraged to investigate graduate programs.
4. The Leeds School of Business and the College of Media, Communication and Information do not consider students who have already completed an undergraduate degree. These students are strongly encouraged to investigate graduate study.
5. Students who already have an undergraduate degree from the College of Engineering and Applied Science and who desire a second undergraduate degree are strongly encouraged to investigate graduate study as an option.
6. The School of Education offers graduate and teacher certification programs only.
7. Credit hours earned as a nondegree student at the University of Colorado may not be used toward major degree requirements for a second degree in the College of Arts and Sciences.

## Students from Other CU Campuses

Students who wish to transfer to Boulder from another University of Colorado campus (Colorado Springs or Denver), from CU Study Abroad or from CU Continuing Education should refer to the Transfer Applicants section. These students must send a high school transcript, SAT or ACT scores and an official transcript from each college or university attended (outside the University of Colorado system) to the Office of Admissions. Currently enrolled degree students are not required to pay the application fee. Special consideration is given to applicants transferring from degree programs at other campuses of the University of Colorado. Course work completed at other campuses in the University of Colorado System will be a part of the student's cumulative university record and will not be considered as transfer credit. However, the applicability of this course work toward specific CU-Boulder degree requirements will be determined solely by CU-Boulder colleges and schools. External transfer credit presented by students to other University of Colorado campuses will be evaluated by CU-Boulder guidelines upon the student's matriculation into a degree program at CU-Boulder.

## Intrauniversity Transfer Students

Students wishing to change colleges or schools within the CU-Boulder campus follow the Intrauniversity Transfer (IUT) guidelines from the college or school into which they wish to transfer.

For more information on recommended course work in preparation for an IUT and other criteria, students need to consult college and school sections of this catalog or talk with an academic advisor in the program to which they plan to transfer. Some colleges and schools do not accept intrauniversity transfer students during the summer. It is important to note that admission to a college through the IUT process is competitive, and not all students who apply are admitted. Decisions are based on course preparation, hours completed, grade point average and other criteria required by the specific college or school.

## Denied Admission as a Freshman

Students who were not admissible to the University of Colorado Boulder based on high school academic records are encouraged to apply for transfer admission after at least 24 semester hours of transferable college-level course work are completed or in progress. This includes any minimum academic preparation standards (MAPS) requirements not met in high school.

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## Transfer of College-Level Credit

The Office of Admissions performs an initial evaluation of transfer credit after applicants have been admitted. A complete evaluation of transfer credit cannot be made until all official credentials have been received.

The evaluation is made using the official transcripts sent directly to the university from each one of the applicant's previous colleges. Official transcripts exhibit the official seal and signature of the registrar. Transcripts that are marked "student copy," "issued to student," or "unofficial" are not accepted as official. Faxed transcripts are not accepted.

Course work of comparable content and scope to the CU-Boulder curriculum will generally be transferred if it was completed at colleges or universities accredited by the Higher Learning Commission, or other regional associations at the time the work was completed. For international colleges or universities, the international equivalent of regional accreditation or Ministry of Education recognition will be considered. If course work was completed at a school not regionally accredited, the student may specifically request that their course work be considered for transfer. CU-Boulder will utilize the recommendations of American Association of Collegiate Registrars and Admissions Officers (AACRAO) when making its decision.

These recommendations include but are not limited to:

- Educational quality of the sending institution
- Comparability of credit to be transferred to CU-Boulder
- Applicability of the credit in relation to the programs being offered at CU-Boulder
- Additional documentation that students may be required to provide regarding the course work for transferability

## Exceptions to Recognition of Regional Accreditation

Transferability is based on the practices of the leading university, as reported to AACRAO, in the state where the institution is located. CU-Boulder will make the decision on transferability based on the above criteria for institutions within the state of Colorado.

For Advanced Placement, International Baccalaureate, College Level Examination Program or military credit, refer to the detailed criteria in the corresponding sections.

## Evaluation of Credit

Only courses taken at a college or university of recognized standing with grades of C- (1.70) or better are accepted for transfer. All transferred courses are recorded on the student's academic record.

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Each college and school at CU-Boulder determines:

- How transferred course semester credit hours are applied toward graduation requirements in accordance with the policies of the college or school
- The maximum number of semester credit hours that may transfer from a two-year or four-year postsecondary institution
- The minimum number of semester credit hours that must be completed on the Boulder campus in order to receive a degree
- The minimum number of semester credit hours that must be completed as a degree student in residence on the Boulder campus to receive an undergraduate degree
- The maximum number of semester credit hours earned through correspondence or in a similar format that are accepted toward a baccalaureate degree

Credit hours should have been earned no more than 10 years prior to transferring into an undergraduate degree program at the University of Colorado Boulder. Any determination of acceptance of semester credit hours toward the degree based on the content and the age of the credit is made in the college or school dean's office or by the student's major department.

College-level work taken during high school is evaluated in accordance with general guidelines for transfer credit at CU-Boulder. Official college transcripts of work taken must be received in order for transfer credit to be awarded.

## Course Work Requiring Additional Review

The following course work will require additional information before a decision can be made on acceptance for transfer credit.

- Independent study courses
- Internships
- Workshops
- Graduate course work
- Military credit
- Professional programs

## Course Work Not Accepted for Transfer Credit

The following course work will not be accepted for transfer credit and will not count toward a degree at Boulder:

- any courses in which the grade earned is below a C- (1.70)
- courses identified by CU-Boulder as remedial, such as remedial English, mathematics, science and developmental reading
- vocational-technical courses that are offered at two-year and proprietary institutions (exceptions may be granted only by the CU-Boulder dean responsible for the student's curriculum—when exceptions appear to be warranted, appropriate department heads make recommendations to their respective deans regarding credit for such courses)
- courses in religion that constitute specialized religious training or that are doctrinal in nature
- credits earned for work experience or through a cooperative education program

- outdoor leadership education course work
- credits earned in physical education activity courses
- courses or programs identified as college orientation

## Appeals Process

Students who wish to appeal the transferability of course work must write a letter within the first semester after the work is posted on the University of Colorado Boulder record or after receiving notice from the Office of Admissions that the course work was not accepted for transfer credit. The letter must be addressed to the Transfer Credit Department, Office of Admissions and include:

- The name(s) of the previous institution(s) attended, the course number and title of each course for which the student was denied transfer credit and the date(s) of enrollment in each course
- A copy of the catalog description (from the appropriate year) for each course in question
- A copy of the syllabus or course outline (from the appropriate year) for each course in question. This information can be obtained from the sending institution
- A statement indicating why the credit(s) should be accepted

The Admissions Office will re-evaluate the course(s) for which the student is requesting reconsideration in consultation with the appropriate dean or chair. A written response will be delivered to the student in a timely manner once the appropriate faculties have reviewed the course materials, past practices and the student's specific circumstances.

