

University of Colorado at Denver and Health Sciences Center



Welcome to a university for the 21st century.

The University of Colorado at Denver and Health Sciences Center plays a critical role in the development and well being of the state and its citizens. With a core business of education and health, UCDHSC is the region's premier research university.

By combining the excellence of our academic programs at the downtown campus with the extensive research and teaching of our health sciences center, we provide

a unique option in the University of Colorado system.

Here you will benefit from

Academic choices—more than 100 degree programs in 12 schools and colleges

A spirit of collaboration—the synergy of combining disciplines to create courses of study like public health administration, computational bioscience or health and behavioral sciences

Outstanding location—the downtown Auraria campus gives access to a vibrant, safe urban lifestyle, alongside opportunities to gain experience in projects and internships at businesses and corporations

New facilities—the initial development phase of the 227-acre Anschutz Medical Campus will be completed this year, providing students with state-of-the-art educational and research facilities in Aurora

We serve more than 12,200 students on our Denver campus plus 2,700 students in health sciences programs and 12,100 online to create a total enrollment of more than 27,000. Downtown, we offer 80 options to earn bachelor's, master's, doctoral or educational specialist degrees.

This institution is committed to providing you the opportunities you need to achieve your educational goals. You will meet faculty who are dedicated to excellence in the classroom and research laboratory and fellow students who are diverse, goal-oriented and energetic. Whether you engage in undergraduate or graduate studies, you are assured that the University of Colorado degree has global respect and that you will have been well-prepared for the next stage of your work or academic life.

It's a privilege to have you join us.

*M. Roy Wilson, MD, MS
Chancellor*

University of Colorado at Denver and Health Sciences Center

UCDHSC Officers

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Chancellor

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MS, University of California at Los Angeles

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PhD, Indiana University

The University

The University of Colorado at Denver and Health Sciences Center was formed July 1, 2004 by the consolidation of two established universities in the University of Colorado System. UCDHSC joins the strengths of a comprehensive campus in downtown Denver with the research and advanced health care programs of the Health Sciences Center. Educating more than 27,000 students annually from 50 states and 134 nations, the consolidated university is one of the nation's top public urban research universities.

UCDHSC is committed to becoming the nation's premier urban research university. In urban environments, universities have a particular responsibility to adapt their traditional roles to the development, assessment, transmission and preservation of knowledge to urban need while maintaining the highest standards of education, scholarship and research.

The university operates two primary campus locations—downtown Denver (Auraria campus) and the Anschutz Medical Campus—and expects to complete relocation of units on the 9th and Colorado Boulevard campus by the end of this academic year.

Downtown Campus—Denver

With a solid academic reputation and award-winning faculty, the downtown campus offers more than 80 degree programs at bachelor's, master's and doctoral levels. These programs are offered through seven distinct academic units:

- 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

Located on the Auraria campus, the downtown campus of UCDHSC is just steps away from Denver's historic Lower Downtown district with its myriad entertainment, cultural and sports venues. Because UCDHSC shares the Auraria campus with two other institutions, students have access to facilities and resources comparable to those of much larger public universities. They also enjoy the wide array of internship and job opportunities available in the vital, growing Denver area.

Anschutz Medical Campus—Aurora

In achieving its mission of education, research, patient care and community service, the Health Sciences Center offers 30 degree programs through five schools:

- School of Dentistry
- School of Medicine
- School of Nursing
- School of Pharmacy
- Graduate School

In the laboratories and clinics at UCDHSC's Anschutz Medical Campus, new knowledge is generated and scientific discovery is transferred from the laboratory bench to the patient's bedside. Collaboration flourishes across disciplines, and the resources required for research, education and patient care are seamlessly integrated.

The Anschutz Medical Campus in Aurora includes UCDHSC, the University of Colorado Hospital and University Physicians, Inc. Also on the site are the Children's Hospital and the Bioscience Park being developed by the Fitzsimons Redevelopment Authority in partnership with Forest City Enterprises.

An overview of programs offered on the Anschutz Medical Campus is located in the Health Professions chapter of this catalog. Contact the individual school or program coordinator for details.

ROLE AND MISSION

According to the Colorado Revised Statutes:

The downtown Denver campus of the University of Colorado shall be a comprehensive baccalaureate liberal arts and sciences institution with high admission standards. The downtown Denver campus shall provide selected professional programs and such graduate programs at the master's and doctoral level as will serve the needs of the Denver metropolitan area, emphasizing those professional programs not offered by other institutions of higher education.

The fundamental purposes of UCDHSC's downtown campus are to:

1. Provide students with learning opportunities that will enhance the quality of their lives, that will make them well-educated citizens, that will lead to rewarding careers and that will provide Denver and Colorado with a workforce able to compete in the global economy.
2. Develop research, scholarship and creative work that will advance the base of knowledge in our disciplines and that will contribute to the vitality of our culture and/or economy.
3. Apply the university's skills and knowledge to real problems in the Denver metro area.
4. Build and maintain an institutional culture of plurality, collegiality, integration and customer service.

UNIVERSITY OF COLORADO SYSTEM

The University of Colorado is system of three universities located in Boulder, Colorado Springs and Denver/Aurora. With combined total enrollments of more than 52,000 students, the University of Colorado system ranks 14th among public universities and colleges in overall research expenditures and sixth among public universities in federally funded research. Awards for research within the system total more than \$640 million, with funding provided by federal agencies, appropriations from the state of Colorado and private foundations and donors.

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At A Glance: UCDHSC

Locations

Denver (Auraria Campus)
Anschutz Medical Campus (Aurora)

Total Enrollment

27,000+ students served via on-site
and off-site courses‡
15,271 students enrolled in fall '06*
55% undergraduate
36% graduate
9% first professional
61% full time
8% out-of-state residents
3% international students

Degrees

Bachelor's, master's, doctoral,
first professional

Programs

More than 100 degree programs

Schools and Colleges

Downtown Denver

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

Anschutz Medical Campus

School of Dentistry
School of Medicine
School of Nursing
School of Pharmacy
Graduate School

Research Funding

More than \$374 million in
sponsored research

Alumni

79,866 (66% live in Colorado)

Downtown Campus Attributes

Enrollment

12,374*
7,869 Undergraduate*
(46% male, 54% female)
4,505 Graduate*
(43% male, 57% female)

Student-Faculty Ratio

15:1*

Incoming

Freshmen: 948
Transfers: 1,170
Graduate Students: 833

Diverse Population

23% ethnic minority
Undergraduate: 28%
Graduate: 13%
Average age: 27
Undergraduate: 24
Graduate: 33

Student Body

From 50 states and 125 countries‡

Downtown Bragging Rights

U.S. News & World Report
America's Best Graduate Schools
School of Education & Human
Development, Top Education
Programs #70, 2007
School of Public Affairs,
Top Schools #35, 2007

The Princeton Review
America's Best Value Colleges
Best Western Colleges,
Best in the West, 2007

Modern Healthcare

Top Business Graduate Schools for
Physician-Executives #6, 2006

Health Sciences Center Attributes

Enrollment

2,897*
Undergraduate: 421*
(10% male, 90% female)
Graduate: 1,034*
(26% male, 74% female)
First Professional: 1,442
(41% male, 59% female)

Diverse Population

17% ethnic minority

Average Age

Undergraduate: 30
Graduate: 32
First Professional: 27

Health Sciences Center Bragging Rights

*U.S. News & World Report, America's Best
Graduate Schools*

America's Best Graduate Schools, 2008
School of Medicine—The Top Schools:
Primary Care (#3)
School of Medicine—The Top Schools:
Research (#23)

Specialties:

7th in pediatrics
7th in family medicine
26th in internal medicine
The Sciences: Biological Sciences—PhD
Programs Ranked Best by Deans and
Department Chairs: Biological Sciences (#48)

School of Nursing

Specialties:

Nurse Practitioner: Pediatric, #3
Nurse Practitioner: Family, #5
Nurse Practitioner: Adult, #8
Clinical Nurse Specialist: Community/
Public Health, #6

*Fall 2006 enrollment data ‡Fiscal Year 2005-2006 data

Board of Regents

Tilman “Tillie” Bishop
Grand Junction
term expires 2013

Steve Bosley, Vice Chair
Louisville
term expires 2011

Cindy Carlisle
Boulder
term expires 2009

Michael Carrigan
Denver
term expires 2011

Patricia Hayes, Chair
Aurora
term expires 2009

Kyle Hybl
Colorado Springs
term expires 2013

Thomas J. Lucero, Jr.
Johnstown
term expires 2011

Steve Ludwig
Denver
term expires 2013

Paul Schauer
Centennial
term expires 2009

Staff
Milagros Cortez
Secretary of the University
and of the Board of Regents
*BA, MS, State University
of New York at Albany
MA, Webster University*

History and Evolution of UCDHSC

- 1876 Legislature founds the University of Colorado
- 1883 Medical department opens with two students
- 1898 CU establishes School of Nursing
- 1912 CU organizes the Department of Correspondence and Extension in Denver
- 1913 CU establishes School of Pharmacy
- 1925 CU dedicates 9th and Colorado Blvd. medical center
- 1956 Regents purchase Tramway Building for Extension Division
- 1965 Regents change extension name to University of Colorado-Denver Center
- 1972 CU-Denver Center changes name to University of Colorado at Denver
- 1973 School of Dentistry enrolls its first class; state begins building Auraria campus
- 1974 CU reorganizes as a four-campus system
- 1988 CU Denver moves into the 257,000 square-foot North Classroom Building on the Auraria campus
- 1992 School of Pharmacy moves from Boulder to Health Sciences Center
- 1995 Government conveys 217 acres at Fitzsimons to CU for modern health sciences facility
- 2000 First new and remodeled facilities open at Fitzsimons
- 2004 Regents consolidate CU-Denver and Health Sciences Center to form the University of Colorado at Denver and Health Science Center (UCDHSC)
- 2006 Fitzsimons campus renamed Anschutz Medical Campus
- 2008 UCDHSC projects completion of move from 9th and Colorado Blvd. to Anschutz Medical Campus

ACCREDITATION

The Denver campus of the University of Colorado at Denver and Health Sciences Center is institutionally accredited by the Higher Learning Commission of North Central Association of Colleges and Schools. The commission can be contacted at:
30 N. LaSalle Street, Suite 2400
Chicago, IL 60602-2504
Telephone: 1-800-621-7440
Web site: www.ncacihe.org

Many professional organizations have also granted accreditation to programs, colleges and schools at the downtown Denver campus of UCDHSC, including:

- Association for the Advancement of Collegiate Schools of Business—International
- American Chemical Society
- Colorado State Board of Education
- Commission on Accreditation of Healthcare Management Education
- Council for Accreditation of Counseling and Related Educational Programs

- Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology
- Landscape Architecture Accreditation Board
- National Architectural Accrediting Board
- National Association of Schools of Music
- National Association of School Psychologists
- National Association of Schools of Public Affairs and Administration
- National Council for the Accreditation of Teacher Education
- Planning Accreditation Board

ACADEMIC PROGRAMS

UCDHSC's downtown campus is devoted to the needs of the residents of Denver and the region. A solid foundation of academic and general education is assured through a comprehensive core curriculum. Students may pursue graduate education through all of the campus' colleges and schools. Pre-professional training in the fields of education, law, journalism and health careers are also available. Complete listings of areas of study available on the downtown campus are published in the Information for Undergraduate Students and Information for Graduate Students chapters of this catalog.

The colleges and schools chapters of this catalog provide information on bachelor's, master's and doctoral degree programs, policies on requirements for graduation, course requirements, course load policies, course descriptions and similar information.

Continuing and Professional Education

The Division of Continuing and Professional Education at the downtown Denver campus offers complete degree programs, certificate/certification courses, professional development programs, precollegiate outreach programs and personal enrichment courses across the state of Colorado. Courses are offered in a variety of formats, including traditional on-campus, off-campus, online, hybrid, weekend, evening, short and condensed courses and many others.

Registration and tuition varies by school or college. Contact the corresponding school or college listed below to learn about current program and course offerings, or contact the Academic Technology and Extended Learning office at 303-556-2040 or visit our Web site at <http://learn.cudenver.edu>.

- Academic Technology and Extended Learning, 303-556-2040
- College of Architecture and Planning, 303-556-3382
- College of Arts & Media, 303-556-2279
- Business School (Professional Development Programs), 303-556-5875
- School of Education & Human Development, 303-556-6030

College of Engineering and Applied Science (Continuing Engineering Education), 303-556-4907

College of Liberal Arts and Sciences, 303-556-2557

School of Public Affairs, 303-556-5970

ABOUT OUR STUDENTS

The diversity of our student body is a source of deep pride. Ethnic minority students make up 23 percent of the student population. Classes include traditional students who have elected to pursue college degrees immediately after high school, transfer students, students who have delayed college entry and professionals who seek to strengthen their base of skills or broaden their appreciation of the world.

With students' ages ranging between 15 and 71, the average undergraduate student age on the downtown campus is 24, while our graduate students average 33. They represent a distinctive mix of ages and backgrounds. Around 80 percent of our students are employed, and 44 percent attend part-time. Thirty-eight percent are enrolled in graduate-level courses. All take advantage of the convenience of course offerings at times that meet their schedules, enjoying an enviable student-to-faculty ratio of 15:1.

RELATED ORGANIZATIONS

Alumni Association

Mailing Address: Campus Box 189, P.O. Box 173364,
Denver, Colorado 80217

Telephone: 303-556-2549

Fax: 303-556-6545

E-mail: alumni@cudenver.edu

The University of Colorado at Denver and Health Sciences Center Alumni Association provides programs and services of mutual benefit to

graduates and the university. Founded in 1976, the downtown Denver campus association is governed by a board of alumni representing all schools and colleges on campus. Students automatically become Alumni Association members upon graduation and receive the *CU on the Horizon* newsletter, published twice a year. Alumni are invited to work on volunteer committees, which include recognizing 4.0 students through the Academic Athlete program, providing financial assistance to undergraduate students through a scholarship fund and bestowing Alumni Association awards to worthy community leaders and volunteers. The association also invites alumni to attend periodic seminars and events.

University of Colorado Foundation

Mailing Address: 225 East Sixteenth Avenue, Suite 900,
Denver, Colorado 80203

Telephone: 303-813-7900

Fax: 303-813-7958

Web site: www.cufund.org

Established in 1967, the University of Colorado Foundation is a privately governed nonprofit corporation whose mission is to support the University of Colorado. The Denver office of the CU Foundation was established to advance the Denver and Health Sciences Center's goal to become one of the nation's premier urban institutions.

The CU Foundation raises and manages private funds that endow scholarships and professorships, further research, enrich academic programs, upgrade and construct facilities and support projects that benefit students, faculty and the community.

The university's academic leadership establishes priorities for private support, and gifts are directed to the specific schools, program or purpose that the donor designates. Professional fundraisers identify and/or generate interest in the university, assist donors in gift planning and solicit gifts in collaboration with academic leaders.

Information for Undergraduate Students

At UCDHSC, five undergraduate schools and colleges (College of Arts & Media, Business School, College of Engineering and Applied Science, College of Liberal Arts and Sciences and School of Public Affairs) provide a diverse array of baccalaureate majors, minors, certificates and teacher licensure to meet the ever-challenging demands of a global society. Your undergraduate education consists of a core curriculum (general education), a major and elective courses. The campuswide core curriculum develops proficiency in writing and mathematics, cultivates a breadth of knowledge, promotes critical thinking, allows you the flexibility to meet your career goals and helps you develop sensitivity to cultural diversity and international perspectives.

UNDERGRADUATE ADMISSIONS

Assistant Vice Chancellor for Enrollment Management:

Barbara Edwards
Office: 1250 West 14th Street—Annex
Telephone: 303-556-2704
Fax: 303-556-4838
E-mail: admissions@cudenver.edu
Web site: www.cudenver.edu/admissions

The downtown Denver campus of UCDHSC seeks to identify applicants who are likely to be successful in an academic program of study. Admission decisions are based on many factors, the most important being:

- level of previous academic performance
- evidence of academic ability and accomplishment as indicated by scores on national aptitude tests
- evidence of maturity, motivation and potential for academic success

UCDHSC may deny admission to new applicants or re-admission to former students whose credentials indicate an inability to assume obligations of performance and behavior deemed essential by the university.

After completing the application process, official notification of one's admissions status as an undergraduate, graduate or nondegree student is provided by the Office of Admissions. Letters from various schools and colleges indicating acceptance into a particular program are pending, subject to official notification of admission to the institution by the admissions office.

Students who are admitted pending receipt of additional documents or with unofficial documents will be permitted one term to submit the documents. If temporarily waived official documents are not received by the end of the initial term of attendance, registration for subsequent terms will be denied. If at any time additional credentials are received that affect the student's qualifications, the university reserves the right to change the admission decision.

Applicants who have not decided upon a major field of study will be considered for admission to the College of Liberal Arts and Sciences as undetermined majors. Students admitted as undetermined majors should declare a major as quickly as possible and no later than the end of their sophomore year.

All questions about admission to the downtown Denver campus of UCDHSC and requests for application forms should be directed to 303-556-2704 or admissions@cudenver.edu. Send correspondence to:

Office of Admissions
 University of Colorado at Denver and Health Sciences Center
 Campus Box 167, P.O. Box 173364
 Denver, CO 80217-3364

Application Deadlines

The university may change document/credential deadlines in accordance with enrollment demands. For the best scholarship and registration time considerations, applicants should apply and be admitted as early as possible. For an applicant to be considered for a specific term, all documents required for admission must be received in the Office of Admissions by the deadline for that term. Applicants who are unable to meet the deadline may elect to be considered for a later term. Transfer students are reminded that they should allow sufficient time to have transcripts sent from institutions they have previously attended.

Advanced planning and early application are necessary for the timely admission of international students. International students are advised that it usually takes 60 days for credentials to reach admissions in the International Education office from international locations. International transfer students should complete the transfer information request form found in the application packet.