## University of Colorado Campuses

Course work completed at other campuses in the University of Colorado system will be a part of the student's cumulative university record and will not be considered as transfer credit. However, the applicability of this course work towards specific CU-Boulder degree requirements will be determined solely by CU-Boulder colleges and schools. External transfer credit presented by students to other University of Colorado campuses will be evaluated by CU-Boulder guidelines upon the student's matriculation into a degree program at CU-Boulder.

## Number of Credit Hours Required for Graduation

Transfer students are held to the same residency and degree requirements as students who begin their undergraduate degree program on the Boulder campus. This assumes that transfer credit hours are in courses comparable in level and content to those required for graduation from an undergraduate degree program at the Boulder campus. College or school residency requirements, meaning the number of hours required to be taken as a degree student once admitted on the Boulder campus, are the same for transferring and nontransferring students.

## Credit for Correspondence and Online Work

Each college and school determines the maximum number of credits taken through correspondence and online programs that are accepted toward a baccalaureate degree.

## College-Level Work Taken during High School

If you took college-level courses while enrolled in high school, you may be able to transfer the credit to CU-Boulder. Only courses taken at a college or university of recognized standing with grades of C- or better are accepted for transfer. All college-level work will be evaluated in accordance with CU-Boulder transfer credit guidelines. College-level work taken concurrently with a high school program may be used to satisfy MAPS requirements. You must have an official college transcript sent directly to the Office of Admissions in order for transfer credit to be evaluated.

## Advanced Placement Examinations

Credit for College Board Advanced Placement examinations cannot be evaluated from college or high school transcripts; score reports from the College Board must be submitted directly to the university for evaluation. For more information, and a guide to equivalencies, refer to Freshman Applicants and the chart in this section or download the PDF at [www.colorado.edu/admissions/undergraduate/apply/freshman/credit](http://www.colorado.edu/admissions/undergraduate/apply/freshman/credit).

## College-Level Examination Program

Credit for College Board subject examinations of the College-Level Examination Program (CLEP) in general biology, general chemistry, general psychology, introductory macroeconomics, introductory microeconomics, introductory sociology and calculus may be granted for a score at or above the 67th percentile. This credit is applied toward degree requirements at the discretion of the student's dean. Refer to the appropriate dean's office for the policy of that college or school.

Credit for CLEP subject examinations cannot be evaluated from college or high school transcripts; score reports must be submitted directly from the College Board. CLEP general examinations are not accepted for credit at CU-Boulder.

## International Baccalaureate Examinations (IB)

In general, credit is granted for approved IB examinations at the higher level with a score of 4 or better. Students admitted to the University of Colorado Boulder who have graduated from high school with an International Baccalaureate Diploma shall be granted 24 semester hours of college credit. This credit will be applied toward degree requirements ONLY if approved by the college or school. Depending on the student's degree program, some of the 24 credits may not be applicable toward degree requirements. No CU-Boulder tuition will be charged for these credits and the 24 credits will only be granted if the student receives a score of 4 or better on an examination administered as part of the IB Diploma program. If the student scores less than 4 on each IB subject test, the credit hours granted will be reduced accordingly. Official scores must be sent to the admissions office directly from the IB organization. For more information and a guide to equivalencies, refer to [Freshman Applicants](#).

## Military Credit

Credit for military schooling is evaluated upon receipt of Form DD 214, Service Separation Certificate or the Joint Services Transcript (JST). Only work that has received an upper-division baccalaureate recommendation by the American Council on Education (ACE) can be awarded credit. This work, however, is transferred and recorded at the lower-division level. Foreign language credit taken through the State Department, Department of Defense or Defense Language Institute is assigned the recommended ACE credit.

## Course Challenge

This option provides limited opportunities for students to take an examination and earn credit for a course without registering for or taking the course. Specific courses must be approved for credit by examination. Students may want to exercise this option if they do not receive transfer credit for a course they have taken at another institution. Information on participating colleges and schools, requirements and an application for course challenge are available through the [Office of the Registrar](#). Permission of the instructor, the department chair, the dean of the college or school in which the course is offered and the student's dean (if different) is required for approval. An examination fee is charged.

## Transfer Credit Conversion

CU-Boulder operates on a semester system. Other campuses, including CU-Boulder, operate on a two-term or semester system. Course credits from quarter system institutions must be converted from quarter hours to semester hours or credits. One quarter credit is equivalent to two-thirds of a semester credit. To convert quarter hours to semester hours, multiply the number of quarter hours by two-thirds and round off the total to the nearest tenth. For example, 4 quarter hours  $\times 2/3 = 2.67$  or 2.7 semester hours of credit, or 3 quarter hours  $\times 2/3 = 2$  semester hours of credit.

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## Minimum Academic Preparation Standards (MAPS)

*One unit equals one year of high school study or one semester of college course work.*

| <i>Program in Environmental Design</i>   | <i>College of Arts &amp; Sciences / CMCI</i>   | <i>Leeds School of Business</i>  | <i>College of Engineering &amp; Applied Science</i>   | <i>College of Music</i>   |
|--|--|--|---|---------------------------|
| <b>English: 4</b>  | <b>English: 4</b><br>(includes 2 of composition)   | <b>English: 4</b><br>(includes 2 of composition)   | <b>English: 4</b>   | <b>English: 4</b>         |
| <b>Mathematics: 4</b><br>(includes at least 2 of algebra, 1 of geometry and 1 of college preparatory math such as trigonometry, analytic geometry or elementary functions) | <b>Mathematics: 4</b><br>(includes at least 2 of algebra, 1 of geometry and 1 of college preparatory math such as trigonometry, analytic geometry or elementary functions) | <b>Mathematics: 4</b><br>(includes at least 2 of algebra, 1 of geometry and 1 of college preparatory math such as trigonometry, analytic geometry or elementary functions) | <b>Mathematics: 4</b><br>(includes at least 2 of algebra, 1 of geometry and 1 of college preparatory math such as trigonometry, analytic geometry or elementary functions)                                | <b>Mathematics: 4</b>     |
| <b>Natural science: 3</b><br>(includes physics and/or biology)   | <b>Natural science: 3</b><br>(includes 2 of lab science, 1 of which must be either chemistry or physics)   | <b>Natural science: 3</b><br>(includes 2 of lab science, 1 of which must be either chemistry or physics)   | <b>Natural science: 3</b><br>(includes 2 of physics AND 1 of chemistry or biology; OR 2 of chemistry AND 1 of physics or biology; OR 2 of biology AND 1 of chemistry or physics; OR 1 of physics AND 1 of | <b>Natural science: 3</b> |

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|                                   |  |  |   |   |
|-----------------------------------|--|--|---|---|
|                                   |  |  | chemistry or biology AND 1 of another science)  |   |
| <b>Social science: 3</b>          | <b>Social science: 3</b><br>(includes 1 of U.S. or world history and 1 of geography; if U.S. history is used to meet the history requirement, the geography requirement may be met with 1/2 unit of geography and 1/2 unit of world history) | <b>Social science: 3</b><br>(includes 1 of U.S. or world history and 1 of geography; if U.S. history is used to meet the history requirement, the geography requirement may be met with 1/2 unit of geography and 1/2 unit of world history) | <b>Social science: 3</b>  | <b>Social science: 2</b>                  |
| <b>Single foreign language: 2</b> | <b>Single foreign language: 3</b>  | <b>Single foreign language: 3</b>  | <b>Single foreign language: 3</b><br>(or 2 units in each of 2 separate foreign languages) | <b>Single foreign language: 2</b>         |
| <b>Academic elective: 1</b>       |  |  |   | <b>Academic elective: 2</b> (in the arts) |
| <b>Total units: 17</b>            | <b>Total units: 17</b>   | <b>Total units: 17</b>   | <b>Total units: 17</b>  | <b>Total units: 17</b>                    |



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## Advanced Placement (AP) Credit

| <b>AP SUBJECT</b> | <b>Examination Title</b> | <b>Exam Score</b> | <b>CU-Boulder Course Equivalent*</b>  | <b>Semester Hours</b> |
|-------------------|--------------------------|-------------------|---|-----------------------|
| <b>Biology</b>    | Biology                  | 5, 4              | EBIO 1210, 1220, 1230 and 1240  | 8                     |
|                   |                          | 3                 | 4 lower-division Arts & Sciences credits fulfilling the Natural Science lab in core and part of the overall Natural Science core requirements | 4                     |
| <b>Chemistry</b>  | Chemistry                | 5                 | CHEM 1113 and 1114  | 5                     |
|                   |                          | 4                 | CHEM 1021   | 4                     |
|                   |                          | 3                 | 4 lower-division Arts & Sciences credits fulfilling the Natural Science lab in core and part of the overall Natural Science core requirements | 4                     |
| <b>Classics</b>   | Latin                    | 5                 | LATN 1024, 2114 AND 2124  | 12                    |
|                   |                          | 4                 | LATN 1024 AND 2114  | 8                     |
|                   |                          | 3                 | LATN 1024   | 4                     |
|                   |                          |                   |   |                       |

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|                                      |  |             |   |             |
|--------------------------------------|--|-------------|---|-------------|
| <b>Computer Science<br/>(note 1)</b> | Computer Science A                                   | 5           | CSCI 1300   | 4           |
| <b>Economics</b>                     | Economics: Micro                                     | 5, 4        | ECON 2010   | 4           |
|                                      | Economics: Macro                                     | 5, 4        | ECON 2020   | 4           |
| <b>English</b>                       | English Literature and Composition                   | 5,4<br>3    | ENGL 1500<br>3 lower-division Arts & Sciences credits fulfilling Literature & Arts in core                  | 3<br>3      |
|                                      | English Language and Composition                     | 5<br>4<br>3 | WRTG 1250<br>WRTG 1150<br>3 lower-division Arts & Sciences credits fulfilling Written Communication in core | 3<br>3<br>3 |
| <b>Environmental Science</b>         | Environmental Science                                | 5, 4        | ENVS 1000   | 4           |
| <b>Fine Arts</b>                     | Studio-Drawing Portfolio or Studio-General Portfolio | 5, 4        | 3 lower-division ARTS elective credit   | 3           |
|                                      | Art History  | 5, 4        | ARTH 1300 and 1400  | 6           |
| <b>Foreign Language</b>              | Chinese Language and Culture                         | 5           | CHIN 1020, 2110 and 2120  | 15          |
|                                      |  | 4           | CHIN 1020 and 2110  | 10          |
|                                      |  | 3           | CHIN 1020   | 5           |
|                                      | French Language and Culture                          | 5           | FREN 2110, 2120 and 3050  | 9           |
|                                      |  | 4           | FREN 2110 and 2120  | 6           |
|                                      |  | 3           | FREN 2110   | 3           |
|                                      | German Language and Culture                          | 5           | GRMN 2020 and 3010  | 7           |
|                                      |  | 4           | GRMN 2010 and 2020  | 8           |
|                                      |  | 3           | GRMN 2010   | 4           |

|                   |  |           |   |        |
|-------------------|--|-----------|---|--------|
|                   | Japanese Language and Culture                  | 5         | JPNS 1020, 2110 and 2120  | 15     |
|                   |  | 4         | JPNS 1020 and 2110  | 10     |
|                   |  | 3         | JPNS 1020   | 5      |
|                   | Italian Language and Culture                   | 5         | ITAL 1020, 2110 and 2120  | 11     |
|                   |  | 4         | ITAL 1020 and 2110  | 8      |
|                   |  | 3         | ITAL 1020   | 5      |
|                   | Spanish Language and Culture ( <i>note 2</i> ) | 5         | SPAN 2110, 2120 AND 3000  | 11     |
|                   |  | 4         | SPAN 2110 and 2120  | 6      |
|                   |  | 3         | SPAN 2110   | 3      |
|                   |  | 5         | SPAN 1000 and 3002  | 6      |
|                   |  | 4         | SPAN 1000   | 3      |
| <b>Geography</b>  | Human Geography                                | 5, 4      | GEOG 1992   | 3      |
| <b>Government</b> | Comparative                                    | 5, 4<br>3 | PSCI 2012<br>3 lower-division Arts & Sciences credits fulfilling Contemporary Societies in core | 3<br>3 |
|                   | United States                                  | 5, 4<br>3 | PSCI 1101<br>3 lower-division Arts & Sciences credits fulfilling Contemporary Societies in core | 3<br>3 |
| <b>History</b>    | US History                                     | 5, 4<br>3 | HIST 1025<br>3 lower-division Arts & Sciences credits fulfilling U.S. Context in core           | 3<br>3 |
|                   | European History                               | 5, 4<br>3 | HIST 1012<br>3 lower-division Arts & Sciences credits fulfilling Historical Context in core     | 3<br>3 |
|                   | World History                                  | 5, 4      | 3 lower-division History credits  | 3      |