Application Deadline for Priority Consideration (excluding music majors)

Fall	Spring	Summer
July 22	December 1	May 3

Minimum Academic Preparation Standards (MAPS)

Students entering the University of Colorado who graduated from high school in 1988 or later are required to meet the following minimum academic preparation standards:

COLLEGE OF ARTS & MEDIA	Years
English (literature, composition, grammar), one year of speech/debate strongly recommended	4
Mathematics (excluding business and consumer mathematics)	3
Natural science	3
Social science	2
Foreign language (all units must be in a single language)	2
Academic elective	1
Total	15

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At A Glance: Undergraduate Areas of Study

Undergraduate Degrees

BA = Bachelor of Arts
 BACJ = Bachelor of Arts in Criminal Justice
 BFA = Bachelor of Fine Arts
 BS = Bachelor of Science

Academic Emphasis Areas

College/School

3D Graphics and Animation*	Arts & Media
Accounting*	Business
Accounting and Information Systems*	Business
Actuarial Science*	Liberal Arts and Sciences
Anthropology (BA)	Liberal Arts and Sciences
Applied Mathematics*	Liberal Arts and Sciences
Art History*	Arts & Media
Biology (BS)	Liberal Arts and Sciences
Business Administration (BS)	Business School
Chemistry (BS)	Liberal Arts and Sciences
Cinematography/Videography*	Arts & Media
Civil Engineering (BS)	Engineering and Applied Science
Communication (BA)	Liberal Arts and Sciences
Computer Engineering*	Engineering and Applied Science
Computer Science*	Liberal Arts and Sciences
Computer Science and Engineering (BS)	Engineering and Applied Science
Creative Writing*	Liberal Arts and Sciences
Criminal Justice (BACJ)	Public Affairs
Design (Theatre, Film and Television)*	Arts & Media
Discrete Mathematics*	Liberal Arts and Sciences
Drawing*	Arts & Media
Earth Science*	Liberal Arts and Sciences
Economics (BA)	Liberal Arts and Sciences
Economics, Development and Environment*	Liberal Arts and Sciences
Electrical Engineering (BS)	Engineering and Applied Science
English (BA)	Liberal Arts and Sciences
English-Writing (BA)	Liberal Arts and Sciences
Environmental Science*	Liberal Arts and Sciences
Environmental Studies*	Liberal Arts and Sciences
Film Studies (English)*	Liberal Arts and Sciences
Financial Management*	Business
Financial Management Systems*	Business
Fine Arts (BA/BFA)	Arts & Media
French (BA)	Liberal Arts and Sciences
General Geography*	Liberal Arts and Sciences
Geography (BA)	Liberal Arts and Sciences
History (BA)	Liberal Arts and Sciences
Human Resources*	Business
Individually Structured Major (BA)	Liberal Arts and Sciences
Information Systems*	Business

Academic Emphasis Areas

International Business*	Business
International Commerce*	Liberal Arts and Sciences
International Relations and Comparative Politics*	Liberal Arts and Sciences
International Studies (BA)	Liberal Arts and Sciences
Language, Culture and Literature*	Liberal Arts and Sciences
Literature*	Liberal Arts and Sciences
Management*	Business
Management and Information Systems*	Business
Marketing*	Business
Marketing and Information Systems*	Business
Math Education*	Liberal Arts and Sciences
Mathematics (BS)	Liberal Arts and Sciences
Mechanical Engineering (BS)	Engineering and Applied Science
Medical Physics*	Liberal Arts and Sciences
Multimedia*	Arts & Media
Music (BS)	Arts & Media
Music Business*	Arts & Media
Music Performance*	Arts & Media
Music Industry Studies*	Arts & Media
Organismic Biology*	Liberal Arts and Sciences
Painting*	Arts & Media
Performance (Theatre, Film and Television)*	Arts & Media
Philosophy (BA)	Liberal Arts and Sciences
Photography*	Arts & Media
Physics (BS)	Liberal Arts and Sciences
Political Science (BA)	Liberal Arts and Sciences
Post-Production*	Arts & Media
Probability and Statistics*	Liberal Arts and Sciences
Production, Direction and Development*	Arts & Media
Psychology (BA/BS)	Liberal Arts and Sciences
Public Policy and Administration*	Liberal Arts and Sciences
Pure and Applied Physics*	Liberal Arts and Sciences
Pure Mathematics*	Liberal Arts and Sciences
Recording Arts*	Arts & Media
Regional Societies and History*	Liberal Arts and Sciences
Sculpture*	Arts & Media
Sociology (BA)	Liberal Arts and Sciences
Spanish (BA)	Liberal Arts and Sciences
Theatre, Film and Television (BA/BFA)	Arts & Media
Urban Studies*	Liberal Arts and Sciences
Writing/Directing (Theatre, Film and Television)*	Arts & Media

College/School

Pre-professional Programs in

Prehealth careers (Child Health Associate, Dentistry, Dental Hygiene, Medicine, Medical Technology, Nursing, Optometry, Pharmacy, Physical Therapy and Veterinary Medicine)
 Prelaw

Teacher Education Licensure in

Elementary Education
 Secondary English
 Secondary Foreign Language (French, Spanish)
 Secondary Mathematics
 Secondary Social Studies

*Indicates areas of emphases within formal degree programs

BUSINESS SCHOOL	Years
English (one year of speech/debate and two years of composition are strongly recommended)	4
Mathematics (including at least two years of algebra and one year of geometry)	4
Natural science (including two years of laboratory science)	3
Social science (including history)	2
Foreign language (all units must be in a single language)	2
Academic electives (additional courses in English, foreign language, mathematics, natural or social science, not to include business courses)	1
Total	16

COLLEGE OF ENGINEERING AND APPLIED SCIENCE

English (literature, composition, grammar), one year of speech/debate strongly recommended	4
Mathematics distributed as follows:	
Algebra	2
Geometry	1
Trigonometry and analytical geometry	1
Natural sciences (to include one unit physics and one unit chemistry; also to include two units of laboratory science)	3
Foreign language	2
Social science	2
Electives	1
Total	16

COLLEGE OF LIBERAL ARTS AND SCIENCES

English (literature, composition, grammar)	4
one year of speech/debate strongly recommended	
Mathematics (excluding business and consumer mathematics)	3
Natural science	3
Social science	2
Foreign language (all units must be in a single language)	2
Academic elective	1
Total	15

Students with MAPS deficiencies may be admitted to the university provided they meet the other admission standards (e.g., test scores, rank in high school class, GPA) and provided they make up any deficiencies prior to graduation from the university. Two levels of deficiency will be recognized.

1. One unit of deficiency will be allowed, provided the student meets other admission standards and provided the student makes up the deficiency before graduation from the university. Courses taken to make up a deficiency will count toward graduation, provided the school or college on the downtown Denver campus accepts those course credits toward graduation.
2. A student having more than one unit of deficiency may be admitted, provided that the student meets other standards of the university. The student must make up additional deficiencies before graduation. The student may satisfy the MAPS requirements by successful completion of:
 - courses taken at CU
 - courses taken at other institutions of higher education
 - additional high school credits
 - credit-by-examination programs
 - other requirements as approved by each college on the downtown Denver campus

Admission Requirements for Freshmen

Freshman admission standards define the level of success and achievement necessary to be admitted to UCDHSC and include factors that predict academic success, such as scores on the ACT or SAT, high school course work and GPA. Both the subjects the student has studied and how the student has performed will be factors that determine admission to the university.

New freshmen may apply for admission to the Colleges of Arts & Media, Engineering and Applied Science, Liberal Arts and Sciences and the Business School.

The applicant must be a high school graduate or have been awarded a High School Equivalency Certificate by completing the General Education Development (GED) test.

Preference for admission is given to applicants who rank in the top 30 percent of their high school graduating class and present a composite score of 21 or higher on the ACT or a combined score of 950 or higher on the SAT.

Business applicants will receive priority consideration if they graduated in the top 25 percent of their high school class and achieved a composite score of at least 26 on the ACT or 1100 on the SAT.

Applicants who do not meet the admission requirements for direct admission to the Business School will be automatically considered for admission as prebusiness majors in the College of Liberal Arts and Sciences.

Engineering applicants will receive priority consideration if they graduated in the top 25 percent of their high school class and achieved a composite score of at least 26 on the ACT, with 28 on the mathematics section, or 1100 total on the SAT, with 600 on the mathematics section. Applicants who do not meet the admissions requirements for direct admission to the College of Engineering will be automatically considered for admission as pre-engineering majors in the College of Liberal Arts and Sciences.

All **music majors** in the College of Arts & Media (except music industry studies) are expected to have had previous experience in an applied music area. For performance students, two years of prior piano training are recommended. An audition is required, but can be deferred for students in the MIS track. In addition, other application requirements as outlined on the music department Web site, www.cudenver.edu/cam/meis, must be completed by the deadline date noted. Admission to the music major is selective, and qualified applicants are pooled and reviewed by an admissions committee. Interested students should contact the Department of Music at 303-556-2279, for audition and other application information.

Applicants for all departments who do not satisfy the requirements for priority consideration are reviewed on an individual basis.

HOW TO APPLY

1. Students may apply online or obtain an application for undergraduate admission from a Colorado high school counselor, from the downtown Denver campus Office of Admissions, or at www.cudenver.edu/Admissions.
2. The application must be completed and sent to the Office of Admissions with a \$50 (subject to change) nonrefundable fee. For applicants who are granted admission but are unable to enroll for that term, the \$50 application fee will remain valid for 12 months, provided the Office of Admissions is informed of the intent to enroll for a later term.
3. Students are required to have their high school send an official transcript of their high school grades, including class rank, to the Office of Admissions. Official transcripts are those sent by the issuing institution *directly* to: Office of Admissions, University of Colorado at Denver and Health Sciences Center, Campus Box 167, P.O. Box 173364, Denver, CO 80217-3364
Hand-carried or faxed copies are not official.

- Students who did not graduate from high school are required to have a copy of their GED test scores and GED certificate sent directly from the certifying agency to the downtown Denver campus Office of Admissions. Official high school transcripts must also be submitted but are not the basis of an admission decision.
- Students are required to take either the ACT or the SAT and request that test scores be sent to UCDHSC's downtown Denver campus (ACT code 0533 or SAT code 4875). High school students may obtain ACT and SAT test dates and locations from their counselors.

Students who took one of these tests while in high school may use the test scores reported on their official high school transcripts as an official test score report.

Applicants who took one of these tests and did not designate UCDHSC as the recipient of the scores must notify the testing agency to send scores to the downtown Denver campus. A request for additional score report may be requested from any of the offices listed below.

American College Testing Program (ACT)
P.O. Box 168
Iowa City, Iowa 52243
319-337-1270
www.ACT.org

The College Board (SAT)
P.O. Box 6201
Princeton, New Jersey 08541-6201
609-771-7600
www.collegeboard.com

- Students who completed college course work while in high school must submit an official transcript from each college or university attended.
- International students must submit an international student application for admission and provide additional documentation (see the "International Education" chapter of this catalog).

APPLICANTS NOT GRANTED ADMISSION

An applicant who is not granted admission as an entering freshman may wish to consider transferring to the university after successful study elsewhere. The Office of Admissions urges such students to complete at least one full semester (13 minimum semester hours) of college-level course work at another college or university, giving special attention to courses that will provide sound academic preparation for future transfer to UCDHSC. These courses should include any minimum academic preparation standards (MAPS) not met in high school (see the MAPS requirements).

Freshman students who are not admissible will be encouraged to participate in a partners program that UCDHSC has established with Colorado community colleges.

All credentials presented for admission become the property of the University of Colorado and must remain on file.

Students who knowingly falsify transcripts or test scores or who fail to indicate all previously attended institutions will be denied admission to, or will be disenrolled from, the university.

Admission Requirements for Transfer Students

Applicants are considered as transfer students for admission purposes if they have completed any number of college courses since graduating from high school. Applicants with any number of college courses taken only prior to high school graduation are considered as freshmen for admission purposes and should consult the "Admission Requirements for Freshmen" section of this chapter. College credit taken before high school graduation can be considered for transfer to the downtown Denver campus.

For students with 12 or fewer semester hours of completed college-level course work at the time of application, admission consideration is based on high school GPA, quality of courses taken, rank in class, ACT or SAT scores, and college or university GPA.

For students with 13 to 23 semester hours of completed college-level course work at the time of application, admission consideration is based primarily upon performance in college courses, but high school transcripts are still required. ACT or SAT scores are desirable, but not required.

For students with 24 or more semester hours of completed college-level course work at the time of application, consideration for admission is made based upon college course work alone. High school records and ACT or SAT scores are not required.

For all students, the cumulative GPA is calculated as or converted to a 4.0 scale and will include all college or university course work attempted at any regionally accredited institution of higher education or comparable foreign institution.

Admission Criteria by Academic Program

College of Arts & Media and College of Liberal Arts and Sciences: A minimum 2.4 cumulative GPA is required, but anyone with at least a 2.0 cumulative GPA may be considered. Music majors have a required audition (applicants for music industry studies may request a deferment), and additional application requirements must be completed by the Department of Music deadline. (Visit www.cudenver.edu/cam/meis.) Admission to the music major is selective and qualified applicants are pooled and reviewed by an admissions committee.

The Business School: Students must have a 3.0 cumulative GPA on at least 24 credits that apply to the business degree program, or a 3.0 in the 24 most recent credits that apply to the business degree program. Students with at least a 2.6 cumulative GPA are considered on an individual basis. Students with fewer than 80 college credits who are not offered admission to the Business School will be automatically considered for prebusiness admission in the College of Liberal Arts and Sciences.

College of Engineering and Applied Sciences: A full year of college calculus and calculus-based physics or calculus-based physics I and general college chemistry I must be completed with *B* or better grades. Grades of *B* are required in all other math and science courses and the cumulative GPA must be at least 2.75. Students meeting most, but not all of these standards are fully considered. Students with fewer than 80 college credits who are not offered admission to the College of Engineering and Applied Science will be automatically considered for pre-engineering admission in the College of Liberal Arts and Sciences.

HOW TO APPLY

- Obtain an application for undergraduate admission from the UCDHSC Office of Admissions or submit an electronic application at www.cudenver.edu/admissions.
- Complete and return the application along with the required nonrefundable \$50 application fee (subject to change). If applying online, mail the application fee directly to the Office of Admissions according to Web instructions.
- Request that one official transcript be sent directly from each college or university attended, including foreign institutions, directly to the downtown Denver campus Office of Admissions. Transcripts are considered official only if received in this manner. If not in English, a certified English translation must accompany each official transcript. Official transcripts should be sent to:

Office of Admissions
UCDHSC Downtown Denver Campus
Campus Box 167
PO Box 173364
Denver, CO 80217-3364

4. If fewer than 13 college-level semester hours are completed at the time of application, submit official high school transcripts and ACT or SAT scores. ACT or SAT scores recorded on the high school transcript are considered official.
5. If between 13 and 23 college-level semester hours are completed at the time of application, submit official high school transcripts.

If a student is enrolled at a college or university at the time of application, official transcripts showing course work completed to date should be sent as indicated above. One official final transcript must also be requested by the student and sent directly to the Office of Admissions when grades are recorded after the student's final semester.

All credentials presented for admission consideration become the property of the University of Colorado and will not be copied for or returned to the student.

The University of Colorado at Denver and Health Sciences Center reserves the right to deny admission to transfer students not deemed to have completed college-level course work at the sending institution, and/or those who are not eligible to return to their previous college or university campuses.

Students who knowingly falsify transcripts or test scores or who fail to indicate all previously attended institutions will be denied admission to, or will be disenrolled from, the university.

TRANSFER OF COLLEGE-LEVEL CREDIT

Course work taken at any regionally accredited institution of higher education will be considered for transfer to UCDHSC. Courses are considered for transfer on the basis of having similar content to those offered by UCDHSC. Statewide guaranteed transfer courses (gtPATHWAYS) are always accepted and apply to requirements. Developmental, remedial, vocational, technical, religious doctrinal, orientation, independent study, special topics and cooperative education courses are not accepted. Only courses in which a grade of C- or better was earned are considered for transfer. Courses in which a grade of Pass (P) was earned are considered for transfer only if a grade of Pass at the sending institution is defined as a C- or better. Students wishing to appeal transfer credit decisions should contact their academic department.

After all official transcripts have been received and the student is admitted as a degree student, the Office of Admissions will prepare a transfer credit report indicating which courses have been accepted in transfer by UCDHSC. A copy of this report is mailed to the student as well as to the student's academic department on the downtown Denver campus. Upon receipt of this transfer credit report, students should contact their academic department to meet with an advisor, who will determine how transferred credit applies to specific degree requirements.

The Office of Admissions considers course work for transfer regardless of the age of the academic credit. State guaranteed general education courses will be accepted in transfer and applied to graduation requirements for a period of at least 10 years after course completion. Individual departments, however, may have specific guidelines and policies about age of credit for courses not listed as "state guaranteed" and make the final decision about application of credit toward a degree program. Students are expected to have current working knowledge of prerequisite courses, regardless of when prerequisite courses were taken.

The Business School generally limits its transfer of business course credits to those that are offered as lower-division courses at the downtown Denver campus. Students who have taken upper-division business courses from an American Assembly of Collegiate Schools of Business-accredited college of business may request review of these courses for possible transfer by contacting the Business School advising office. All courses taken in the business area of emphasis must be completed at the downtown campus.

The College of Engineering and Applied Science, in general, requires that engineering course transfer credit must come from an Accreditation Board for Engineering and Technology-accredited engineering program to be acceptable for degree purposes. Engineering technology courses are not considered equivalent to engineering courses.

A maximum of 60 semester hours is acceptable in transfer from community or junior colleges. A maximum of 90 semester hours is acceptable from four-year institutions or a combination of two- and four-year institutions.

Colorado Community College Transfer

In compliance with Colorado's Statewide Transfer Policy, students may transfer credit from a Colorado community college on a course-by-course basis or by completing an associate of arts (AA) or associate of science (AS) degree. Students who complete an AA/AS degree may be guaranteed full transfer of the associate degree (60 credits maximum).