|                    |                                     |           |   |        |
|--------------------|-------------------------------------|-----------|---|--------|
|                    |                                     |           | fulfilling the Historical Context in core   |        |
|                    |                                     | 3         | 3 lower-division Arts & Sciences credits fulfilling Historical Context in core  | 3      |
| <b>Mathematics</b> | Math-Calculus AB                    | 5, 4<br>3 | MATH 1300<br>3 lower-division Arts & Sciences credits fulfilling Quantitative Reasoning and Mathematical Skills in core | 5<br>3 |
|                    | Math-Calculus BC                    | 5, 4      | MATH 1300 and 2300  | 10     |
|                    | Math-Calculus BC and AB subscore*   | 3<br>5,4  | Math 1300   | 5      |
|                    | Statistics                          | 5, 4<br>3 | MATH 2510<br>3 lower-division Arts & Sciences credits fulfilling Quantitative Reasoning and Mathematical Skills in core | 3<br>3 |
| <b>Music</b>       | Music Theory                        | 5         | MUSC 1101, 1111, 1121 and 1131  | 6      |
|                    |                                     | 4         | MUSC 1101 and 1121  | 3      |
| <b>Physics</b>     | Physics 1 ( <i>note 3</i> )         | 5, 4      | PHYS 2010 P   | 5      |
|                    | Physics 2 ( <i>note 3</i> )         | 5, 4      | PHYS 2020   | 5      |
|                    | Physics C-Mechanics                 | 5         | PHYS 1110   | 4      |
|                    | Physics C-Electricity and Magnetism | 5         | PHYS 1120   | 4      |
| <b>Psychology</b>  | Psychology                          | 5, 4      | PSYC 1001   | 3      |
|                    |                                     | 3         | 3 lower-division Arts & Sciences credits fulfilling the Contemporary  | 3      |

## Societies in core

\* There is no guarantee that all AP credit will apply to a specific degree program. The dean's office of each college and school makes the final determination on how AP credits apply toward degree requirements.

\* When the credit granted for a score of 3 on an AP exam is just Arts & Sciences credit that fulfills a specific core category, CU-Boulder advises students that they are likely to be more successful in their college career if they fulfill that core category with a CU-Boulder course and use their AP credit as elective credit.

*1 Engineering Students: Check with academic advisor in major department. Students will need the ability to learn additional programming languages for further computer science courses.*

*2 Students who want to continue taking Spanish courses beyond their AP credit level must take the Spanish department placement test. If the results of this test place them below their AP level, the Spanish department strongly recommends enrolling at the lower of the two levels.*

*3 Does not apply toward degree requirements for students in the College of Engineering and Applied Science.*

NOTE: This table was prepared based on spring 2015 exams. Credit awarded is subject to change based on faculty review of spring 2016 exams. The credit in this table is for students who matriculate at CU-Boulder in the 2016-17 academic year. Students who matriculated at CU-Boulder in previous academic years need to refer to the tables in the catalog for their matriculation year to find the appropriate credit.

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## International Baccalaureate (IB) Credit

| <i>IB Subject Examination Title</i>       | <i>Level of Exam</i> | <i>Exam Score</i> | <i>UCB Course Equivalent*</i>   | <i>Semester Hours</i> |
|---|----------------------|-------------------|---|-----------------------|
| <b>Anthropology</b>                       | Higher               | 4                 | ANTH 2100 and 3 lower-division credits meeting human diversity requirement  | 6                     |
| <b>Biology</b>                            | Higher               | 4                 | EBIO 1210, 1220, 1230 and 1240  | 8                     |
|   | Standard             | 4                 | 4 lower-division Arts & Sciences credits fulfilling the Natural Science lab and part of the overall Natural Science requirement in core | 4                     |
| <b>Business and Management</b>            | Higher               | 4                 | BCOR 1015 and 3 lower-division BADM credits   | 6                     |
| <b>Chemistry</b>                          | Higher               | 7                 | CHEM 1113, 1114, 1133 and 1134  | 10                    |
|   | Higher               | 6                 | CHEM 1113 and 1114  | 5                     |
|   | Higher               | 5,4               | 4 lower-division Arts & Sciences credits fulfilling the Natural Science lab and part of the overall Natural Science requirement in core | 4                     |
|   | Standard             | 4                 | 4 lower-division Arts & Sciences credits fulfilling the Natural Science lab and part of the overall Natural Science requirement in core | 4                     |
| <b>Chinese A: Language and Literature</b> | Higher               | 4                 | CHIN 3110, 3120   | 10                    |
|   | Standard             | 4                 | CHIN 2110, 2120   | 10                    |
| <b>Dance</b>                              | Higher               | 4                 | Elective DNCE credits; performance scores required to determine credit awarded  | 1–3                   |
| <b>Design Technology</b>                  | Higher               | 4                 | Elective credits  | 6                     |
| <b>Economics</b>                          | Higher               | 4                 | 4 lower-division ECON credits fulfilling  | 4                     |

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|   |          |      |  |   |
|---|----------|------|--|---|
|   |          |      | Contemporary Societies in core   |   |
|   | Standard | 4    | 3 lower-division Arts & Sciences credits fulfilling Contemporary Societies in core               | 3 |
| <b>English A: Literature</b>                      | Higher   | 4    | ENGL 1500  | 3 |
|   | Standard | 4    | 3 lower-division Arts & Sciences credits fulfilling Literature and Arts in core                  | 3 |
| <b>English A: Language and Literature</b>         | Higher   | 4    | 3 lower-division Arts & Sciences credits fulfilling lower-division Written Communication in core | 3 |
|   | Standard | 4    | 3 lower-division Arts & Sciences credits fulfilling lower-division Written Communication in core | 3 |
| <b>Environmental Systems &amp; Societies</b>      | Standard | 4    | 3 lower-division Arts & Sciences credits fulfilling Natural Science in core                      | 3 |
| <b>French B</b>                                   | Higher   | 7    | FREN 2120 and 2500   | 6 |
|   | Higher   | 6, 5 | FREN 2110 and 2120   | 6 |
|   | Higher   | 4    | FREN 2120  | 3 |
| <b>French B</b>                                   | Standard | 7    | FREN 2110 and 2120   | 6 |
|   | Standard | 6    | FREN 2110  | 3 |
|   | Standard | 5    | FREN 1050  | 5 |
|   | Standard | 4    | FREN 1010  | 5 |
| <b>French AB</b>                                  | Initio   | 7    | FREN 1050  | 5 |
|   | Initio   | 6, 5 | FREN 1010  | 5 |
| <b>Geography</b>                                  | Higher   | 4    | GEOG 1992 and 3 lower-division GEOG credits  | 6 |
| <b>German B</b>                                   | Standard | 6, 7 | GRMN 1010 and 1020   | 8 |
|   | Standard | 5, 4 | GRMN 1010  | 4 |
| <b>Global Politics</b>                            | Higher   | 4    | 3 lower division PSCI credits fulfilling Contemporary Societies in core                          | 3 |
| <b>History—Rt.1: Europe and the Islamic World</b> | Higher   | 4    | HIST 1011 and 3 lower-division HIST credits fulfilling Historical Context in core                | 6 |
| <b>History—Rt.2: Africa</b>                       | Higher   | 4    | HIST 1228 and 3 lower-division HIST credits fulfilling Historical Context in core                | 6 |
| <b>History—Rt.2: Americas</b>                     | Higher   | 4    | HIST 1025 and 3 lower-division HIST credits fulfilling Historical Context in core                | 6 |

|   |          |            |  |    |
|---|----------|------------|--|----|
| <b>History—Rt.2:<br/>Asia and<br/>Oceania</b>           | Higher   | 4          | Two 3-credit lower-division HIST courses fulfilling Historical Context in core                   | 6  |
| <b>History—Rt.2:<br/>Europe and the<br/>Middle East</b> | Higher   | 4          | HIST 1012 and 3 lower-division HIST credits meeting Historical Context core requirement          | 6  |
| <b>History—Rt.2:<br/>20th Century<br/>World</b>         | Standard | 4          | 3 lower-division Arts & Sciences credits fulfilling Historical Context in core                   | 3  |
| <b>Italian B</b>  | Higher   | 7, 6,<br>5 | ITAL 2110 and 2120   | 6  |
|   | Higher   | 4          | ITAL 2110  | 3  |
| <b>Italian B</b>  | Standard | 7          | ITAL 2110 and 2120   | 6  |
|   | Standard | 6          | ITAL 2110  | 3  |
|   | Standard | 5          | ITAL 1020  | 5  |
|   | Standard | 4          | ITAL 1010  | 5  |
| <b>Italian AB</b>                                       | Initio   | 7          | ITAL 1020  | 5  |
|   | Initio   | 6, 5       | ITAL 1010  | 5  |
| <b>Japanese A:<br/>Language and<br/>Literature</b>      | Higher   | 4          | JPNS 3110, 3120  | 10 |
|   | Standard | 4          | JPNS 2110, 2120  | 10 |
| <b>Japanese AB</b>                                      | Initio   | 5          | JPNS 1010, 1020  | 10 |
| <b>Japanese B</b>                                       | Higher   | 7, 6       | JPNS 3110, 3120  | 10 |
|   | Higher   | 5, 4       | JPNS 2120, 3110  | 10 |
|   | Standard | 4          | JPNS 2110, 2120  | 10 |
| <b>Korean</b>   | Higher   | 4          | Semester hours awarded and course equivalent are determined by oral exam                         |    |
| <b>Latin</b>  | Higher   | 6, 7       | LATN 1024, 2114, 2124  | 12 |
|   | Higher   | 5          | LATN 1024, 2114  | 8  |
|   | Higher   | 4          | LATN 1024  | 4  |
| <b>Further<br/>Mathematics</b>                          | Higher   | 5          | 10 lower-division MATH credits fulfilling Quantitative Reasoning and Mathematical Skills in core | 10 |
| <b>Mathematics</b>                                      | Higher   | 5          | 5 lower-division MATH credits fulfilling Quantitative Reasoning and Mathematical Skills in core  | 5  |
|   | Higher   | 4          | 3 lower-division MATH credits  | 3  |

|   |          |      |  |    |
|---|----------|------|--|----|
|   |          |      | fulfilling Quantitative Reasoning and Mathematical Skills in core  |    |
|   | Standard | 4    | 3 lower-division Arts & Sciences credits fulfilling Quantitative Reasoning & Mathematical Skills in core   | 3  |
| <b>Mathematical Studies</b>               | Standard | 4    | 3 lower-division Arts & Sciences credits fulfilling Quantitative Reasoning & Mathematical Skills in core   | 3  |
| <b>Music</b>                              | Higher   | 4    | Elective credits   | 6  |
| <b>Philosophy</b>                         | Higher   | 4    | PHIL 1000 and 3 lower-division PHIL credits  | 6  |
| <b>Physics (note 1)</b>                   | Higher   | 4    | PHYS 2010 and 2020   | 10 |
|   | Standard | 4    | 4 lower-division Arts & Sciences credits fulfilling the Natural Science lab and part of the overall Natural Science requirement in core  | 4  |
| <b>Psychology</b>                         | Higher   | 4    | PSYC 1001 and 3 lower-division PSYC credits fulfilling Contemporary Societies in core  | 6  |
|   | Standard | 4    | 3 lower-division Arts & Sciences credits fulfilling Contemporary Societies in core   | 3  |
| <b>Russian B</b>                          | Higher   | 4    | RUSS 2010 and 2020   | 8  |
|   | Standard | 5    | RUSS 2010 and 2020   | 8  |
| <b>Spanish A: Language and Literature</b> | Higher   | 4    | SPAN 3000 and 3100   | 8  |
| <b>Spanish B</b>                          | Higher   | 7, 6 | SPAN 2110, 2120 and 3000   | 11 |
|   | Higher   | 5, 4 | SPAN 2110 and 2120   | 6  |
|   | Standard | 4    | SPAN 1010 and 1020   | 10 |
| <b>Spanish AB</b>                         | Standard | 6    | SPAN 1010  | 5  |
| <b>Swedish A: Language and Literature</b> | Standard | 4    | SCAN 3020  | 3  |
| <b>Theatre</b>                            | Higher   | 4    | THTR 1019 and 3 lower-division THTR credits  | 6  |
| <b>Visual Art</b>                         | Higher   | 4    | 3 lower-division ARTS credits and 3 lower-division ARTS credits fulfilling Literature and Arts in core (Consult faculty with portfolio for further consideration of fine arts course equivalents.) | 6  |
|   |          |      |  |    |

|  |          |   |   |   |
|--|----------|---|---|---|
|  | Standard | 4 | 3 lower-division Arts & Sciences credits fulfilling Literature and Arts in core | 3 |
|--|----------|---|---|---|

\* There is no guarantee that all IB credit will apply to a specific degree program. The dean's office of each college and school makes the final determination on how IB credits apply toward degree requirements.

\*When the credit granted for a Standard Level IB exam is just Arts & Sciences credit that fulfills a specific core category, CU-Boulder advises students that they are likely to be more successful in their college career if they fulfill that core category with a CU-Boulder course and use their IB credit as elective credit.

*1. Does not apply toward degree requirements for students in the College of Engineering and Applied Science.*

NOTE: This table was prepared based on spring 2015 exams. Credit awarded is subject to change based on faculty review of spring 2016 exams. The credit in this table is for students who matriculate at CU-Boulder in the 2016-17 academic year. Students who matriculated at CU-Boulder in previous academic years need to refer to the tables in the catalog for their matriculation year to find the appropriate credit.

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# How to Apply

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## Application Priority Dates and Admission Notification

Applications for degree candidates may be submitted beginning in August for the following spring, summer and fall terms.

The university reserves the right to deny admission to applicants whose total credentials reflect an inability to assume those obligations of performance and behavior deemed essential by the university and relevant to any of its lawful missions, processes and functions as an educational institution.

## Freshman Applicants

You can apply to CU Boulder using the Common Application. All students will be reviewed in the order their application file is completed (application is submitted and all required documents are received and official).