The guaranteed transfer program applies only to students who began Colorado community college studies in fall 2003 or later and who meet the following requirements:

- complete an AA/AS degree, which includes 31 credits of state-guaranteed general education courses
- earn credit only at Colorado community colleges within the last 10 years
- earn a grade of C- or better in each course

Statewide articulation agreements are in place governing transfer of students from Colorado community colleges into programs in the Business School, the College of Engineering and Applied Science, and the Elementary Education Teacher Licensure program.

Transfer advising plans for Colorado Community College students are available from the Office of Admissions and at www.cudenver.edu. In addition, an admissions representative can assist students with planning a transfer program. Representatives regularly visit Colorado community colleges. Call the transfer service coordinator at 303-556-4950 or e-mail transfer@cudenver.edu for additional information.

Advanced Placement Program

The Advanced Placement Program of the College Entrance Examination Board (CEEB) allows students to take advanced work while in high school and then be examined for credit at the college level. Students who take advanced placement courses and subsequently receive scores of 4 or 5 on the CEEB Advanced Placement Examination are generally given college credit for lower-level courses in which they have demonstrated proficiency. Credit is also granted for scores of 3 plus a course grade of A- in the corresponding subject. For more information, contact your academic advisor and see the chart in this section of this catalog.

College-Level Examination Program

Incoming students may earn university credit by examination in subject areas in which they have demonstrated college-level proficiency. Interested students may take approved examinations through the College-Level Examination Program (CLEP) of the College Entrance Examination Board (CEEB) testing service.

Acceptable CLEP examinations and credit awards are outlined in the chart in this section of the catalog.

International Baccalaureate Diploma Program

The International Baccalaureate Diploma Program (IB), available at select high schools, is a rigorous, preuniversity course of study emphasizing liberal arts from an international perspective.

In accordance with HB 03-1108, the University of Colorado at Denver and Health Sciences Center will grant at minimum 24 semester hours of credit for any student who has graduated from high school having successfully completed an International Baccalaureate (IB) diploma program with a minimum score of 4 on each exam. Credit may be granted for most individual IB courses where examinations are completed with at least a score of 4 for students who do not complete an IB diploma program. For additional information, students should contact their academic advisors and refer to the chart in this section of the catalog.

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TRANSFER OF AP, CLEP AND IB CREDIT

Advanced Placement (AP):				
DUPLICATE CREDIT FOR EXAMS AND/OR COLLEGE COURSES WITH SIMILAR CONTENT IS NOT AWARDED				
Subject Area:	Examination Title:	Minimum Score:	Credit Hours Awarded:	UCDHSC Equivalent Course:
Art	Art History	5, 4, 3 (See Note 1)	6	FA 2600, FA 2610
	Studio Art – Drawing Portfolio	5, 4, 3 (See Note 1)	3	FA 1100
	Studio Art – 2-D Design Portfolio	5, 4, 3 (See Note 1)	3	FA 1400
	Studio Art – 3-D Design Portfolio	5, 4, 3 (See Note 1)	3	FA 1500
Biology	Biology – Exam only (See Note 2)	5, 4	6	BIOL 2051, BIOL 2061
	Biology – Exam and full-year AP course (See Note 3)	5, 4, 3 (See Note 1)	8	BIOL 2051, BIOL 2061, BIOL 2071, BIOL 2081
Chemistry	Chemistry – Exam only (See Note 2)	5, 4	6	CHEM 2031, CHEM 2061
	Chemistry – Exam and full-year AP course (See Note 3)	5, 4, 3 (See Note 1)	9	CHEM 2031, CHEM 2038, CHEM 2061, CHEM 2068
Computer Science	Computer Science A	5, 4, 3 (See Note 1)	3	(See Note 4)
	Computer Science A,B	5, 4, 3 (See Note 1)	6	(See Note 5)
English	Composition/Literature	5, 4, 3 (See Note 1)	6	ENGL 1020, None
	Language/Composition	5, 4, 3 (See Note 1)	6	ENGL 1020, None
Economics	Economics: Macro	5, 4, 3 (See Note 1)	3	ECON 2012
	Economics: Micro	5, 4, 3 (See Note 1)	3	ECON 2022
Environmental Science	Environmental Science – Exam only	5, 4	3	None
	Environmental Science – Exam and full-year AP course	5, 4, 3 (See Note 1)	4	ENVS 1042
French	French Language	5	6	FR 2120, None
	French Language	4	6	FR 2110, FR 2120
	French Language	3 (See Note 1)	3	FR 2110
	French Literature	5	6	None
	French Literature	4	3	None
	French Literature	3 (See Note 1)	3	FR 2120
Geography	Human Geography	5, 4, 3 (See Note 1)	3	GEOG 1302
German	German Language	5	6	GR 2120, None
	German Language	4	6	GR 2110, GR 2120
	German Language	3 (See Note 1)	3	GR 2110
Government – (Political Science)	Government and Politics (US)	5, 4, 3 (See Note 1)	3	P SC 1101
	Government and Politics (Comparative)	5, 4, 3 (See Note 1)	3	P SC 1001
History	American History	5, 4, 3 (See Note 1)	6	HIST 1361, HIST 1362
	European History	5, 4, 3 (See Note 1)	6	HIST 1211, HIST 1212
	World History	5, 4, 3 (See Note 1)	6	HIST 1016, HIST 1026
Latin/Classics	Latin Vergil	5, 4	6	LATN 2010, LATN 2020
	Latin Vergil	3 (See Note 1)	3	LATN 2010
	Latin Catullus Horace	5, 4	6	None
	Latin Catullus Horace	3 (See Note 1)	3	None

Subject Area:	Examination Title:	Minimum Score:	Credit Hours Awarded:	UCDHSC Equivalent Course:
Math-Calculus	Calculus AB	5, 4, 3 (See Note 1)	4	MATH 1401
	Calculus (EN) AB	5, 4, 3 (See Note 1)	4	MATH 1401
	Calculus BC	5, 4, 3 (See Note 1)	8	MATH 1401, MATH 2411
	Calculus (EN) BC	5, 4, 3 (See Note 1)	8	MATH 1401, MATH 2411
Music	Music Theory	5, 4, 3 (See Note 1)	3	PMUS 1100 (See Note 6)
Physics	Physics B – Exam only (See Note 2)	5, 4	8	PHYS 2010, PHYS 2020
	Physics C – Exam only (Mechanics) (See Note 2)	5, 4	4	PHYS 2311
	Physics C – Exam only (Elec/Mag) (See Note 2)	5, 4	4	PHYS 2331
	Physics B – Exam and full-year AP course (See Note 2)	5, 4, 3 (See Note 1)	10	PHYS 2010, PHYS 2020, PHYS 2030, PHYS 2040
	Physics C (Mechanics) (See Note 3)	5, 4, 3 (See Note 1)	4	PHYS 2311, PHYS 2321
	Physics C (Elec/Mag) (See Note 3)	5, 4, 3 (See Note 1)	4	PHYS 2331, PHYS 2341
Psychology	Psychology	5, 4, 3 (See Note 1)	3	PSY 1000 or 1005 or Elective
Spanish	Spanish Language	5	6	SPAN 2120, None
	Spanish Language	4	6	SPAN 2110, SPAN 2120
	Spanish Language	3 (See Note 1)	3	SPAN 2110
	Spanish Literature	5	6	None
	Spanish Literature	4	3	None
	Spanish Literature	3 (See Note 1)	3	SPAN 2120
Statistics	Statistics	5, 4, 3 (See Note 1)	3	MATH 2830 or QUAN 2010

Note 1: An AP exam score of 3 requires a minimum grade of *A* in the second semester of the high school AP course for credit to be awarded.

Note 2: Students may take the corresponding UCDHSC laboratory course to meet a lab science core curriculum or major requirement. See the academic department for additional information.

Note 3: Students must meet the major department's laboratory proficiency standards before enrolling in additional laboratory courses. See the academic department for additional information.

Note 4: Computer science majors who demonstrate proficiency in C++ programming will receive credit that substitutes for C SC 1410. Business majors will receive credit that substitutes for ISMG 2200.

Note 5: Computer science majors who demonstrate proficiency in C++ programming will receive credit that substitutes for C SC 1410 and C SC 2421. Business majors will receive credit that substitutes for ISMG 2200 and three elective credits.

Note 6: Students must pass a proficiency exam before enrolling in PMUS 1200. Contact CAMadvising@cudenver.edu for information.

UNIVERSITY OF COLORADO AT DENVER AND HEALTH SCIENCES CENTER SCHOOL CODE:

4875

OFFICIAL SCORE REPORTS ARE REQUIRED FOR TRANSFER CREDIT EVALUATION

SEND TO:

UCDHSC

Office of Admissions, Box 167

P.O. Box 173364

Denver, CO 80217-3364

OFFICIAL SCORE AND ADDITIONAL INFORMATION MAY BE OBTAINED BY CONTACTING

The College Board

AP Services

P.O. Box 6671

Princeton, NJ 08541-6671

(888) 225-5427

www.collegeboard.com

Important Note: Credit award and course equivalencies listed in this table apply only to degree programs at the downtown Denver campus. Students planning to complete degrees at other institutions and/or fulfill professional program prerequisites should contact the respective institution or program directly for AP policies and information.

College Level Examination Program (CLEP):		
DUPLICATE CREDIT FOR EXAMS AND/OR COLLEGE COURSES WITH SIMILAR CONTENT IS NOT AWARDED		
CLEP Examination Title: <i>(Only the following exams are accepted by UCDHSC)</i>	Credit Hours Awarded w/50th percentile min. score:	UCDHSC Equivalent Course:
COMPOSITION AND LITERATURE		
American Literature	6	None
Analyzing and Interpreting Literature	3	None
Composition, Freshman College	3	ENGL 1020
English Literature	6	None
SCIENCE AND MATHEMATICS		
Algebra – College	3	MATH 1110
Trigonometry	3	MATH 1120
Precalculus	4	MATH 1130
Calculus	4	MATH 1401
Biology (See Note 1)	6	BIOL 2051-3, BIOL 2061-3
Chemistry (See Note 1)	6	CHEM 2031-3, CHEM 2061-3
SOCIAL SCIENCE AND HISTORY		
American Government	3	P SC 1101
History of U.S. I	3	HIST 1361
History of U.S. II	3	HIST 1362
Macroeconomics, Principles of	3	ECON 2012
Microeconomics, Principles of	3	ECON 2022
Psychology, Introductory	3	PSY 1000
Sociology, Introductory	3	SOC 1001
Western Civilization I	3	HIST 1211
Western Civilization II	3	HIST 1212
BUSINESS		
Financial Accounting	3	ACCT 2200
Information Systems and Computer Applications	3	ISMG 2000

Note1: Students may take the corresponding UCDHSC laboratory course to meet a lab science core curriculum or major requirement.
See the academic department for additional information.

UNIVERSITY OF COLORADO AT DENVER AND HEALTH SCIENCES CENTER SCHOOL CODE:
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Office of Admissions, Box 167
P.O. Box 173364
Denver, CO 80217-3364

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The College Board
AP Services
P.O. Box 6671
Princeton, NJ 08541-6671
(888) 225-5427
www.collegeboard.com
(Download Transcript Request Form)

Important Note: Credit award and course equivalencies listed in this table apply only to degree programs at the downtown Denver campus. Students planning to complete degrees at other institutions and/or fulfill professional program prerequisites should contact the respective institution or program directly for CLEP policies and information.

International Baccalaureate (IB): (minimum of 24 credit hours awarded with IB diploma and a score of 4 on each exam) DUPLICATE CREDIT FOR EXAMS AND/OR COLLEGE COURSES WITH SIMILAR CONTENT IS NOT AWARDED					
IB Examinations (Other IB exams may be considered for credit with a minimum score of 4.)	Minimum Exam Score	Standard Exam		Higher Exam	
		UCDHSC Equivalent Course	Credit Hours Awarded	UCDHSC Equivalent Course	Credit Hours Awarded
Anthropology	4	ANTH 2102	3	ANTH 2102, None	6
Art (Visual)	4	FA 1001	3	FA 1001, None	6
Biology	4	BIOL 2051/2071	4	BIOL 2051/2071, BIOL 2061/2081	8
Chemistry	4	CHEM 2031/2038	4	CHEM 2031/2038, CHEM 2061/2068	9
Computer Science	4	(See Note 1)	3	(See Note 2)	6
Design Technology	4	Not Acceptable (See Note 3)		Not Acceptable (See Note 3)	
Economics	4	ECON 2012	3	ECON 2012, ECON 2013	6
English	4	ENGL 1020	3	ENGL 1020, None	6
French (A-1)	4	FREN 2110, FREN 2120	6		
French (A-1)	4			None	6
French (B)	4	FREN 1010, FREN 1020	10	FREN 2110, FREN 2120	6
History of Europe	4	HIST 1211	3	HIST 1211, HIST 1212	6
History of the Americas	4	HIST 1361	3	HIST 1361, HIST 1362	6
History (other)	4	None	3	None	6
Latin	4	LATN 1010, LATN 1020	10	LATN 2010, LATN 2020	6
Mathematics	Academic credit will be awarded for any IB examination in mathematics with a minimum score of 4. IB credit in mathematics requires departmental review for course equivalencies.				
Music	4	P MUS 1001	3	P MUS 1001, None	6
Philosophy	4	PHIL 1012	3	PHIL 1012, None	6
Physics	4	PHYS 2010/2030	5	PHYS 2010/2030, PHYS 2020/2040	10
Psychology	4	PSY 1000	3	PSY 1000, PSY 1005	6
Russian (B)	4	None	10	None	6
Spanish (A-1)	4	SPAN 2110, SPAN 2120	6		
Spanish (B)	4	SPAN 1010, SPAN 2010	10	SPAN 2110, SPAN 2120	6
Theatre	4	THTR 1001	3	THTR 1001, None	6

Note 1: Computer science majors who demonstrate proficiency in C++ programming will receive credit that substitutes for C SC 1410. Business majors will receive credit that substitutes for ISMG 2200.

Note 2: Computer science majors who demonstrate proficiency in C++ programming will receive credit that substitutes for C SC 1410 and C SC 2421. Business majors will receive credit that substitutes for ISMG 2200 and three elective credits.

Note 3: Not acceptable unless part of minimum 24 hours awarded with diploma.

UNIVERSITY OF COLORADO AT DENVER AND HEALTH SCIENCES CENTER SCHOOL CODE:
4875

OFFICIAL SCORE REPORTS ARE REQUIRED FOR TRANSFER CREDIT EVALUATION
SEND TO:

UCDHSC, Office of Admissions, Box 167, P.O. Box 173364, Denver, CO 80217-3364

OFFICIAL SCORE AND ADDITIONAL INFORMATION MAY BE OBTAINED BY CONTACTING

International Baccalaureate Organization
Telephone: 212-696-4464 Web site: www.ibo.org Email: transcripts.ibna@ibo.org

Important Note: Credit award and course equivalencies listed in this table apply only to degree programs at the downtown Denver campus. Students planning to complete degrees at other institutions and/or fulfill professional program prerequisites should contact the respective institution or program directly for IB policies and information.

Military Service and Schooling

To have credit for educational experience evaluated, applicants with military experience should submit the Smart Transcript.

Credit will be awarded as recommended by the Commission on the Accreditation of Service Experiences of the American Council on Education, to the extent that the credit is applicable to the degree the student is seeking at UCDHSC.

Credit for courses completed through the U.S. Armed Forces Institute will be evaluated on the same basis as transfer credit from collegiate institutions.

Reserve Officers' Training Corps (ROTC)

Students enrolled in Army or Air Force ROTC programs should consult with their college or school regarding the application of ROTC course credit toward graduation requirements. For information about ROTC programs, see the ROTC chapter of this catalog.

Intra-University Transfer

Students on the downtown Denver campus may change colleges or schools within campus provided they are accepted by the college or school to which they wish to transfer. Intra-university transfer forms may be obtained from the student's school or college or from the registrar's office. Decisions on intra-university transfers are made by the college or school to which the student wishes to transfer.

Students in continuing and professional studies programs wishing to enroll in regular courses or degree programs on the downtown campus should contact the Office of Admissions for a degree application.

Re-admission Requirements for Former Students

UCDHSC students who have not registered and attended classes on the downtown Denver campus for one year or longer and who have not attended another institution since CU are considered returning students and must formally apply for re-admission. An additional application fee is required only if changing from undergraduate to graduate or non-degree to degree status. Application forms are available at the Office of Admissions and at www.cudenver.edu.

Students who have attended another college or university since last attending the University of Colorado must apply as transfer students and meet the admission criteria and transfer student deadlines for receipt of documents. This requires payment of the \$50 (subject to change) nonrefundable application fee and submission of two official transcripts from all colleges and universities previously attended. Transcripts must be sent *directly* from the issuing institution to:

Office of Admissions
University of Colorado at Denver and Health Sciences Center
Campus Box 167, P. O. Box 173364
Denver, CO 80217-3364

Students who last attended another CU campus must formally apply for admission and meet the admission criteria of the downtown Denver campus. An application fee is not required unless going from undergraduate to graduate or from nondegree to degree status. Students may apply online or request an application from the Office of Admissions at www.cudenver.edu/Admissions.

Admission for Nondegree Students

Persons who have reached the age of 20 and who want to take university courses, but do not plan to work toward a University of Colorado degree, may be admitted as nondegree students provided they are eligible to return to all collegiate institutions previously attended. A 2.0 cumulative GPA for all institutions attended is required to be a nondegree student. Questions regarding admission as a nondegree student should be directed to the Office of Admissions. Each school/

college limits the number of semester hours taken as a nondegree student that may be transferred to a degree program.

Students considering changing from nondegree to degree status will need to meet the admission requirements for degree-seeking students and will be required to submit high school transcripts and ACT/SAT scores in addition to official college transcripts from each institution attended. Students should follow the application procedure as outlined on the application form.