## Spring Freshman Applicants

Spring applications are processed on a rolling basis. The Office of Admissions begins notifying applicants about admission decisions in October. Decisions are made approximately six to eight weeks after an application is complete. Full consideration is given to applications that are complete (including the application fee and all required credentials) by the October 1, 2016 deadline.

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There are two admission notification periods for fall and summer 2017 candidates.

## Non-Binding Early Action

Freshman applicants who complete their file by **November 15, 2016**, are guaranteed early action and will receive an admission decision on or before **February 1, 2017**. Students meeting the non-binding, early action deadline may be admitted, postponed or denied admission. Postponed students will receive an additional review and are strongly encouraged to submit additional academic information to strengthen their applications. Students who are postponed do not typically receive an admission decision until **April 1, 2017**. Early action students are not required to enroll at the University of Colorado Boulder, but must, if they choose to attend, confirm their intent to enroll by **May 1, 2017**.

## Freshman Application Deadline

The freshman application deadline is **January 15, 2017**. Students may begin applying and completing their files in August. All applicants with completed files by **January 15, 2017**, will be notified of their admission decision no later than **April 1, 2017**. Students must, if they choose to attend, confirm their intent to enroll by **May 1, 2017**.

## Transfer Applicants

If you have submitted a complete application (including test scores (if you have less than 24 college credit hours), transcripts (high school and college), personal statement and application fee) on or before the transfer application deadline (**October 1, 2016** for spring, **March 1, 2017** for summer, **March 1, 2017** for fall early notification and **June 15, 2017** for fall regular decision), you will receive an admission decision within six to eight weeks. Notifications begin rolling out on October 1, 2016 for spring applicants and March 1, 2017 for fall and summer applicants. We process applications in the order in which they are received. The earlier you submit a complete application, the earlier a decision will be made.

## Complete an Online Application

Applicants should use the online application through their MyCUBoulder account at [mycuboulder.colorado.edu](http://mycuboulder.colorado.edu) or through the Common Application at [www.commonapp.org](http://www.commonapp.org).

For a student to be considered for admission, the Office of Admissions must receive a completed application, the application fee and all required credentials. Processing of an application will be delayed until all required information is received.

## Application Fees

### Nonrefundable Application Fee (\$50/\$70 for international students)

#### University of Colorado Boulder Application

Payable online at the time you submit your application or by check or money order (made payable to the University of Colorado) after you submit your application. If submitting a check or money order, include your full legal name and birth date. We recognize that some students may be faced with financial constraints in paying the application fee. Waivers can be granted for documented hardships if you submit an application fee waiver form.

#### Common Application

Payable online at the time you submit your application. We recognize that some students may be faced with financial constraints in paying the application fee. Waivers can be granted for

documented hardships if you submit an application fee waiver form.

Students currently enrolled in an undergraduate degree program at another University of Colorado campus, who are applying to an undergraduate degree program on the Boulder campus, are not required to pay the application fee.

## Required Credentials

Credentials or information sent by fax cannot be accepted as official documentation. Do not submit samples or photographs of design or artwork. A portfolio is not used for admission purposes and cannot be returned.

### Official Transcripts

*Official transcripts must be sent directly to the Office of Admissions from the issuing institution and must have the appropriate seals and signatures. Other transcripts are not considered official. Transcripts that are marked, for example, “student copy,” “issued to student” or “unofficial” are not accepted as official. Unofficial transcripts cannot be used for admission or transfer credit purposes.*

### High School Transcript

Students should request that their high school send an official transcript of all work completed, beginning with grade 9, directly to the Office of Admissions, regardless of the number of college hours the student has completed (if any) or the date at graduation from high school. Students who have attended more than one high school and whose most recent transcript does not include the complete high school record must submit official transcripts from each school. If any part of the high school record is missing from the transcript, the processing of the application will be delayed. Students who have not graduated and do not plan to graduate from high school must request an official certificate of high school equivalency and official GED scores, plus an official transcript of any high school work (grades 9–12) completed, to be sent to the Office of Admissions. All credentials written in languages other than English must be accompanied by a literal certified English translation. Official transcripts must be sent to the Office of Admissions from the issuing institution either electronically ([transcripts@colorado.edu](mailto:transcripts@colorado.edu)) or by mail and must have the appropriate seals and signatures.

### College Transcripts

Students should request that their official transcripts from each collegiate institution attended (except any campus of the University of Colorado) be sent directly from the issuing institution to the Office of Admissions. Be sure to include all institutions, regardless of the length of attendance, whether or not courses were completed and whether or not the record might affect admission or transfer credit. Also include any institutions attended during summers, interim terms and during high school. *Failure to list and submit transcripts from all institutions previously attended before enrolling at CU-Boulder is considered to be a violation of academic ethics and may result in the cancellation of admission or dismissal from the university.*

### SAT or ACT Test Scores

Boulder requires SAT or ACT scores for admission. The ACT will be accepted with or without the writing test. SAT subject test scores are not required. Students should request that the testing agency submit scores directly to the Office of Admissions. CU-Boulder’s code for the SAT is **4841**; the code for the ACT is **0532**. Scores recorded on an official high school transcript are also acceptable. These scores must be submitted unless 24 or more semester hours of transferable college work have been completed at the time of application. Do not delay sending in the application and other credentials because college entrance test scores are not yet available.

Results from SAT or ACT tests taken in December or later may be received too late to be considered for summer or fall admission of the same year.

For further information, consult a high school counselor, visit the SAT website at [www.collegeboard.com](http://www.collegeboard.com), phone **609-771-7600** or write to the College Board (SAT), P.O. Box 6200, Princeton, NJ 08541-6200. Visit the ACT website at [www.act.org](http://www.act.org), phone 319-337-1270 or write to ACT Registration, P.O. Box 414, Iowa City, IA 52243-0414.

## Personal Essays

The University of Colorado Boulder requires freshman applicants to submit two short personal essays and transfer applicants to submit one personal statement. Applications without essays are considered incomplete and will not be reviewed. Personal essays are the best way for the Office of Admissions to learn about applicants as individuals and to evaluate a student's academic performance within the appropriate context. There are no "correct" answers to the questions—responses should reflect the unique aspects and experiences of the applicant. The specific essay questions are available on the application.

## Letters of Recommendation

One academic letter of recommendation will be required for all freshman applicants. Your full legal name should be included at the top of recommendation letters.

## Optional Documents

Applicants may submit additional letters of recommendation if you wish, however, doing so is optional. Applicants may also choose to submit a résumé or list of cocurricular activities, work experience, leadership positions and awards.

College of Music applicants must also complete a College of Music application after their admission application has been submitted, provide a letter of reference and schedule an audition.