Courses taken for credit as a nondegree student can be used for transfer to other institutions (if acceptable) or for professional development.

Note: International students are not admitted as nondegree students.

Students with a baccalaureate degree who are not accepted to specific degree programs may enroll for course work as *nondegree* students. They must complete a nondegree application for admission. Students in a nondegree status who have a previous degree pay graduate tuition rates, regardless of the level of courses taken.

To apply for admission as a nondegree student, obtain a nondegree student application form from the Office of Admissions or submit one via the Web. Return the completed application by the deadline for the term desired. A \$25 (subject to change) nonrefundable application fee is required. No additional credentials are required. *Nondegree students are advised that registration for courses is on a space-available basis.*

Continuation as a nondegree student with no prior undergraduate degree is contingent upon maintaining an overall GPA of 2.0 upon completion of 12 or more semester hours.

Admission for Students Seeking a Second Undergraduate Degree

Students who already hold a bachelor's degree may apply for admission to a program in which they can earn a second undergraduate degree. Applicants for a second undergraduate degree must meet UCDHSC admissions standards. These students may apply to the College of Arts & Media, College of Engineering and Applied Science, College of Liberal Arts and Sciences or the School of Public Affairs. Persons who already hold an undergraduate degree in any discipline generally may not apply for a second undergraduate degree in business. Rather, they should apply to a graduate MBA or MS business program. Contact the Business School at 303-556-5900. Students interested in education should contact the School of Education & Human Development office for information, 303-556-2717.

HOW TO APPLY

1. Apply online or request an application for undergraduate admission from the Office of Admissions at www.cudenver.edu/Admissions.
2. Complete the application and send it to the Office of Admissions with a \$50 (subject to change) nonrefundable application fee.
3. Have one official transcript sent to the Office of Admissions from each collegiate institution attended. Official transcripts are those sent by the issuing institution *directly* to:
Office of Admissions
University of Colorado at Denver and Health Sciences Center
Campus Box 167, P.O. Box 173364
Denver, CO 80217-3364
Hand-carried or faxed copies are not official.

Transcripts from the institution where the first undergraduate degree was earned must have final grades posted for the semester that the student graduated and have the official notation of the degree awarded.

All credentials presented for admission become the property of the University of Colorado and must remain on file. Students who do not declare all previously attended institutions are subject to disciplinary action and/or dismissal.

Students who knowingly falsify transcripts or test scores will be denied admission to, or will be disenrolled from, the university.

High School Concurrent Enrollment

High school juniors and seniors with demonstrated academic abilities may be admitted to UCDHSC with special approval for one term only. This approval may be renewed. Credit for courses taken may subsequently be applied toward a university degree program. For more information and application instructions, contact the Office of Admissions, 303-556-2873.

Admission Requirements for International Students

The University of Colorado at Denver and Health Sciences Center is proud to have a diverse population of international students coming from nearly 90 countries. Instructions for international students are available in the "International Education" chapter of this catalog. International application forms are accessible on the International Admissions Web site at www.internationaladmissions.cudenver.edu.

New Student Orientation

A welcome and general information program open to all new students is held at the beginning of the fall and spring semesters. The program provides an introduction to the campus, information about student services and student activities available through UCDHSC and services provided to all students on the Auraria campus, including information on getting an ID and parking.

New freshmen will also receive information regarding academic advising and specific orientation sessions for students and parents, which are held at various times during the year. Transfer and graduate students should contact their schools and colleges for additional information on academic advising, as well as special orientation sessions that may be held for a particular program.

For more information, call 303-352-3520 or visit North Classroom, 1503.

UNDERGRADUATE EXPERIENCES

Assistant Vice Chancellor for Undergraduate Experiences:

John Lanning, John.Lanning@cudenver.edu

Program Coordinator: Liz Pruett, Liz.Pruett@cudenver.edu

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The Office of Undergraduate Experiences coordinates and implements undergraduate education programs to promote access for all undergraduate students to high quality and innovative UCDHSC programs, improve the recruitment and retention of undergraduate students for the downtown Denver campus, and coordinate programs between academic and student affairs to better serve and engage undergraduate students.

This includes coordination of programs that aim to improve the quality of undergraduate experience on the downtown Denver campus.

- The University Honors and Leadership program combines leadership and scholar components to teach students skills they'll need to succeed.
- The core curriculum is an academic program of required general education courses that gives UCDHSC students a quality educational foundation for a lifetime of success.
- The Colorado Commission on Higher Education initiated the gPATHWAYS program to ensure that students could transfer credit for core courses to any other higher education institution in the state.
- Experiential learning programs, coordinated with the Career Center, support internships, undergraduate research, interdisciplinary learning, e-portfolio support, civic engagement, etc. on the downtown Denver campus.

- First-year seminars teach academic and study skills for incoming students.
- Living/learning communities involve combinations of courses, some of which take place in the residence halls, which focus around a single academic theme.
- Early Alert assists students early in the semester who are having trouble adjusting personally or academically to their new environment
- Supplemental instruction in target courses helps students succeed.

Other responsibilities of this office include ensuring the quality of new undergraduate degree programs, promoting cross-college academic programs, training faculty and working in many other capacities to ensure that students have a positive and productive academic career at UCDHSC.

CORE CURRICULUM

All undergraduate students at UCDHSC's downtown Denver campus must complete a 34-to-36-semester-hour core curriculum of general education course work. The UCDHSC core curriculum was revised for the fall 2006 semester and is specifically designed as the foundation for academic success for the baccalaureate degree as well as for a lifetime of success.

The undergraduate core curriculum is based on a philosophy of a liberal arts education. The phrase "liberal arts" originates from Latin roots *liber*, "to be free," and *ars*, "skill or ability to do something." Thus, a liberal arts education develops a set of skills to set one free. Course work in a traditional liberal arts education is designed to provide an understanding of ourselves, ours and other cultures and our environment.¹

The undergraduate core curriculum emphasizes intellectual competencies and provides optional choices to develop a skill base in the broad knowledge areas that make up the undergraduate curriculum. A detailed chart of faculty-approved core courses and college core requirements is printed on the following pages.

The Core Curriculum Oversight Committee, composed of faculty in each school and college, monitors the curriculum.

¹ H. Thorne Compton, "The Liberal Arts and Critical Thinking: Building Blocks of the Educated Person," in *A Student Guide to Higher Education*, John N. Gardner and A. Jerome Jewler, Editors, Wadsworth Publishing Company, Belmont, CA, Chapter 1988.

Intellectual Competencies

ENGLISH COMPOSITION (TWO COURSES)

- English composition courses develop critical thinking, reading, writing, information literacy and research-based writing skills.

MATHEMATICS (ONE COURSE)

- Mathematics courses develop critical thinking, logic, quantitative reasoning and numerical relationships/patterns in behavioral/social and physical phenomena.

Knowledge Areas

ARTS AND HUMANITIES (TWO COURSES)

- Arts courses develop creativity, self-expression, aesthetics and stimulation of thought. Topic areas include arts, fine arts, music, professional music and theatre.
- Humanities courses develop ethics and priorities, human experience and development, contemporary life issues and responsibilities and impacts of social actions. Topic areas include English literature, modern languages, history, philosophy and religious studies.

Continued on page 20

UCDHSC Undergraduate Core

The following represents the UCDHSC core curriculum as passed by the faculty
 For help in selecting appropriate core courses, please see an academic advisor in your college. The
 Intellectual Competencies (9-10 hours), Knowledge Areas (19-20 hours), Cultural Diversity (3 hours) and International

Intellectual Competencies ¹ 9-10 hours (3 courses)													
English			Math			Biological and Physical Sciences, Mathematics			Humanities				
(6 hours)			(3-4 hours)			(7-8 hours)			(6 hours)				
Course	CR	gt Key	Course	CR	gt Key	Course	CR	gt Key	Course	CR	gt Key		
Campus Core	ENGL 1020 ENGL 2030	3 3	GT-C01 GT C02	MATH 1010 MATH 1070 MATH 1080 MATH 1110 MATH 1120 MATH 1130 MATH 1401 MATH 2411 MATH 2421 MATH 2830	3 3 3 3 3 4 4 4 4 3	GT MA1 GT MA1 GT MA1 GT MA1 GT MA1 GT MA1 GT MA1 GT MA1 GT MA1 GT MA1	ANTH 1303 BIOL 1550 BIOL 1560 BIOL 2051/2071 BIOL 2061/2081 CHEM 1474 CHEM 2031/2038 CHEM 2061/2068 ENVS 1042 GEOG 1202 GEOG 1072 GEOG 1082 PHYS 1000 PHYS 1052 PHYS 2010/2030 PHYS 2020/2040 PSY 2220 MATH ⁴	4 4 4 3/1 3/1 4 3/1 3/2 4 3 4 4 4 4 4/1 4/1 3	GT SC1 GT SC1 GT SC1 GT SC1 GT SC1 GT SC1 GT SC1 GT SC1 GT SC1 GT SC2 GT SC1 GT SC1 GT SC1 GT SC1 GT SC1 GT SC1 GT SC1 GT SC2	CNST 1000 ENGL 1601 ENGL 2600 ETST 2155 FR 1000 GER 1000 HIST 1361 HIST 1362 HIST 1381 HIST 1382 PHIL 1012 PHIL 1020 PHIL 2441 RLST 1610 RLST 2660 SPAN 1000	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	GT AH1 GT AH2 GT AH2 GT HI1 GT AH1 GT AH1 GT HI1 GT HI1 GT HI1 GT HI1 GT AH3 GT AH3 GT AH3 GT AH3 GT AH3 GT AH3 3	
Guaranteed Transfer (GT) Curriculum Categories Key	CO1—Intro Writing CO2—Intermediate Writing			MA1—Mathematics			SC1—Natural and Physical Sciences with laboratory SC2—Natural and Physical Sciences without laboratory			AH1—Arts and Expression AH2—Literature and Humanities AH3—Ways of Thinking HI1—History			
College of Liberal Arts and Sciences (CLAS) ⁵	Both ENGL 1020 and ENGL 2030 are required.			One course from the math list is required.			One of the two required courses. must have a laboratory, and it cannot be in the same discipline as the student's major.			Humanities majors may take one course from the humanities list or two courses from the arts list. Other majors must take one course from the humanities list.			
College of Arts and Media (CAM)	Both ENGL 1020 and ENGL 2030 are required.			One course from the math list is required.			One of the two required courses must have a laboratory.			CAM students must take two courses from the humanities list.			
Business School	Both ENGL 1020 and ENGL 2030 are required.			MATH 1070 or MATH 1110 is required.			One of the two required courses must have a laboratory.			One course from the humanities list is required.			
College of Engineering and Applied Science	Both ENGL 1020 and ENGL 2030 are required.			MATH 1401 is required.			Engineering majors must take the two-course calculus-based physics sequence to fulfill the laboratory course requirement. ⁶			One course from the humanities list is required.			
School of Public Affairs (SPA)	Both ENGL 1020 and ENGL 2030 are required.			One course from the math list is required.			One of the two required courses must have a laboratory.			One course from the humanities list is required.			

Note 1: Intellectual competencies courses must earn a minimum letter grade of C- (1.7) to satisfy core curriculum requirements.
 Note 2: Students may not use courses in the discipline(s) defined by their major(s) to satisfy knowledge area requirements.
 Note 3: Cultural diversity courses are restricted, requiring junior-level standing or the consent of the instructor prior to registration.

and gtPATHWAYS Curriculum

in each of the undergraduate colleges, which became effective in fall 2006.

core curriculum is a total of 34-36 semester hours compiled in each of the four following areas:

Perspectives (3 hours). **Courses with a GT suffix are courses approved for the CCHE gtPATHWAYS Transfer Program.**

Knowledge Areas ² 9-20 hours (6 courses)						Cultural Diversity ³		International Perspectives				
Arts			Behavioral Sciences			Social Sciences						
(6 hours)			(6 hours)						(3 hours – 1 course)		(3 hours – 1 course)	
Course	CR	gt Key	Course	CR	gt Key	Course	CR	gt Key	Course	CR	Course	CR
FA 1001	3	GT AH1	ANTH 1302	4		ECON 2012	3	GT SS1	ANTH 3142	3	ENGR 3600	3
PMUS 1001	3	GT AH1	ANTH 2102	3	GT SS3	ECON 2022	3	GT SS1	CMMU 3271	3	HIST 3899	3
THTR 1001	3	GT AH1	CMMU 1011	3	GT SS3	ENVS 1342	3	GT SS2	ECON 3100	3	P SC 3022	3
			CMMU 1021	3	GT SS3	ETST 2000	3	GT SS3	ENGR 3400	3	P SC 3042	3
			PSY 1000	3	GT SS3	GEOG 1102	3	GT SS2	ETST 3704	3		
			PSY 1005	3	GT SS3	GEOG 1602	3	GT SS2	ETST 3794	3		
						GEOG 2202	3	GT SS2	HIST 3345	3		
						HBSC 2001	3	GT SS3	MGMT 4100	3		
						P SC 1001	3	GT SS1	PHIL 3500	3		
						P SC 1101	3	GT SS1	P SC 3034	3		
						SOC 1001	3	GT SS3	P SC 3035	3		
						SOC 2462	3		PSY 4485	3		
									RLST 4000	3		
									SOC 3020	3		
									THTR 3611	3		
AH1—Arts and Expression			SS3—Human Behavior, Culture or Social Frameworks			SS1—Economic or Political Systems SS2—Geography SS3—Human Behavior, Culture or Social Frameworks			Not eligible for the gtPATHWAYS transfer program.		Not eligible for the gtPATHWAYS transfer program.	
CLAS students must take one course from the arts list.			Social science majors must take two courses from the behavioral sciences list. Other majors must take one course from the behavioral sciences list.			Behavioral science majors must take two courses from the social sciences list. Other majors must take one course from the social sciences list.			One course from the cultural diversity list is required.		One course from the international perspectives list is required.	
CAM students must take two courses from the humanities list.			One course from the behavioral sciences list is required.			One course from the social sciences list is required.			One course from the cultural diversity list is required.		One course from the international perspectives list is required.	
One course from the arts list is required.			One course from the behavioral sciences list is required.			ECON 2012 is required.			One course from the cultural diversity list is required.		One course from the international perspectives list is required.	
One course from the arts list is required.			One course from the behavioral sciences list is required.			One course must be taken from the social sciences list.			One course from the cultural diversity list is required.		One course from the international perspectives list is required.	
One course from the arts list is required.			One course from the behavioral sciences list is required.			SOC 1001 is required.			One course from the cultural diversity list is required.		One course from the international perspectives list is required.	

Note 4: A mathematic course taken to fulfill the biological and physical sciences, mathematics area, must be from the approved mathematics list excluding the course taken to fulfill the intellectual competencies requirement.

Note 5: CLAS students whose major(s) fall outside of the traditional disciplines (e.g. international studies, individually structured) should contact the CLAS advising office for detailed information on core requirements.

Note 6: Engineering majors should contact the College of Engineering and Applied Science advising office for detailed information on core requirements.

BEHAVIORAL AND SOCIAL SCIENCES (TWO COURSES)

- Behavioral science courses develop an understanding of human behavior, communication and an analysis of human experience and development. Topic areas include anthropology, communication and psychology
- Social science courses develop an understanding of human society, and the interrelationship of social phenomena. Topic areas include economics, geography, political science, sociology and ethnic studies.

BIOLOGICAL AND PHYSICAL SCIENCES, MATHEMATICS (TWO COURSES)

- Biological and physical science courses develop knowledge through the scientific method, scientific reasoning, and solutions to complex phenomena in nature. Topic areas include biology, chemistry, geology, physics and environmental science.
- Mathematics courses are typically not classified as a science, but provide the tools and models to investigate science and to formulate hypotheses and laws.

International Perspectives

- International perspectives courses develop insight into globalization impacts and the influence of an expanding multicultural society. (one course)

Cultural Diversity

- Cultural diversity courses provide insight and analysis of race and gender issues within the United States. (one course)

The value of a liberal arts-oriented core curriculum greatly exceeds its basic economic value, providing personal life and workforce skills necessary for a dynamic 21st century. Students should work closely with academic advisors to choose courses from the core curriculum that compliment their majors and future careers.

GUARANTEED TRANSFER: gtPATHWAYS PROGRAM

The Colorado Commission on Higher Education (CCHE) has charged each Colorado public institution of higher education with providing undergraduate students a set of general education courses guaranteed to transfer as core credit to any other Colorado public institution. This program is called gtPATHWAYS, with “gt” referring to guaranteed transfer.

Transferring students are able to apply up to 31 semester hours of gtPATHWAYS approved courses with grades of C– (1.7) or higher toward their general education program at the receiving institution. Students may also apply gtPathways approved courses to courses in their major, depending on policies at UCDHSC.

Students transferring to UCDHSC with an associate’s degree from a Colorado community/junior college in the gtPATHWAYS program are guaranteed fulfillment of all lower-division core curriculum requirements. Students planning to transfer in/out of UCDHSC under the gtPATHWAYS program should work with their academic advisor to obtain details of transfer credit.

General education courses approved for the gtPATHWAYS program are identified in the “UCDHSC Undergraduate Core and gtPATHWAYS Curriculum” table. gtPATHWAYS-approved courses are also identified in the Course Descriptions chapter of this catalog. For example, the suffix GT-SC1 in “BIOL 1550-4. Basic Biology: Ecology and the Diversity of Life: GT-SC1” identifies the course as a gtPATHWAYS-approved science course with a laboratory.

Further information about the statewide transfer program, including the list of approved courses and distribution requirements, is available on the CCHE Web site: www.state.co.us/cche/academic/transfer/index.html.

UNIVERSITY HONORS AND LEADERSHIP PROGRAM (UHL)

Interim Director: Gita Alaghband
Office: 1047 Ninth Street Park
Telephone: 303-556-3325
Fax: 303-556-6744
E-mail: Gita.Alaghband@cudenver.edu

The University Honors and Leadership program (UHL) was created to recruit and support students who have demonstrated excellence in academic performance and/or outstanding leadership qualities. The program is composed of two areas of emphasis, offering students the choice to focus primarily on academic excellence in the Academic Honors track (AH) or on leadership education in the Chancellor’s Scholars and Leaders program (CSL).

Both areas of emphasis provide

- A rigorous academic experience for highly qualified students in an urban setting.
- An environment for learning, self-discovery, intellectual development and community engagement.
- Systematic exposure to complicated problems, competing perspectives and differing approaches to important issues in the world today.
- A cohort environment for learning in which students learn to value each other and learn from each other.

Students from both areas of emphasis can take courses in the Academic Honors track and in the Chancellor’s Scholars and Leaders program.

Academic Honors Track (AH)

The Academic Honors track (AH) was created to offer a unique program for outstanding high school students entering UCDHSC. The AH track provides a rigorous academic experience to compliment the student’s major, provides an environment for life-long learning and promotes self-discovery. Students will be exposed to complicated problems, competing perspectives and differing approaches to important topics. Undergraduate research will be emphasized in the AH track to prepare students for graduate school or any postbaccalaureate professional program.

The curriculum for the Academic Honors track is designed to be flexible to meet individual student needs, to be interdisciplinary in order to provide a wide spectrum of perspectives and to promote strong interaction among UHL students taking the same courses. The AH program is designed to be completed within the 120 semester hour graduation requirement; however, this may not be possible for each student depending on his or her selection of major or optional minors.

The AH track compliments but does not replace honors programs available in the student’s major. Students should consult advisors in their major as well as the advisor for the AH track for advice on honors sections. Meeting with advisors is encouraged during the first semester at UCDHSC.

Chancellor’s Scholars and Leaders (CSL)

The Chancellor’s Scholars and Leaders (CSL) track program was created to identify, promote and nurture leaders for the 21st century. As an urban institution, the downtown Denver campus of UCDHSC supports leadership in urban communities both at the local and the international level. CSL actively seeks out and supports students who have the desire and potential to lead within their communities.

Today’s leaders require skills and experiences that can prepare them for the new systems and challenges of leadership in corporate, institutional and public life. Through self-guided learning strategies, practical team projects, theory-based seminars, contact with outstanding leaders and individualized mentoring, CSL enables students to develop their leadership potential.

Outstanding community leaders as CSL board members are available to CSL students as tutors and mentors, while experienced CSL students assist incoming students as peers and as class assistants. To aid CSL students in their learning process, our CSL office is largely designated for student activities. Conference rooms, computers, a small library of leadership resources and a study lounge are available.

APPLIED LEARNING AND SKILLS

Faced with increasing globalization of leadership responsibilities and the rapid change in what leaders need to learn and know, Chancellor's Scholars and Leaders work together to enhance their leadership abilities. They confront complex issues, individually and in leadership teams, while taking responsibility for becoming lifelong learners.

Through course work, internships, portfolio development and other task-oriented learning strategies, CSL participants learn to become more resourceful and take the initiative in developing knowledge and skills.

4-YEAR GRADUATION GUARANTEE

The University of Colorado at Denver and Health Sciences Center has adopted a set of guidelines to define the conditions under which an undergraduate student will be guaranteed to graduate in four years. More information is available through the undergraduate advising offices for each college and the major program offices. The downtown Denver campus has four undergraduate colleges in which this guarantee applies: College of Arts & Media, Business School, College of Engineering and Applied Science, and College of Liberal Arts and Sciences.

UCDHSC's downtown campus guarantees that, if the lack of scheduling of essential courses is found to have prevented a student from completing all course work necessary for a BA, BFA or BS degree from the university by the end of the student's eighth consecutive fall and spring semester, the college/school shall provide tuition plus any course fees for all courses required for completion of the degree requirements. This applies *only* when needed courses are *not offered* by the college/school and does not apply to scheduling conflicts for individual students. *Students must satisfy all the requirements described below to be eligible for this guarantee.*

This guarantee applies to all students who enrolled for summer 2002 or after as first-semester, full-time freshmen who do not have admission deficiencies, who do not need remedial course work and who satisfy all the requirements described below. This guarantee does not include completion of all options within the major, a second major, a double degree, a minor or a certificate program. The four (4)-year graduation guarantee does not apply to programs in which the degree has been discontinued or is in the process of being phased out. In these cases, every effort will be made to allow students to fulfill requirements by taking courses at other universities and colleges to facilitate timely completion of the degree.

Some 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 programs during the fall or spring semesters may not be eligible for this guarantee. A student may be able to participate in a study abroad program during the summer semester and still meet all the requirements of this guarantee. It is essential that a student work closely with an advisor to determine if the student can participate in a study abroad program and still meet all the requirements of this guarantee.

Requirements

Students must satisfy all of the following requirements to be eligible for this guarantee.

1. Students must enroll in UCDHSC course work as specified on the student plan of study for eight *consecutive* fall and spring semesters.
2. Students must complete all required course work by the end of the eighth semester.
3. No fewer than 60 semester hours of applicable course work must be completed successfully 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 (48 calendar months). Students must successfully complete an average of 15 semester hours each semester.
4. Students must meet with their college advisor and their major advisor for academic advising during the first, third, fifth and seventh semesters of study.
5. The major must be declared no later than the end of the first semester of study and students must not change their major or any options within the major.
6. A required plan of study toward the major must be agreed upon and signed by the student and advisor at the end of the first semester. Thereafter students must make satisfactory progress toward completing the major, as defined by each major, and the general education requirements. Courses with certain grades may not meet the satisfactory progress requirement of this guarantee. A statement of what constitutes satisfactory progress and what grades are acceptable is available from the major or departmental office at the time the major is declared.
7. A minimum of 30 semester hours of college general education courses should be completed by the end of the second year, including core curriculum courses that also meet major requirements and foreign language proficiency.
8. All lower-division graduation requirements must be successfully completed by the 90-semester-hour mark.
9. Students must remain in academic good standing according to their school/college academic policies.
10. Grades of C-, C or C+, as defined by the college/school, must be earned in all course work required for the major, and students must have a cumulative GPA of 2.0 in all major course work attempted.
11. Students must register each semester within one week of the student's specified eligibility to register.
12. Students must take courses that are specified in the student plan of study approved by their advisor.
13. Elective courses must be avoided if they conflict with required major or general education courses. Elective courses must not be given a higher priority than required courses.
14. Students must meet all departmental, school or college and university policies regarding graduation requirements.
15. The college/school must be notified in writing of the student's intent to graduate no later than the beginning of the seventh semester of study. A graduation application must be filed no later than the deadline for the appropriate graduation date. The student must complete a graduation checkout/senior audit with their advisor.
16. The student is responsible for and must keep documentation proving that these requirements were satisfied (e.g., records of advising meetings attended, advising records and instructions, etc.).

At A Glance: Graduate Areas of Study

Graduate Degrees

EdS = Specialist in Education
 MA = Master of Arts
 MArch = Master of Architecture
 MBA = Master of Business Administration
 MCJ = Master of Criminal Justice
 MEng = Master of Engineering
 MH = Master of Humanities
 MIS = Master of Integrated Science
 MLA = Master of Landscape Architecture
 MS = Master of Science
 MSIB = Master of Science in International Business
 MSS = Master of Social Science
 MUD = Master of Urban Design
 MURP = Master of Urban and Regional Planning
 PhD = Doctor of Philosophy

Program	Degree	School/College
11-Month MBA	MBA	Business
Accounting	MS	Business
Administrative Leadership and Policy Studies	MA, EdS	Education & Human Development
Anthropology	MA	Liberal Arts and Sciences
Applied Mathematics	MS, PhD	Liberal Arts and Sciences
Architecture	MArch	Architecture and Planning
Biology	MS	Liberal Arts and Sciences
Business Administration	MBA	Business
Chemistry	MS	Liberal Arts and Sciences
Civil Engineering	MS, PhD	Engineering and Applied Science
Communication	MA	Liberal Arts and Sciences
Computer Science	MS	Engineering and Applied Science
Computer Science and Information Systems	PhD	Business and Engineering and Applied Science
Counseling Psych and Counselor Education	MA	Education & Human Development
Criminal Justice	MCJ	Public Affairs
Curriculum and Instruction	MA	Education & Human Development
Design and Planning	PhD	Architecture and Planning
Early Childhood Education	MA	Education & Human Development
Economics	MA	Liberal Arts and Sciences
Educational Leadership and Innovation	PhD	Education & Human Development
Educational Psychology	MA	Education & Human Development
Electrical Engineering	MS	Engineering and Applied Science
Engineering	MEng	Engineering and Applied Science
English	MA	Liberal Arts and Sciences
Environmental Sciences	MS	Liberal Arts and Sciences

Program	Degree	School/College
Executive MBA	MBA	Business
Executive Health Administration	MBA	Business
Finance	MS	Business
Health Administration	MS/MBA	Business
Health and Behavioral Sciences	PhD	Liberal Arts and Sciences
History	MA	Liberal Arts and Sciences
Humanities	MH	Liberal Arts and Sciences
Information and Learning Technologies	MA	Education & Human Development
Information Systems	MS	Business
Initial Teacher Education	MA	Education & Human Development
Integrated Science	MIS	Liberal Arts and Sciences
International Business	MSIB	Business
Landscape Architecture	MLA	Architecture and Planning
Management and Organization	MS	Business
Marketing	MS	Business
Mechanical Engineering	MS	Engineering and Applied Science
Political Science	MA	Liberal Arts and Sciences
Psychology	MA	Liberal Arts and Sciences
Professional MBA	MBA	Business
Public Administration	MPA	Public Affairs
Public Affairs	PhD	Public Affairs
Recording Arts	MS	Arts & Media
School Library	MA	Education & Human Development
School Psychology	EdS	Education & Human Development
Social Science	MSS	Liberal Arts and Sciences
Sociology	MA	Liberal Arts and Sciences
Spanish	MA	Liberal Arts and Sciences
Special Education	MA	Education & Human Development
Technical Communication	MS	Liberal Arts and Sciences
Urban and Regional Planning	MURP	Architecture and Planning
Urban Design	MUD	Architecture and Planning

Licensure and Endorsements

Early Childhood Special Education
 Elementary
 Linguistically Diverse Education (Bilingual/ESL)
 Principal/Administrator
 Reading Teacher
 School Counselor
 School Library
 School Psychologist
 Secondary: English, Foreign Language, Math, Science, Social Studies
 Special Education

Information for Graduate Students

Welcome to the Graduate School on UCDHSC's downtown Denver campus. With almost half of the student body enrolled in graduate programs, we have a higher ratio of graduate to undergraduate students than most other universities in the country. This special emphasis on graduate education provides a strong culture of graduate studies on the campus and has engendered a number of innovative programs and teaching methods, such as dual master's degrees, graduate certificates and classes that are partially or entirely online. Graduate programs on the downtown campus also benefit from UCDHSC's immediate proximity to Denver, which provides rich opportunities for internships and employment, collaborations between the university and the city, and a wealth of real world problems that can test and elaborate ideas gained in the classroom.

UCDHSC offers 48 master's programs, seven PhD programs, two education specialist programs and nearly 35 graduate certificates. All of the graduate programs at the university are managed by the individual colleges and schools, which means that most of your needs will be met by the department in which your program resides. The colleges and schools offering graduate opportunities on the downtown campus include:

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

Individual graduate programs are described under the school/college chapters later in this catalog and online at www.cudenver.edu/Academics/Colleges/GradSchool/.

GRADUATE SCHOOL

Dean: James H. Hageman, PhD

Administrative Assistant: Carie Carroll

Office: 1380 Lawrence Street, 300

Telephone: 303-556-6536

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Web site: www.cudenver.edu/Academics/Colleges/GradSchool/

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Denver, CO 80217

Although graduate programs are delivered within UCDHSC's individual colleges and schools, a universitywide organization called the Graduate School looks after the interests of graduate education across the campus. All colleges and schools belong to the Graduate School and jointly develop university policies related to common graduate education issues.

One of the most important functions of the Graduate School is to establish and maintain certain minimum standards for graduate education. Schools and colleges may elaborate on these standards to meet disciplinary requirements. If they specify more stringent guidelines, these always take precedence over the minimum guidelines of the Graduate School. The general Graduate School Rules can be accessed online at www.cudenver.edu/Academics/Colleges/GradSchool/ by clicking on "School Rules."

Requirements for Admission

Note that the following are minimum requirements. School and college regulations, if more stringent, take precedence over the minimum guidelines as set forth by the Graduate School.

REGULAR DEGREE STUDENTS

Qualified students are admitted to regular degree status by the appropriate department. In addition to departmental approval, applicants for admission as regular degree students must:

1. Present a combination of the following: a cumulative undergraduate GPA of 2.5 or better on a scale where A is equal to 4.0, standardized examinations, prior professional experience, portfolios or other indicators.
2. Meet the specific requirements as established by the program faculty.

PROVISIONAL DEGREE STUDENTS

Applicants who do not meet the requirements for admission as a regular degree student may be considered for admission to a master's program as a *provisional degree student* upon the recommendation of the program faculty. Programs may admit students under a provisional agreement subject to the following requirements:

1. The term of the provisional period shall not exceed two years.
2. The student must complete each semester's course work with a GPA of 3.0 or higher on all work taken (whether applied to the master's degree or not).
3. The provisional agreement should clearly state any additional program requirements to attain regular status.

Failure to meet the conditions of the provisional agreement will be cause for suspension.

Application Procedures

Graduate students who expect to study at UCDHSC should contact the Office of Admissions concerning procedures for forwarding completed applications. Students may also apply online once the Apply Yourself program has been activated.

Once a student has decided to apply for a graduate program, he/she must submit a completed application before the deadline date specified by the specific program of interest.

An applicant for admission must present:

- Parts I and II of the downtown Denver campus Graduate School application form, including the tuition classification form, which may be obtained from the departmental program coordinator.
- Two official transcripts for all academic work in colleges and universities completed to date.
- Three letters of reference. Have the nominators include the applicant's name and social security number in their letters of reference.
- A nonrefundable application fee (check or money order) of \$50 for domestic students or \$75 for international students. *No application will be processed until this fee is paid.*
- Any other material required specifically by the program faculty. This may include scores from the GRE or other examination. Check with program coordinators in the departments for additional information that may be required.

Again, the student must check with the program to determine the deadline for submitting the application and application fee to the program of interest.

When a prospective degree student applies for admission, the chairperson or a student admissions committee of the department will decide whether the applicant shall be admitted and make that decision known to the Office of Admissions.

Students who wish to apply for a graduate student award (e.g., fellowship, scholarship, assistantship) should contact their department before the application deadline for information, since deadlines are usually earlier for aid requests than for admission.

RE-ADMISSION/CHANGING PROGRAMS

Former and current students who wish to be re-admitted or change from one degree program to another must meet the requirements of the new degree program and provide all items required of students applying to the Graduate School on the downtown Denver campus for the first time. These applicants, however, may petition the program to which they were initially admitted to secure a release of transcripts and letters of recommendation supplied at the time of their initial application.

TRANSFERRING

Students transferring from another CU campus to the downtown Denver campus must apply and be accepted to the new campus.

A student who has completed a master's program at UCDHSC must resubmit parts I and II of the graduate application for acceptance into the doctoral program.

NONDEGREE STUDENTS

A student who wishes to take graduate courses, but is not interested in earning a specific advanced degree, may apply as a nondegree student. Contact the Office of Admissions at 303-556-2704 for further information. Nondegree students will be allowed to register only on the campus to which they have been admitted.

Nondegree students who later desire to pursue a graduate degree program at this university are encouraged to submit the complete graduate application and supporting credentials to their department as soon as possible. Note that the GPA for courses taken as a nondegree student is calculated separately and is not incorporated in the official graduate GPA.

A department *may* recommend the transfer of as many as 9 semester hours toward the requirements of a master's degree for courses taken either as a student at another accredited graduate school, as a nondegree student at the University of Colorado or a combination.

A grade of B- or better must be earned. A 10-year time limit is in effect.

New Student Orientation

An orientation program for new students is held at the beginning of the fall and spring semesters, during the week prior to the first day of

classes. The orientation program provides information to new students about activities and services available on the downtown Denver campus. Information on the expectations, opportunities, registration process, parking and securing ID cards is also provided. Academic advising sessions are held before registration for the term. Students should contact their schools and colleges for additional information on advising, as well as special orientation sessions that may be scheduled for their programs.

Registration

On the regular registration days of each semester, students who have been admitted to a graduate program are required to follow appropriate registration procedures.

Students should register for classes the semester they are accepted as graduate students. If unable to attend that semester, they must notify the Office of Admissions and Records, in addition to the department that has accepted them.

CHANGES IN REGISTRATION

A student who wishes to drop a course should follow the standard drop/add procedure. After the 10th week of classes, graduate students may not drop or add a course without presenting a letter to the dean of the appropriate school or college, stating the exceptional circumstances that justify the change. This letter, endorsed by the instructor of the course, must accompany the properly signed and completed drop/add form.

WITHDRAWAL

A graduate student who desires to withdraw from the university must apply to the dean of his/her school or college for permission to withdraw in good standing. *A student who discontinues attendance in a course without official withdrawal will be marked as having failed the course. After the 10th week of the class, the student must have the associate dean's signature to drop a course.*

ASSISTANTSHIPS AND FELLOWSHIPS

Colorado Graduate Merit Awards

Colorado graduate fellowships are awarded primarily to entering and continuing regular degree doctoral students. These are awarded to entering students on the basis of academic promise and to continuing students on the basis of academic success. Contact the department for information about this fellowship.

Graduate Student Teaching Appointments

Many departments employ graduate students as part-time instructors or teaching assistants. The instructorship is reserved for those advanced graduate students already possessing appropriate degrees who may be independently responsible for the conduct of a section or course. Contact the department for further information.