## MyCUBoulder Account

MyCUBoulder ([mycuboulder.colorado.edu](http://mycuboulder.colorado.edu)) is a personalized electronic tool that all undergraduates may use to keep track of what needs to be done before they arrive on campus. Applicants should use their MyCUBoulder account to check their status, apply for scholarships and financial aid and take care of other pre-enrollment university business. Freshman applicants apply through the common application and transfer students apply through MyCUBoulder.

## Where to Send the Application, Fee and Credentials

Unless otherwise instructed, mail all application materials to: **Office of Admissions**, Regent Administrative Center 125, University of Colorado Boulder, 552 UCB, Boulder, CO 80309-0552

## Mailing Address

Applicants must keep their mailing address current at all times. It is used for mailings until the applicant arrives on campus. Notices are also sent to this address regarding admission, registration and orientation, as well as other information. If an address changes or is no longer

valid, notify the Office of Admissions immediately at **303-492-6301**.

## Application Checklist

1. Online application for admission
2. \$50 nonrefundable (\$70 USD for international students) application fee, payable online (if sending a check or money order, make payable to the University of Colorado; print student's name and date of birth on check)
3. Official high school transcript
4. Official college transcripts (if applicable)
5. SAT or ACT test scores (if applicable)
6. Two personal essays (freshman applicants) or one personal statement (transfer applicants)
7. Letter of recommendation (freshman applicants only)
8. Résumé or activities list (optional)

## Confirmation Procedures

All admitted students are encouraged to confirm their intent to enroll as soon as possible after receiving their admission notification. Admission must be confirmed by official notification and the nonrefundable confirmation deposit of \$200 through your MyCUBoulder account.

Confirmations and deposits submitted by the dates listed below will be accepted. After these dates, confirmations can be accepted only if space is still available.

## Confirmation Postmark Deadlines

- Freshmen: fall, **May 1**; summer, **May 1**; spring, **December 1**
- Transfers: **varies**; see *confirmation instructions*

If students register for classes and then decide not to attend, they may be assessed tuition depending upon the circumstances. Guidelines are given on the Office of the Registrar website ([www.colorado.edu/registrar/withdrawing-university](http://www.colorado.edu/registrar/withdrawing-university)) for spring and fall and on the Summer Session website for summer sessions. Important policy differences exist for continuing students versus new, readmitted and transfer students.

The confirmation deposits are used as registration deposits each semester as long as registration is completed by the published deadline. Once students have attended CU-Boulder, the deposit (minus any fees or other charges owed) will be returned when they graduate or officially withdraw from the university according to established deadlines.



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# Academic Standards

## Grade Point Average

A student is required to maintain at least a *B* (3.00) average in all work attempted while enrolled in the Graduate School, and must have at least a 3.00 cumulative average to receive a graduate degree.

## Nonacceptable Grades

1. A student who receives a grade of *C* or below in a course may petition to repeat that course once, provided the course has not been previously applied toward a degree.
2. Courses in which grades below *B-* (2.70) are received are not accepted for doctoral programs.
3. Courses in which grades below *C* (2.00) are received are not accepted for master's degree programs or for the removal of academic deficiencies.
4. Courses taken toward the fulfillment of requirements for graduate degrees may not be taken *pass/fail*.

## Probation

A student whose cumulative GPA falls below 3.00 is placed on academic probation. The student generally has two semesters in which to raise the cumulative GPA to 3.00 or above. If the student's cumulative GPA is at or below 2.50, a dean's administrative stop is placed on the student's record, and the student may be withdrawn from course work for upcoming semesters. Individual departments may have specific probation requirements.

If, after the two-semester probationary period, the student's cumulative GPA is still below 3.00 or if other conditions placed by the major department or Graduate School are not met, a dean's administrative stop will be placed on the student's record and he or she may be subject to dismissal.

A provisionally admitted student whose GPA falls below 3.00 has a dean's administrative stop placed on his or her record pending a review by the major department and the Graduate School.

## No Credit

Course work to be applied toward an advanced degree may not be taken for *no credit (NC)*. Courses taken for *no credit* cannot be used toward the minimum credit load requirement for full-

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- Education
- Engineering & Applied Science
- Environmental Design
- Law
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time or half-time status.

## *Pass/Fail*

No course work to be applied toward an advanced degree may be taken *pass/fail*.

## Student Ethics

Students are expected to adhere to the highest codes of personal and professional ethics. Students who do not adhere to written guidelines regarding academic honesty and/or academic or research ethics may be dealt with according to the appropriate policy documents. Students found guilty of misconduct in any of these areas may have sanctions imposed, or may be dismissed from CU-Boulder.

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# Admission & Enrollment Policies

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## Application Procedures

Students seeking admission to a CU-Boulder master's or doctoral program apply directly to the appropriate department, not the Graduate School. An applicant for admission must present complete application materials that include:

1. Complete the graduate application, available online at [admissions.colorado.edu/graduate](http://admissions.colorado.edu/graduate).
2. Unofficial transcripts for all academic work completed to date.
3. A non-refundable application fee. The fee is currently \$50 for domestic applicants and \$70 for international applicants. The fee may be paid by credit card, electronic check, check or money order.
4. Three or four letters of recommendation. Please check with your program to obtain the required number of recommendations needed.
5. Test scores and other materials as required by specific departments.

A completed application must be in the major department by the published deadline for the term for which admission is sought. Most departments have an application deadline that is several months before the start of the desired admission term. Qualified applicants may find that their application cannot be processed for a specific term if enrollment levels have been reached.

## Admission Requirements

A graduate student may be admitted to CU-Boulder as either a regular degree student or a provisional degree student.

### Regular Degree Students

Qualified students may be recommended for admission to regular degree status by approved programs of the Graduate School provided they meet the following criteria:

1. They hold a baccalaureate degree from an accredited college or university or have done

- Arts & Sciences
- Business
- Education
- Engineering & Applied Science
- Environmental Design
- Law
- Media, Communication and Information
- Music
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work equivalent to that required for such a degree.

2. They show promise of ability to pursue advanced study and research, as judged by their scholastic record.
3. They have had adequate preparation to enter graduate study in the chosen field.
4. They have at least a 2.75 (on a 4.00 scale) undergraduate GPA (for engineering, 3.00).  
(Note: Applicants who cannot meet criterion 4 may still secure regular admission if they have completed 9 semester hours of relevant graduate course work with at least a 3.25 average.)
5. They meet additional requirements for admission established by the major department.

## Provisional Degree Students

Students who do not meet the requirements for admission as regular degree students may be recommended for provisional degree status by their major department. With the concurrence of the dean of the Graduate School, these students are admitted for a probationary term of either one or two semesters of full-time study (or the equivalent for part-time students). At the end of the specified probationary period, provisional degree students must be either admitted to regular degree status or dismissed from the graduate program. Provisional students are subject to the same standards of performance required of regular degree students, plus any other requirements imposed by the program faculty as conditions of admission.