Research Assistantships

Research activities provide opportunities for graduate students to obtain part-time work as research assistants in many departments. Such funds are from external grants obtained by faculty members. Contact the department for further information.

Additional information about registration and financial aid are available in a separate chapter of this catalog. For information about tuition and fees, please visit the Bursar's office Web site at www.cudenver.edu/Admission/tuition/.

REQUIREMENTS FOR ADVANCED DEGREES

Graduate Student Handbooks

Each graduate program is expected to provide students with a handbook—electronic, paper or both—indicating in some detail the curricular requirements, the expectations for satisfactory progress toward the degree completion, a timeline for the steps needed to meet these expectations and other features unique to each program, such as the composition and formation of student committees to guide and review the student's progress.

Quality of Graduate Work

A student is expected to maintain at least an overall 3.0 GPA in all work attempted while enrolled in a graduate program and to make satisfactory progress toward a degree in other respects as determined by his or her department.

For all graduate degrees, a grade below *C* is unsatisfactory and will not be counted toward the minimum requirements for these degrees.

Credit by Transfer

A limited amount of high-quality resident graduate work done in a recognized graduate school elsewhere within the time allowed may be accepted, provided it is recommended by the department concerned and approved by the school or college dean. The maximum amount of work that may be transferred to this university is 9 semester hours or 30 percent of the number of credits required for the degree, whichever is higher for master's degrees, and 18 hours for performance and PhD degrees.

The school or college shall determine if graduate classes taken by an undergraduate can be transferred to a graduate program. They shall also determine if courses taken in the University of Colorado system are considered resident or transfer courses.

Courses taken as pass/fail or satisfactory/unsatisfactory will not be transferred. In addition, a grade of *B-* or above must be earned for a course to be transferred. Courses over 10 years old will not be transferred.

Use of English

A student who is noticeably deficient in the use of standard English in all oral and written work may not obtain an advanced degree from the University of Colorado. Ability to use the language with precision and distinction should be cultivated as an attainment of major importance.

The university reserves the right to test English proficiency for non-native speakers of English to confirm and validate sufficiency for credit-bearing course work and degree programs.

Each department will judge the qualifications of its advanced students in the use of English. Reports, examinations and speech will be considered in estimating the candidate's proficiency.

Graduate Appeals

The Graduate Council shall review grievances related to procedural issues that cannot be resolved at the school or college level. Appeals of grades or other academic issues are conducted according to the procedures of the schools and colleges, with final resolution residing with the dean of the college/school.

MASTER'S DEGREE

A student regularly admitted to a graduate program and later accepted as a candidate for the master of arts, master of science or other master's degrees will be recommended for the degree only after certain requirements have been met.

The requirements stated below are minimum requirements; additional conditions may be set by the individual programs.

Students planning to graduate should ascertain current deadlines with their graduate programs. It is the graduate student's and the department's responsibility to see that all requirements and deadlines are met (*e.g.*, changing of IW grades, notification of final examinations, etc.).

Departments or program committees may have deadlines that must be met by the graduate students in that department or program. It is the student's responsibility to ascertain and meet these requirements.

Minimum Requirements

The minimum requirements of graduate work for a master's degree may be fulfilled by completing a minimum of 30 semester credits, of which no more than 9 may be thesis or independent study hours.

A course mark below *C* is unsatisfactory and will not count toward the minimum requirements for a master's degree.

A student on probation is not eligible to be awarded a degree until he or she is removed from probation.

Program requirements may be more stringent than these minimum requirements, in which case program requirements supercede the requirements of the Graduate School.

Language Requirements

Candidates must have such knowledge of ancient and/or modern languages as each department requires. See specific departmental requirements.

Graduate Certificate Opportunities

COLLEGE OF ARCHITECTURE AND PLANNING

Historic Preservation

COLLEGE OF ARTS & MEDIA

Music Business (online)

SCHOOL OF BUSINESS

(Prerequisite: MBA)

Business-to-Business Marketing

Business-to-Consumer Marketing

Business Strategy

Change Management

Corporate Financial Management

Decision Sciences

Enterprise Technology Management

Entrepreneurship

Finance

Financial Analyst

Human Resources Management

Information Systems

International Business

Investment Management

Marketing

Services Management

SCHOOL OF EDUCATION & HUMAN DEVELOPMENT

Content ESL

Designing and Implementing

Web-based Learning Environments
(online)

Marriage and Family Counseling/Therapy

TESOL

COLLEGE OF ENGINEERING AND APPLIED SCIENCE

Geographic Information Systems (GIS)

COLLEGE OF LIBERAL ARTS AND SCIENCES

Biology—Biotechnology,

Computational Biology

Communication—Interactive Media,

Public Relations, Technical and

Professional Communication

English—Teaching English to Speakers
of Other Languages

Environmental Sciences—Air Quality,

Ecosystems, Environmental Health,

Geospatial Analysis, Hazardous

Waste, Water Quality

History—Historic Preservation

Mathematics—Applied Statistics

Social Sciences—Women's Studies

SCHOOL OF PUBLIC AFFAIRS

Emergency Management, Policy
and Planning

Graduate Credit

Graduate credit is given for courses that are listed at the 5000 level or above, and that are offered by professors who are approved members of the graduate faculty. Courses at the 4000 level may be counted for graduate credit, but a minimum of 18 semester hours must be taken at the 5000 level. No course below the 4000 level may be counted for graduate credit. Departmental approval must be obtained for the courses taken by a student to count toward the degree plan.

Students are advised that not all courses listed in this catalog are available at any one time. Some are offered in alternate years, which should be considered when developing degree plans.

Admission to Candidacy

A student who wishes to become a candidate for a master's degree must file a completed application for admission to candidacy in the Graduate School or in the student's graduate program by the appropriate deadline for graduating that semester.

The application must be signed by the student's advisor and the program chair or director, certifying that the student's work is satisfactory and that the program outlined in the application meets the requirements set for the student.

Master's Thesis Credit

Every graduate student working toward a master's degree who expects to present a thesis in partial fulfillment of the requirements for the degree must register for thesis credit with a maximum of 9 semester hours. The final grade will be withheld until the thesis is completed. If the thesis is not completed at the end of the term in which the student is so registered, an *In Progress (IP)* will be reported.

Thesis Requirements

A thesis may be of a research, expository, critical, or creative type. Every thesis presented in partial fulfillment of the requirements for an advanced degree must:

- deal with a definite topic related to the major field
- be based upon independent study and investigation
- represent the equivalent of no more than 6 semester hours of work
- receive the approval of the major department
- be essentially complete at the time the comprehensive final examination is given
- comply in mechanical features with specifications outlined in *Directions for Preparing Master's and Doctoral Theses*, which is obtainable from the Graduate School office or online, and have received thesis format approval

All theses must be approved and signed by the thesis advisor and other committee members. Three copies of the final thesis must be submitted to the Graduate School by the specified deadline. One of these must contain the original signatures of the advisor and other committee members. The thesis binding fee must be paid by **cash or check** when the thesis is submitted to the Graduate School. Approved theses are kept on file in the Auraria Library and in the student's department or school.

Time Limit

Master's degree students have seven years from the date of the start of course work to complete all degree requirements.

DOCTOR OF PHILOSOPHY

The doctor of philosophy (PhD) degree is the highest academic degree conferred by the university. To state the requirements for the degree in terms of semester hours would be misleading, because the degree is not conferred merely upon the satisfactory completion of a course of study, however faithfully pursued.

Students who receive this 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 have shown the ability to work independently in their chosen field and must have made an original contribution of significance to the advancement of knowledge. The technical requirements stated below are minimal requirements for all candidates for the degree; additional conditions set by the departments or schools will be found in the announcements. Any department may make additional regulations consistent with these general rules.

Studies leading to the PhD degree must be chosen so as to contribute to special competence and a high order of scholarship in a broad field of knowledge. A field of study chosen by the student may be in one department or it may include two or more closely related departments. The criterion as to what constitutes an acceptable field of study shall be that the student's work must contribute to an organized program of study and research without regard to the organization of academic departments within the university.

Minimum Course Dissertation Requirements

A minimum of 30 semester hours of graduate courses and 30 semester hours of dissertation credit are required for the PhD degree.

Course Work Requirement. A minimum of 30 semester hours of courses numbered 5000 or above is required for the degree, but the number of hours of formal courses will ordinarily exceed this minimum.

Dissertation Hours Requirement. To complete the requirements for the PhD, a student must complete a total of at least 30 semester hours of doctoral dissertation credit, with not more than 10 of these credit hours taken during any single semester. A minimum of 1 dissertation hour must be registered for each fall and spring semester following successful completion of the colloquium or comprehensive examination.

Dissertation credit does not apply toward the minimum 30 hours of required course work specified above. Course work and work on the dissertation may proceed concurrently throughout the doctoral program, in accordance with program requirements.

Residence

The student must be properly registered to earn residence credit. The minimal residence requirement shall be three semesters of scholarly work.

Examinations

Each PhD program will require at least comprehensive and final examinations. Notice of all examinations must be filed with the dean of the Graduate School at least two weeks prior to administration.

Comprehensive Examination

The student must pass a comprehensive examination in the field of concentration and related fields. This 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.

The examination shall be conducted by an examining board. The board shall consist of the advisory committee and additional members as necessary to total a minimum of four members of the graduate faculty, one of whom is outside the primary department.

Continuous Registration Requirements for Doctoral Candidates

Following successful completion of the comprehensive examination, students must register continuously. These students will register for and be charged for a minimum of 5 hours of dissertation credit each fall and spring semester. A maximum of 10 hours of dissertation credit may be registered for in any one semester. Continuous registration during the academic year will be required until completion of the dissertation defense (excluding summer). Once the student has a successful dissertation defense, and the 30 hours of dissertation has been met, then a minimum of 1 dissertation credit must be taken each semester. It is expected that the student and advisor will consult each semester as to the number of hours for which the student will register, consistent with the classification identified above.

Dissertation Requirements

A dissertation based upon original investigation, showing mature scholarship, critical judgment and familiarity with the tools and methods of research must be written upon a subject approved by the student's doctoral committee and major department. To be acceptable, this dissertation should be a worthwhile contribution to knowledge in the student's special field.

In mechanical features, all dissertations must comply with the specifications as outlined in the *Directions for Preparing Master's and Doctoral Theses*, which may be obtained from the Graduate School office or from the Graduate School Web site. The final draft must be reviewed and approved for format by the Graduate School prior to final copies being made.

Three formally approved and signed, typewritten copies of the dissertation (including abstract), plus one additional copy of the title page and abstract must be filed in the Graduate School office. The thesis binding fee and microfilm fee must be paid **by cash or check** when the dissertation is submitted to the Graduate School office.

The abstract, not to exceed 350 words, will be published in *Dissertation Abstracts International*. The determination of what constitutes an adequate abstract shall rest with the major department, but it should contain the usual elements of an abstract: rationale for the work, major methodology employed, primary results and implications of major findings.

All dissertations must be signed by no fewer than four members who are regularly engaged in graduate instruction and are members of the graduate faculty.

All approved dissertations are kept on file in the Auraria Library. One copy is deposited in the reference section and the other in the archives section of the library. The third copy is sent to the student's department.

When the dissertation is submitted to the Graduate School office, the candidate must sign an agreement with University Microfilms International to allow for publication in *Dissertation Abstracts International* and to grant University Microfilms International the right to reproduce and sell (a) copies of the manuscript in microform and/or (b) copies of the manuscript made from microform. The author retains all rights to publish and/or sell the dissertation by any means at any time except by reproduction from negative microform.

Final Examination/Defense

After the dissertation has been accepted, a final examination of the dissertation and related topics will be conducted. This examination will be wholly or partially oral, the oral portion is to be announced to the university community and is open to all. The examination will be conducted by a committee consisting of at least four members of the graduate faculty, one of whom must be from outside the student's department.

Notice of all examinations must be filed with the dean of the Graduate School at least two weeks prior to administration.

Time Limit

Doctoral degree students have eight years from the date of start of the doctoral program.

GRADUATE FACULTY

The graduate programs at the downtown Denver campus are delivered by faculty who are especially qualified by education and experience for graduate teaching. Everyone who teaches a graduate class at UCDHSC must be able to demonstrate significant ongoing achievements in one or more of the following:

- the scholarship of discovery, including both investigative search for knowledge and creative work in the arts
- the scholarship of integration, including synthesis of knowledge within and across disciplines
- the scholarship of application, including achievements in using knowledge and theory in professional, business, schools, and governmental contexts
- the scholarship of teaching, including successful instruction in school, university and other settings

Individual colleges and schools also require their graduate faculty to possess additional qualifications that are consistent with the national standards of their own academic disciplines. The university and college/school qualifications are published in the "Graduate Faculty" section of the Graduate School Rules. These rules make a distinction between regular faculty, who are typically full-time members of the UCDHSC faculty, and special faculty who may not be full-time, but who have special skills that enhance a college/school's graduate course offerings. Faculty who meet these qualifications are admitted to membership in the graduate faculty of the downtown Denver campus. These are the only faculty members permitted to teach graduate courses or to serve on thesis, dissertation or graduate student committees at either campus of UCDHSC.

RESEARCH OPPORTUNITIES

UCDHSC is strongly committed to the pursuit of new knowledge and novel creative expressions through the research and creative efforts of its faculty. Such activities not only advance knowledge and enhance the quality of life, but they also strengthen teaching by grounding instruction in scholarship and professional practice. In addition, these activities constitute an important component of UCDHSC's service to the community at large. Therefore, externally funded projects are a major priority at the downtown campus.

Research projects, training and public service programs encompass both traditional and nontraditional fields of study, focusing on issues important at all levels—city, state, national and international. The benefits to campus are substantial. Externally funded activities

- assist in sustaining scholarly discourse and creative work
- enable faculty members to engage in the advancement of knowledge,
- provide the foundation for solving pressing practical problems of vital concern to society
- enhance the educational opportunities of students both at undergraduate and graduate levels

All currently funded projects can be viewed at www.cudenver.edu/Academics/Sponsored+Programs/default.htm.

In addition, a great deal of research at the university is conducted without substantial external support. This research also yields important insights that are conveyed to a national audience through faculty publications, presentations, exhibits, performances and professional activities. Many members of the faculty are leaders within the national scholarly community. All these pursuits bring recognition to the university, establish the credibility of its faculty and enhance the value of the degree it confers.

The active engagement of graduate students in these scholarly and creative activities is the center piece of a vibrant program in graduate

education. The mentorship of graduate students by the graduate faculty is a major objective of the educational process. In addition, the consolidation of the downtown Denver campus with the Anschutz Medical Campus is opening new opportunities for collaborative, interdisciplinary work.

CENTERS AND INSTITUTES

As a public, urban university, both the Anschutz Medical Campus and the downtown Denver campus serve as the intellectual and technological centerpiece of Colorado's capital city. Along with that status comes a responsibility to the residents, businesses and communities of Denver. In response to this responsibility, the university has formed a series of outward-facing centers. The centers and institutes of the downtown Denver campus extend their application of knowledge and scholarship beyond the classroom in an effort to impact the entire metropolitan environment. These offer opportunities for graduate students to participate in cutting edge research and creative activities.

College of Architecture and Planning

CHILDREN, YOUTH AND ENVIRONMENTS CENTER FOR RESEARCH AND DESIGN

Director: Willem van Vliet
Office: Boulder Campus
Telephone: 303-735-5199

The Children, Youth and Environments Center for Research and Design works with the design professions and allied disciplines to contribute to the health, safety and welfare of children and youth. The center undertakes and supports interdisciplinary activities in research, teaching and community outreach that connect the worlds of research, policy and practice, while recognizing young people's capacity for meaningful participation in the processes that shape their lives. It focuses in particular on children and youth in environments of disadvantage and those with special needs.

COLORADO CENTER FOR COMMUNITY DEVELOPMENT (CCCD)

Director: Thomas Clark
Office: CU Building, 740
Telephone: 303-556-6650

The Colorado Center for Community Development assists organizations, communities, and neighborhoods which cannot afford or do not have access to such technical or educational assistance. The efforts of the Center are focused primarily on rural towns, low-income communities, and development organizations.

COLORADO CENTER FOR PRESERVATION RESEARCH

Research Assistant: Kris Christensen
Office: CU Building, 740G
Telephone: 303-352-3601

How do we recognize, evaluate, and understand the historical resources around us? How do we best maintain them as useful and meaningful parts of the environment as we shape it? How do we incorporate these considerations into the mainstream of design and planning as we shape our environment? Environmental sustainability demands that we do a better job reusing the existing built fabric. Place, which is so essential to the economy and soul of Colorado, demands that we do a better job understanding and maintaining what we value from the past.

COLORADO CENTER FOR SUSTAINABLE URBANISM

Director: Thomas Clark
Office: CU Building, 320EE
Telephone: 303-556-6650

The West is America's most urban region, and it is fast growing. How will Colorado accommodate a projected doubling of its population over the next few decades? How can we create livable communities for a growing population without creating the worst of sprawl, and without overtaxing or destroying the spectacular natural environment that brought many of us here in the first place? Where and what form will future urban growth take? What are the potential benefits, consequences and costs of this growth?

College of Arts & Media

NATIONAL CENTER FOR AUDIO/VIDEO FORENSICS

Director: Rich Sanders
Office: Arts Building, 288
Telephone: 303-556-2796

The National Center for Audio/Video Forensics (NCA/VF) was established as a cutting-edge forensics center fostering innovation for the development of new knowledge, applications, methodologies, products and services relating to audio and video forensics. Audio/video forensics is the science and practice of finding truth in audio/video pertaining to the law and other investigative situations. Topics of study and practice include audio/video enhancement and certified transcripts, voice recognition, speaker identification, audio/video authentication and specialized analyses. Each of these disciplines has multiple areas of study within it.

Housed in the College of Arts & Media the NCA/VF strives to establish cross-disciplinary, interinstitutional collaborations for research in forensic sciences and homeland security. We will improve opportunities for research through and increase the diversity of students seeking graduate and undergraduate degrees from the College of Arts & Media and open up advanced career opportunities for Colorado researchers in forensic sciences.