Credit earned by persons in provisional degree status may count toward a degree at CU-Boulder.

To meet the standard terms of provisional admission, the student must generally complete 12 hours in two semesters (or equivalent for part-time students) with a 3.00 cumulative GPA. Program faculty may recommend additional or alternative conditions as appropriate.

## Admission to a Concurrent Bachelor's/Master's Degree Program

A number of CU-Boulder departments offer concurrent bachelor's/master's degrees, which enable CU undergraduate students to pursue undergraduate and graduate programs simultaneously and to receive both degrees in a shorter time period than it would take to pursue them separately.

Highly qualified undergraduate students may be recommended for admission to a concurrent bachelor's/master's degree program at the end of their sophomore year or the beginning of their junior year. Such students are not formally admitted to the Graduate School. Standards for admission as well as eligibility to remain in the program are specified by each department.

## Admission to a Dual Degree Program

The Graduate School, in conjunction with the faculty of each department and the deans of schools and colleges where appropriate, approves dual degree programs that combine previously approved graduate degree programs in two areas or departments.

Qualified graduate students may be recommended for admission to an approved dual degree program upon meeting the qualifications of each graduate program and any special qualifications as outlined by each program's approved guidelines. Minimum standards and qualifications for admission and continuation are specified by each department. Students wishing to complete degrees in more than one department that have no approved dual degree program or interdisciplinary major combination must complete all the requirements for both degrees with no shared or overlapping course work.

## Admission of Nondegree Students to Regular Degree Status

Students with nondegree status who wish to apply for regular student status must complete

their application for admission before completing 9 semester hours as nondegree students at CU-Boulder.

## Admission of Former and Suspended Students

Students who were previously admitted to a graduate degree program but who did not complete that degree and who have not been continuously registered at CU-Boulder must complete the following steps before being readmitted:

1. Clarify their status with the department to determine their eligibility to return and pursue the same degree.
2. Submit a Graduate Readmit application to the department (departmental approval is required) before enrollment levels are met or deadlines passed for the term in which they expect to return to CU-Boulder.

A regular degree student who is dismissed for failure to maintain a 3.00 grade point average is eligible to apply for readmission after one year. Approval or rejection of this application rests jointly with the student's major department and the dean of the Graduate School. The final decision will be made by the dean based on the recommendations of the department.

## Students Transferring from Other CU Campuses

Students transferring from another CU campus to CU-Boulder must apply to and be accepted by the Boulder campus.

## Students Changing Major Departments

Students who want to change major departments must apply to and be accepted by the new department. When adding a second major in an approved interdisciplinary major combination, students should contact their home department for instructions on this process.

## Admission of Faculty Members

No member of the faculty above the rank of instructor may be working toward an advanced degree from CU-Boulder.

## Graduate School Advising

Graduate School advisors provide information and guidance to students and staff on issues including:

- general Graduate School information, policies and rules
- requirements for degrees that apply to all students
- exceptions to requirements
- registration requirements
- theses and dissertation format guidelines and submissions info
- graduation requirements and deadlines

For general inquiries, contact Graduate Student Services at [gradinfo@colorado.edu](mailto:gradinfo@colorado.edu) or call **303-492-8220**.

## Credit Policies

## Transfer Credit

Transfer credits from accredited institutions are accepted by CU-Boulder only after approval by the department chair/program director and the dean of the Graduate School, and under conditions outlined below. Transfer credit is defined as any credit earned at another accredited institution, credits earned on another campus of the CU system or credits earned as a nondegree student within the CU system. Students seeking a degree from CU-Boulder must complete the majority of their course work while enrolled as degree-seeking students.

The following rules apply to transferring credit to CU-Boulder graduate programs:

- The maximum amount of work that may be transferred to CU-Boulder depends upon the graduate degree sought (individual departments may have more restrictive limits).

### *Degree and Semester Credit Hours*

MA, ME, MS, MMus or MMusEd—9

MFA—18

DMA, PhD, or AuD—21

AuD students with MA and audiology certification—30

- Work already applied toward a graduate degree received from CU-Boulder or another institution cannot be accepted for transfer toward another graduate degree of the same level at CU-Boulder. In addition, work completed for a doctoral degree may not be applied toward a subsequent master's degree. Extension work completed at another institution cannot be transferred, and correspondence work, except to make up deficiencies, is not recognized.
- All courses accepted for transfer must be graduate-level courses. A course in which a grade of *B-* or lower was received will not be accepted for transfer. Transfer course work that is to be applied to a graduate degree at CU-Boulder and was completed more than five years prior to being accepted to the program will be evaluated by the major department as to current relevance and applicability to the degree requirements. At the discretion of the department, a student may be asked to validate transfer credits prior to approval.
- Credit may not be transferred until the student has completed 6 credits of graduate course work as a regular, degree-seeking student at the Boulder campus with a 3.00 GPA. Transferred credits do not reduce the minimum registration requirement, but may reduce the amount of work to be done in formal courses.
- Excess undergraduate credits from another institution may not be transferred to the CU-Boulder Graduate School.

## Graduate Credit for CU-Boulder Seniors

With the exception of students enrolled in a concurrent bachelor's/master's degree program, seniors at CU-Boulder may earn graduate credit for a limited amount of graduate-level work (up to 9 semester hours), provided such work is completed with a grade of *B* or above in course work at CU-Boulder; comes within the five-year course time limit; has not been applied toward another degree; and is recommended for transfer by the department concerned, and such transfer is approved by the dean of the Graduate School.

## Registration

Registration procedures are sent to new graduate students when they confirm their intent to enroll. Please refer to Registration in the General Information section for further information.

Late registration is held only if enrollment levels have not been reached. Graduate students (including candidates for degrees and students taking only thesis hours) who fail to complete

registration and pay fees during regular registration may be charged a late registration fee.

## Concurrent Registration

Boulder campus students unable to obtain courses required for their degree program on the Boulder campus may register for up to two courses or 6 credit hours, whichever is greater, on another University of Colorado campus. The course work must be required for their degree program; they must have their dean's permission; they must be enrolled for at least one course on the Boulder campus; and enrollment levels must not have been reached on the other campus. Contact the Office of the Registrar for additional information.

## Reciprocal Exchange Agreement Program

Reciprocal registration enables University of Colorado graduate students to attend classes at other Colorado institutions, including Colorado School of Mines, Colorado State University and the University of Northern Colorado. For more information, contact the Office of the Registrar.

## Withdrawal

A graduate student who desires to withdraw from the university should go to Regent Administrative Center 125 for a withdrawal interview. A student who discontinues attendance in a course without officially withdrawing is marked as having failed that course. Except under extreme circumstances, graduate students are not permitted to withdraw after the last day of classes.

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University of Colorado **Boulder**

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