College of Engineering and Applied Science

CENTER FOR GEOTECHNICAL ENGINEERING SCIENCE

Director: NY Chang
Office: North Classroom, 3019A
Telephone: 303-556-2810

The Center for Geotechnical Engineering Science advances the understanding of the safety, reliability, performance and environmental impact of engineered geotechnical structures. The center also examines geotechnical stability, rock engineering, geoenvironmental engineering and expansive soils.

FACILITY FOR ADVANCED SPATIAL TECHNOLOGY (FAST LAB)

Director: Lynn Johnson
Office: North Classroom, 3018C
Telephone: 303-556-2372

Three schools—the Department of Geography and Environmental Sciences in the College of Liberal Arts and Sciences, the School of Engineering and Applied Science, and the Department of Urban and Regional Planning in the College of Architecture and Planning—form the core of GIS activity on the downtown Denver campus. The multidisciplinary laboratory provides state-of-the-art GIS science technology for teaching and research. FAST Lab equipment consists of 40 workstations, color printers and plotter, system server, network access and computer projection systems. The lab has secured site licenses for the most advanced GIS, image processing and database management software available in the industry.

TRANSPORTATION RESEARCH CENTER

Director: Bruce Janson
Office: Administration Building, 240
Telephone: 303-556-5246

The Transportation Research Center seeks to address local, state, national and international concerns in all areas of 21st-century transportation. The center works in collaboration with other colleges and businesses and has established several partnerships with Colorado's high-tech industry.

College of Liberal Arts and Sciences

CENTER FOR ETHICS AND COMMUNITY

Director: Candace Shelby
Office: Plaza Building, 108F
Telephone: 303-556-3223

The Center for Ethics and Community seeks to strengthen ethics in schools, the community, universities and all professions. Certificate programs are available to members of the UCDHSC community, as well as individuals outside the university.

CENTER FOR COMPUTATIONAL MATHEMATICS

Director: Leo Franca
Office: CU Building, 645
Telephone: 303-556-8460

The Center for Computational Mathematics was established to foster research in one of the discipline's most exciting new fields. With extensive ties with industry along the Front Range and government laboratories across the country, the center provides outstanding opportunities for motivated students to receive additional training and experience.

FOURTHWORLD CENTER FOR THE STUDY OF INDIGENOUS LAW AND POLITICS

Director: Glenn T. Morris
Office: King Center, 530
Telephone: 303-556-2850

This center provides resources and services that focus on the legal and political issues faced by indigenous populations. The center features a library, periodicals, audio and visual equipment and news file archives on current development issues surrounding "the Fourth World." It will soon offer a certificate program in this area.

School of Public Affairs

INSTITUTE FOR POLICY RESEARCH AND IMPLEMENTATION

Director: Lisa Carlson
Office: Lawrence Street Center, 525
Telephone: 303-352-3800

This institute consists of the Center for the Improvement of Public Management and the Center for Public-Private Sector Cooperation, also known as "The Centers."

The goal of these centers is to enhance the capacity of diverse communities and public, private and nonprofit organization to solve problems and meet the challenges of change by planning and problem solving, leadership training and development, training and technical assistance, and applied research and program evaluation.

WIRTH CHAIR FOR ENVIRONMENT AND COMMUNITY DEVELOPMENT POLICY

Director: Gary Hart
Office: Lawrence Street Center, 525
Telephone: 303-315-2070

The Wirth Chair is committed to helping governments, businesses, non-profit groups and community organizations form sustainable development partnerships that carefully balance economic, environmental and expanded social welfare objectives and strategies.

CENTER FOR EDUCATION POLICY ANALYSIS (CEPA)

Director: Paul Teske
Office: Lawrence Street Center, 500
Telephone: 303-556-5990

The Center for Education Policy Analysis performs research and policy analysis on issues related to prekindergarten, K-12 and higher education, and on related topics such as economic development, science and technology education and finance, both in Colorado and across the nation. CEPA includes a mix of SPA faculty members, full-time staff and PhD student researchers. CEPA prepared a first annual report on the state of Colorado education in 2006, as well as major studies of parent choice, teacher quality, prekindergarten training and school finance.

CENTER FOR DOMESTIC VIOLENCE

Director: Barbara Paradiso
Office: Lawrence Street Center, 440
Telephone: 303-315-2489

The mission of the Center on Domestic Violence is to end domestic violence by fostering institutional and social change through leadership development, education, research and community collaboration. The center responds to a nationally recognized need to educate and train individuals as leaders, advocates and managers and to better understand the causes and consequences of, and effective response strategies to domestic violence. Housed within the School of Public Affairs, its work is organized into three primary components:

Education. Graduate-level academic programs designed to prepare a workforce with the knowledge and ability to reduce, treat, intervene and prevent domestic violence.

Research. Advancing the understanding of domestic violence through original research.

Community. Build strong bonds between the academic and domestic violence communities through training, technical assistance and collaboration.

Through the development of a skilled workforce and informed nation, the center will advance the provision of domestic violence services, policy making and advocacy, ultimately improving the lives of thousands of women, children and men victimized by violence.

School of Business

BARD CENTER FOR ENTREPRENEURSHIP DEVELOPMENT

Director: Sandy Bracken,
Office: 535 16th Street, 300
Telephone: 303-620-4050

Established in 1996 as part of the Business School, the Bard Center offers graduate-level entrepreneurship courses that can be applied toward a graduate business degree or a certificate in entrepreneurship. The Bard Center also hosts an annual business plan competition, manages a venture capital fund to help launch student-initiated ventures and offers incubator space to emerging businesses.

CENTER FOR INFORMATION TECHNOLOGY INNOVATION (CITI)

Director: Rina Delmonico
Office: CU Building, 205
Telephone: 303-989-7575

The Center for Information Technology Innovation (CITI) includes prominent Colorado businesses as corporate sponsors and members. CITI matches the resources of the university with those of its member companies to provide a forum where innovative solutions to current issues and challenges can be explored and implemented. Its mission is to help organizations take full advantage of IT opportunities through programs of excellence in information interchange, education and research and through collaborative initiatives. It also serves as a resource for Business School faculty and students.

School of Education & Human Development

CENTER FOR COLLABORATIVE EDUCATIONAL LEADERSHIP (CEEL)

Director: Deanna Sands
Office: Lawrence Street Center, 650
Telephone: 303-556-6632

Founded in 1993, the Center for Collaborative Educational Leadership (CEEL) seeks to enhance university-community partnerships and expand collaborative efforts aimed at meeting the educational needs of the local community. The center comprises:

- Center for Evidence Based Practices in Early Learning
- Center for Teaching and Learning with Technology
- Colorado Principal's Center
- National Center for Culturally Responsive Educational Systems
- National Institute for Urban School Improvement
- Paraeducator Resource and Research Center
- Positive Early Learning Experiences Center
- Professional Development in Autism Center

EVALUATION CENTER

Director: Bonnie Walters
Office: North Classroom, 5015
Telephone: 303-556-6512

The center's mission as a collaborative enterprise is to promote evidence-based practices and policies through inquiry-based evaluation processes and products.

Office of Academic and Student Affairs

ADVANCE COLORADO CENTER

Director: Leslie Madsen
Office: 1625 Broadway, 950
Telephone: 303-592-4062

The Advance Colorado Center (ACC) provides a common headquarters and logistical support for nonprofit associations and organizations that, in turn, provide a variety of services and programs to companies, entrepreneurs and individuals to stimulate job growth and promote a sustainable corporate environment in Colorado.

CENTER FOR APPLIED SCIENCE AND MATHEMATICS FOR INNOVATION AND COMPETITIVENESS (CASMIC)

Director: Carole Basile
Office: CU Building, 700M
Telephone: 303-556-3336

CASMIC is designed to promote partnerships between UCDHSC, school districts, the business sector and other institutions of higher education for the purpose of growing the next generation of technically educated and trained individuals in Colorado.

CENTER FOR COMPUTATIONAL BIOLOGY

Director: Stephen Billups
Office: CU Building, 600
Telephone: 303-556-6269

The Center for Computational Biology (CCB) is a multicampus center aimed at catalyzing interdisciplinary research and developing education programs in computational biology throughout the University of Colorado system. The center integrates research and education and has successfully engaged associates in collaborations across disciplines and campuses. The CCB offers its own certificate in computational biology, which is a 15-semester-hour graduate program aimed at training students to participate in the rapidly expanding biotechnology industry. The center also has partners in industry and national laboratories.

CENTER FOR INTERNATIONAL BUSINESS EDUCATION AND RESEARCH (CIBER)

Director: Manuel Serapio
Office: Lawrence Street Center, 1150
Telephone: 303-556-4738

The Institute for International Business (IIB) strives to provide assistance to college educators everywhere who are looking to add or enhance international components in their curriculum. The IIB is one of only 30 such centers in the country that has been designated by the U.S. Department of Education as a Center for International Business Education and Research (CIBER).

LATINO/A RESEARCH AND POLICY CENTER (LRPC)

Director: Estevan Flores
Office: Lawrence Street Center, 1100
Telephone: 303-352-3700

The LRPC addresses issues of Latino/a health education and immigration to achieve our research and policy goals. The center's health work frames on cancer presentation and research and is funded largely by the National Cancer Institute.

NATIONAL LEARNING CENTER

Director: Steve Chapman
Office: Lawrence Street Center, 1170
Telephone: 303-315-2200

The National Learning Center's mission and purpose is to provide learning opportunities for professional adults who desire the knowledge, skills and ability necessary for them to improve their lives and the lives of the persons with whom they live and work. All of the center's products are tailored and developed by working directly with the customer to meet their specific learning needs.

International Education

The University of Colorado at Denver and Health Sciences Center, through International Education (IE), provides a variety of international programs, educational opportunities and services for international and domestic students, scholars, faculty, staff and the greater Denver community. The goals of IE are to raise international awareness on the UCDHSC campus and, in particular, to provide an opportunity for all students to gain the global competency needed in today's interdependent world.

Associate Director: Derrick Alex
Office (Courier Address): International Education, 1380 Lawrence Street,
9th Floor, Denver, CO 80204-2029 USA
Mailing Address: International Education, Campus Box 185,
P.O. Box 173364, Denver, CO 80217-3364 USA
Telephone: +1-303-315-2230
Fax: +1-303-315-2246
E-mail: international@cudenver.edu
Web Site: www.internationaladmissions.cudenver.edu

IE arranges student study abroad programs, expedites the exchange of students and faculty, hosts international visitors, promotes special relationships with international universities, and advises students and faculty on Fulbright, National Security Exchange Program (NSEP) and other scholarship opportunities. IE also functions as a recruiting, retention and advisory office for international students and coordinates many services for them before and after they have been accepted to UCDHSC, including new student orientation, visa and immigration advice and assistance in a variety of areas.

INTERNATIONAL ADMISSIONS

The Department of International Admissions at the University of Colorado at Denver and Health Sciences Center (UCDHSC) assists all international students with the international application process from first contact through issuance of initial immigration documents. The conversion of foreign grades into the U.S. system is done in-house. At the request of academic departments, International Admissions also evaluates course work completed at foreign institutions by domestic applicants.

International Admissions representatives travel overseas to recruit qualified international students. The department also advises staff and faculty traveling overseas on possible networking with prospective international students, visiting Fulbright offices and foreign universities with UCDHSC brochures and information.

International Admissions Application Deadlines

Undergraduate		
Term	Preferred Deadline	Final Deadline
Summer	January 15	May 3
Fall	March 15	July 22
Spring	October 1	December 1

Graduate	
Term	Preferred Deadline
Summer	January 15
Fall	February 15*, March 15
Spring	October 1

Final deadlines vary by department and by programs.

* College of Architecture & Planning

English Language Requirement

Both Test of English as a Foreign Language (TOEFL) scores and the International English Language Testing System (IELTS) scores are accepted at UCDHSC as proof of English Language Proficiency.

The UCDHSC institutional code for TOEFL is 4875. Test Information and registration materials for TOEFL may be obtained from the Ministry of Education, American Culture Center or educational institutions in the applicant's country. Information may also be obtained directly from:

Educational Testing Services, CN 6151
Princeton, NJ 08541-6151 USA
606-921-9000
www.toefl.org
e-mail: toefl@ets.org

To receive test information and registration materials for IELTS please visit www.ielts.org or send an e-mail to ielts@ieltsintl.org.

APPLYING TO UNDERGRADUATE PROGRAMS

1. Submit a complete International Application form along with a \$75 nonrefundable application fee, **payable to the University of Colorado at Denver and Health Sciences Center**. DO NOT SEND CASH. The application fee must be in U.S. funds only. (Use an International Money Order or your personal check payable in U.S. currency). Please send it to the following address:

By Air Mail:

University of Colorado at Denver and Health Sciences Center
International Admissions
P.O. Box 173364, Campus Box 185
Denver, CO 80217-3364
USA

By Courier (FedEx, DHL, UPS, etc.):

University of Colorado at Denver and Health Sciences Center
International Admissions
1380 Lawrence Street, 9th Floor
Denver, CO 80204-2029
USA
303-315-2230

2. Applicants must submit complete and "official" academic records of all course work from secondary schools and any universities attended. Official academic records are records which are directly sent by the issuing institution to the university or are issued to the student in a sealed envelope to be delivered by the student to the university.

At A Glance: International Education

International Students*

On the Denver campus: 412
Undergraduate: 99
Graduate: 313

Average number of international students per year over the past 10 years:

Undergraduate: 227
Graduate: 379

International Student Organizations on Campus

American Indian Student Association
Asian Student Alliance
Chinese Student Association
Indian Student Organization
International Business Student Network (IBSN)
Korean Student Association
Mongolian Student Club
Muslim Intent on Learning and Activism (MILA)
Muslim Student Association
South Asian Student Association



Students have hailed from

Albania	Gambia	Pakistan
Algeria	Georgia	Panama
Angola	Germany	Paraguay
Argentina	Ghana	Peru
Armenia	Greece	Philippines
Australia	Guatemala	Poland
Austria	Guinea	Portugal
Azerbaijan	Guyana	Qatar
Bahrain	Haiti	Romania
Bangladesh	Hong Kong (S.A.R)	Russia
Barbados	Hungary	Rwanda
Belarus	India	Saudi Arabia
Belgium	Indonesia	Sierra Leone
Benin	Iran	Singapore
Bosnia-Herzegovina	Israel	Slovenia
Botswana	Italy	South Africa
Brazil	Jamaica	Spain
Bulgaria	Japan	Sri Lanka
Burkina Faso	Jordan	Sudan
Cambodia	Kazakhstan	Swaziland
Cameroon	Kenya	Sweden
Canada	Korea	Switzerland
Chad	Kyrgyzstan	Syria
Chile	Kuwait	Taiwan
China	Laos	Tanzania
Colombia	Latvia	Thailand
D.R. of Congo	Lebanon	Tunisia
Costa Rica	Liberia	Turkey
Cote D'Ivoire	Lithuania	Uganda
Croatia	Malaysia	Ukraine
Cyprus	Mali	United Arab Emirates
Czech Republic	Mexico	United Kingdom
Denmark	Micronesia	Uzbekistan
Ecuador	Moldova	Venezuela
Egypt	Mongolia	Vietnam
Eritrea	Morocco	Yugoslavia
Estonia	Nepal	Zambia
Ethiopia	Netherlands Antilles	Zimbabwe
Finland	New Zealand	
France	Nigeria	
	Norway	
	Oman	



*Fall 2006 end-of-term enrollment data

Number of international faculty in 2006–2007:

73 (two as visiting faculty)

Bragging Rights

Denver is known worldwide as the “Mile High City,” because it’s situated at an altitude of 5,280 feet (1.61 kilometers). It is home to 2.5 million people and is the Colorado state capital.

Denver is located at the base of the Rocky Mountains—25 ski resorts are located within a two-hour drive.

The sun shines in Colorado 300 days per year, so you’ll have beautiful weather to enjoy the nation’s largest park system.

In addition to an extensive public transportation system, you can bike along 650 miles (1,046 kilometers) of paved paths around Denver.

See the Campus Life chapter for additional information about the UCDHSC campus.

Testimonials

“I consider myself highly privileged to be part of UCDHSC. The Denver campus has the best of both worlds—it’s nestled right in the heart of the city and it’s a very self-sufficient campus...I am extremely happy with the conceptual knowledge and strength I have garnered from my courses.” Tina Rajiv Mathew, India

“I have received nothing but the most gracious attention to my needs as an international student at UCDHSC—starting from the admissions process, moving through the orientation, and finally settling down in this place of beauty. I would like to thank the staff of International Admissions for making that easy, and all the people of UCDHSC for their gentleness and support.” Ahmad Ali Al-Omari, Jordan

“I am not just pursuing academics in Denver: I have learned first-hand how to navigate cultural differences, have improved my English language, writing and speaking skills and have gained business insight. Because of my experiences in Denver and at the university, when I graduate, I’ll step into the world marketplace with confidence.” Roman Buzinov, Russia

“Being at UCDHSC, I can not only work closely with world famous research-oriented professors, but also enjoy the culturally enriched city, the Mile High Denver.” Wu Weijia, China

“Professors are not only teachers, they are friends who make the transition to the real world easier, especially for someone from a different culture. I will never forget my experience here.” Juan Carlos Hernandez, Peru



If the documents are not written in English, they must be translated by a certified translator. The translation must be literal and no conversion of grades should be attempted by the translator. Undergraduate applicants who have more than one year full-time course work in a post secondary institution are not required to submit high school transcripts.

3. Both Test of English as a Foreign Language (TOEFL) scores and the International English Language Testing System (IELTS) scores are accepted at UCDHSC as proof of English Language Proficiency. Applicants must submit an official TOEFL or IELTS score report which is no more than two years old.

The UCDHSC Institutional Code for TOEFL is 4875. The English Language requirement may be waived if the applicant has completed six hours of college-level English composition with a “B” average (3.0 GPA or higher) from an accredited U.S. institution.

4. A financial statement and a bank statement from the sponsor showing the amount of funds available for support must be submitted to the university. If the student has been awarded a scholarship from a private source or government agency, enclose the award letter. All financial support documents and documentation from banks must be original and should not be more than six months old.

5. The Scholastic Aptitude Test (SAT) or American College Test (ACT) score is required for undergraduate freshman engineering applicants. **Please be advised that all documents submitted along with the application become the property of the university and will NOT be returned to the applicant.**

The student’s file will not be considered complete, nor will it be submitted to the admissions committee, until all requested materials are received. To expedite processing, all the information should be sent at least five months before the semester in which you wish to enroll.

APPLYING TO GRADUATE PROGRAMS

1. Submit a complete international application form along with a \$75 nonrefundable application fee, **payable to the University of Colorado at Denver and Health Sciences Center. DO NOT SEND CASH.** The application fee must be in U.S. funds only. (Use an international money order or your personal check payable in U.S. currency.) Please send it to the address on the application form.
2. Certified copies of “official” academic records from each college or university, and/or professional schools attended, should be submitted to the university. These official academic records should include courses completed, grades or marks obtained and certificates or degrees awarded. Official academic records are records which are directly sent by the issuing institution to the university or are issued to the student in a sealed envelope to be delivered by the student to the university. If documents are not in English, they must be translated by a certified translator. The translation must be literal and no conversion of grades should be attempted by the translator.
3. Both Test of English as a Foreign Language (TOEFL) scores and the International English Language Testing System (IELTS) scores are accepted at UCDHSC as proof of English Language Proficiency. (Applicants must submit an official TOEFL or IELTS score report which is no more than two years old.) The UCDHSC Institutional Code for TOEFL is 4875. The English language requirement may be waived if the applicant has attended a college or university in the United States as a full-time student and has completed two semesters of academic work with a “B” average (3.0 GPA or higher).
4. A financial statement and a bank statement from the sponsor showing the amount of funds available for support must be submitted to the university. If you have been awarded a scholarship from a private source or government agency, enclose the award letter. All financial support documents and documentation from banks must be original and should not be more than six months old.

Minimum Requirements for International Applicants

UNDERGRADUATE FRESHMAN (FIRST-YEAR) STUDENTS

College	TOEFL*			or IELTS	ACT/SAT
	Computer Based	Internet Based	Paper Based		
Arts & Media**	197	71	525	6.0	Not required
Business	197	71	525	6.0	Not required
Criminal Justice	197	71	525	6.0	Not required
Engineering	197	71	525	6.0	25/1150
Liberal Arts and Sciences	197	71	525	6.0	Not required

* The English language requirement can be satisfied with one of the three TOEFL exams or the IELTS exam.

** Some programs in Arts & Media require an audition.

UNDERGRADUATE TRANSFER STUDENTS

College	TOEFL*			or IELTS	No. of Hrs. to Transfer	GPA
	Computer Based	Internet Based	Paper Based			
Arts & Media**	197	71	525	6.0	12	2.0
Business †	197	71	525	6.0	24	3.0
Criminal Justice	197	71	525	6.0	12	2.0
Engineering‡	197	71	525	6.0	24	2.75
Liberal Arts and Sciences	197	71	525	6.0	12	2.0

* The English language requirement can be satisfied with one of the three TOEFL exams or the IELTS exam.

** Some programs in Arts & Media require an audition.

† Must meet the same GPA requirements as domestic students.

‡ A minimum of one year’s course work in calculus and calculus-based physics is required for engineering.

GRADUATE STUDENTS

College	TOEFL			IELTS
	Computer Based	IBT Based	Paper Based	
Architecture & Planning	197	71	525	6.0
PhD Design & Planning	233	90	575	6.5
Business	197	71	525	6.0
Education & Human Development				
Master’s	197	71	525	6.0
PhD	213	79	550	6.5
Engineering	173	61	500	5.5
Public Affairs	213	79	550	6.5
Criminal Justice	197	71	525	6.0
Most other programs	173	61	500	5.5

Minimum TOEFL and IELTS scores vary by academic department.

5. Three letters of recommendation* (two letters for the Business School; four letters for English, chemistry and biology) from college or university professors must accompany the international application form. If you have been out of school for several years, we will also accept recommendations from your employer or supervisor. The admissions committee prefers academic recommendations over employer/supervisor recommendations.

*The Department of Electrical Engineering requires that at least two of the letters be from university faculty.

6. The Graduate Management Admission Test (GMAT) is required if you are applying to the Business School. For more information, please visit www.mba.com. The GMAT institutional codes for Business School programs are:

Program	Code
MBA	MPB-0G-78
11-Month MBA	MPB-0G-65
MS Programs	MPB-0G-75
PhD Program	MPB-0G-29

The Graduate Record Examination (GRE) is a requirement for admission consideration in many graduate departments and considered valuable for other programs. For more information, visit www.gre.org. You can also e-mail gre-info@ets.org or call +1.609.771.7670. The UCDHSC institutional code for the GRE is 4875.

If you are applying for a master's degree in public administration or the criminal justice program, you must take the GMAT or GRE.

Departmental Requirements

Graduate applications are reviewed by a faculty committee in the department in which the student wishes to enroll. Only those students who have completed an undergraduate program that is equal to a U.S. bachelor's degree are considered for admission. Please check with academic departments for specific program requirements.

To access department Web sites, go to www.cudenver.edu, click on Academics, and click on specific schools or colleges.

Please be advised that all the documents submitted along with the application become the property of the university and will NOT be returned to the applicant.

The student's file will not be considered complete, nor will it be submitted to the admissions committee, until all requested materials are received.

DEPARTMENT OF BIOLOGY

Please visit the department Web site for admissions information, www.cudenver.edu/clas/biology/grad.html.

BUSINESS SCHOOL

The Business School also requires that you answer the following essay questions as part of your application. The essays should be limited to 200 words per question and included on a separate sheet of paper. Sign and date the pages and include them with your application:

1. How will the MBA/MS degree enhance your career plans? Project the kinds of positions you anticipate having five years after earning the degree. What experiences have you had that form the foundation of your goals?
2. Give a candid appraisal of yourself. Include some discussion of your strengths and weaknesses.
3. Discuss three of your achievements or accomplishments.
4. Describe your level of commitment to education and the ways in which you might make a special contribution to the learning experience of others.

DEPARTMENT OF ELECTRICAL ENGINEERING

Students applying for the MS in electrical engineering are required to choose an area of specialization from the following:

- Systems and Controls
- Signal Processing
- Communication Systems
- Microelectronic VLSI
- Computer Engineering
- Photonics

EXPENSES

The estimated tuition, living expenses which include room, board, books and insurance, for the fall 2007, spring 2008 and summer 2008 (9 months) semesters for international students is listed below. Expenses are subject to change without notice. Personal expenses and travel costs are not included. The tuition costs may change yearly, and fees, books and supplies vary according to program. Taking more credits may also increase the cost of the program. If summer is your first term on the downtown Denver campus, you are required to be registered as a full-time student to maintain immigration status.

Estimated Undergraduate Costs* (12 credits)

Tuition and Fees	\$18,097
Room and Board	\$9,100
Books and Insurance	\$1,925
Total Shown on Immigration Document	\$29,122

For each dependent, estimate an additional \$3,500.

Estimated Graduate Costs* (6 credits)

Tuition and Fees	\$15,166
Room and Board	\$8,632
Books and Insurance	\$1,925
Total Shown on Immigration Document	\$25,723

For each dependent, estimate an additional \$3,500.

*Estimated costs are for fall 2007 and spring and summer 2008. These figures are for budgeting purposes only. Expenses are subject to change at any time without notice. Personal expenses and travel costs are not included.

INTERNATIONAL STUDENT ADVISING AND SUPPORT SERVICES

Since the first few months in a new country and a new city can be particularly difficult for international students, IE offers a number of special services to ease this transition, such as an orientation program for new international students and answers to visa questions. All international students meet with an international student advisor (ISA) in IE upon arrival in Denver to have visas and other paperwork reviewed. IE provides a friendly place to ask questions and express concerns about many issues, including U.S. social customs, as well as an avenue for communicating with other UCDHSC international student clubs and organizing social activities. For more information on immigration matters, advising or services for international students, visit our Web site at www.cudenver.edu/international or contact an international student advisor at 303-315-2230.

Live-In Requirement

UCDHSC downtown Denver campus requires that all first-time international undergraduate students live in the Campus Village at Auraria apartments. Additional information about the facilities, policies and programming at Campus Village are available in the "Campus Life" section of this catalog.

First-time international undergraduate students wishing to live with parent(s) or legal guardian(s) or who meet at least one of the exemptions must submit a special exemption form to be considered for exception from the live-in policy.

Exemptions to the international undergraduate student live-in requirement will be considered for those who are:

- living at home with parent(s) or legal guardian(s)
- married or a parent with dependent(s)
- deemed medically excusable by the Office of Student Life (must be supported in writing by a doctor and with appropriate medical documentation)
- over 21 years of age

Exemptions to these policies will be evaluated and made on a case-by-case basis. Exemption forms are available through the Office of Student Life, Tivoli room 303, or online at <http://thunder1.cudenver.edu/housing/exemptionform.html>. It is not mandatory for international graduate students to live on campus. For further information, please call the Office of Student Life at 303-556-3399 or via e-mail at housing@cudenver.edu.

Scholarships

International Presidential Scholarships are available for international undergraduate students. The scholarship carries a value of \$ 5,000 per year for four years as long as student maintains a satisfactory record at the University. These scholarships are awarded to students who demonstrate academic excellence and leadership. All undergraduate applicants who submit a complete application with all necessary documents by April 1 will be considered for this award.

A limited number of scholarships, graduate assistantships, research assistantships, teaching assistantships and student assistant positions are also available for international students within their academic departments. Any form of assistantship or on-campus job cannot be guaranteed. Qualified students can apply for these positions depending on availability. Students are encouraged to check with academic departments for more information.

On-Campus Employment

On-campus employment is permissible for F-1 and J-1 students provided they maintain immigration status, a minimum GPA and full-time enrollment. Students must request work authorization prior to commencing employment.

Health Insurance

All F-1 and J-1 students enrolled at the University of Colorado at Denver and Health Sciences Center are required to have health insurance and must purchase the university health insurance at the time of enrollment. The only exception is for F-1 and J-1 students whose insurance is paid for by their embassy or who are government sponsored. Health Insurance for J-2 dependents is a mandatory plan. The Student Health Insurance Office must be provided proof of adequate coverage for J-2 dependents or the student will be charged for the university dependent plan. Please contact the Student Health Insurance Office at 303-556-6273 or Kelly.Lane@cudenver.edu for more information. The cost of health care in the United States is high, and these expenses are not covered or subsidized by the government as they are in many countries. International students at UCDHSC must recognize this fact and protect themselves against high medical costs by purchasing insurance.

Student Life

The Office of Student Life is the advising, coordinating, resource and general information center for student clubs and organizations, student

government (ASCUD), student programs and the academic honor societies. The office also administers the Student Code of Conduct and student grievance procedures.

GRADUATE STUDENT AND FACULTY FULBRIGHT INFORMATION

IE maintains listings of opportunities and other information on various scholarships and fellowships for study and research abroad, including Fulbright graduate student and faculty visiting lectureships at foreign universities.

COMMUNITY OUTREACH SERVICES

During the year, IE sponsors periodic guest lectures and special seminars focused on topics of current international interest. Many of these activities are open to the public as well as the UCDHSC community. IE is also an active participant in a number of Denver community international programs and events. For more information about these and other programs, contact the IE office at 303-315-2230.

STUDY ABROAD

IE assists students who want to make international study an integral part of their college experience. Study abroad programs vary in length from a few weeks to one academic year, and are also offered during the summer and winter breaks. Although many programs are for language study, a substantial number of programs are taught in English; thus, a foreign language is not always required for participation. These programs are available to students in all disciplines and colleges in a variety of countries worldwide. Either UCDHSC or transfer credit may be earned abroad, giving students the opportunity to fulfill degree requirements while experiencing a new culture.

Since tuition and program fees are generally affordable and financial aid may be available and can be used for study abroad, it is a feasible option for every UCDHSC student. Information and advice on scholarships such as Fulbright and NSEP, as well as volunteer and work opportunities abroad, are also available. New programs are continually developing. Please check the study abroad Web site to learn more about our programs: <http://studyabroad.cudenver.edu>.

INTERNATIONAL COLLEGES

UCDHSC, through the Office of International Education, is administering one international college in Beijing, China. The International College at Beijing (ICB) was established in 1994 as an educational partnership between China Agricultural University (CAU) and the University of Colorado at Denver (now UCDHSC). The agreement reached between the university and Chinese educational authorities is now recognized as being among the first bilateral educational programs authorized by the Chinese government.

ICB/UCDHSC offers a carefully designed program leading to a baccalaureate degree from UCDHSC to Chinese students. The courses are taught in English and cover the same subject matter as the courses taught on the UCDHSC downtown Denver campus. Currently, this unique educational program offers degrees in communication and economics. The degree program was accredited by the North Central Association (NCA) of the United States in fall 1995. In 1998, ICB was accredited by the Chinese Ministry of Education. For more information contact the Office of International Education at 303-315-2230.

Tuition, Fees and Financial Aid

At UCDHSC, we have a longstanding belief that finances should never stand in the way of motivated, talented individuals who want to better themselves and make a positive impact on the world around them. Through a tradition of providing strong financial assistance and aid programs, we enforce this belief every day.

TUITION AND FEES

Bursar: Jim Freas

Office: North Classroom, 1003

Telephone: 303-556-2710

E-mail: Jim.Freas@cudenver.edu

Web site: www.cudenver.edu/Bursar/

Student Service Center: North Classroom, 1001

Telephone: 303-556-2710

All tuition and fee rates are established by the Board of Regents, the governing body of the University of Colorado, in accordance with legislation enacted annually by the Colorado General Assembly. The regents set tuition rates and fees at a budget retreat in June for the coming fall, spring and summer terms, but reserve the right to change rates at any time. Rates for the current year are available online to assist prospective students in anticipating costs. Please refer to the Web site at www.cudenver.edu/bursar/ in July for new rates.

New for Fall 2007

REGISTRATION ADVANCE PAYMENT

All students will be required to pay a nonrefundable \$200 registration advance payment each term prior to registering. Students may register for a term once that term's registration advance payment is made. This advance payment will be applied to that term's tuition and fees cost.

In order not to disadvantage students who have significant financial need, a waiver of the term's registration advance payment will be allowed if the student has applied for financial aid and has met other financial aid eligibility criteria for that term. If the student pays the registration advance payment and later applies for and receives full tuition and fees from financial aid, the excess paid will be refunded to the student.

For more information, please visit www.ucdhsc.edu/admin/bursar/billandenroll/.

DROP CHARGE

Beginning the second Tuesday of the fall and spring terms until census date (the fourth day of summer term), a \$100 drop transaction charge will be assessed each time a student drops a course. This includes student-initiated drops done in order to change sections within a course. Section changes done for an administrative purpose through the deans' offices will be exempted from drop charges. If a student withdraws (therefore dropping all classes), a drop charge will be assessed for each course.

For more information, please visit www.ucdhsc.edu/admin/bursar/billandenroll/.

Special tuition rates are available for nondegree graduate students taking undergraduate courses only. Contact the Office of the Registrar at 303-556-2389 to request this special tuition rate.

Payment of Tuition and Fees

All tuition and fees (except the application fee) are due on the first day of class, according to guidelines on the Web site. Students may choose the payment plan that is available on the downtown Denver campus. Specific information on the deferred payment plan is included on the Web site, published before each semester. Tuition and fees for students who are receiving financial aid will also be due on the first day of class.

Students who register for courses are liable for payment of tuition and fees if they withdraw from school after census date. This includes students who are administratively dropped after the fourth week of the term if they have not paid in full or signed up for the payment plan. Refund policies for students who withdraw from the university both before and after census date are included in the academic calendar, available by going to www.cudenver.edu and clicking Registrar (SMART) under Quick Links. A student with financial obligations to the university will not be permitted to register for any subsequent term, to graduate, to be issued transcripts or to be listed among those receiving a degree or special certificate. The only exception to this regulation involves loans and other types of indebtedness that are due after graduation. Personal checks are accepted for any university obligation. Any student who pays with a check that is not acceptable to the bank will be assessed an additional service charge. Students may also pay tuition and fees by credit card, or through the SMART system by credit card or an electronic withdrawal directly from a checking or savings account.

Students who register in a nondegree status, and who later apply and are admitted to a degree status for that term, are responsible for the difference in tuition between the nondegree program and their applicable degree program and will be billed accordingly.

Tuition Appeals

Students are responsible for abiding by the published deadlines. Tuition is not refundable when students drop or withdraw from courses after the published deadlines. If circumstances beyond the student's control have made the late drop or withdraw necessary, the student may file a tuition appeal.

Instructions and forms for submitting a tuition appeal are available on the registrar's Web site, www.cudenver.edu/Registrar, in the Student Services Center in North Classroom, or in the Office of the Registrar in the CU Building Annex. Completed tuition appeals packets must be submitted to the tuition appeals coordinator in the registrar's office within three months following the end of the term being appealed.

Past Due Tuition and Fees

Past due student accounts are referred to the Office of Student Debt Management (SDM) for collection. If accounts are not paid in full, a 20% internal collection costs will be assessed on the unpaid balance. This is in addition to the 1.5% service charge per month that all past due accounts are subject to. If your account is referred to a third-party

agency, you must pay any collection costs and attorney fees allowed by the Uniform Consumer Credit Code.

College Opportunity Fund (Vouchers)

An act of the Colorado State legislature in May 2004 established a new way for the state to provide state tax dollar support for higher education at the undergraduate level. The state is no longer appropriating monies to institutions for undergraduate education, but is providing direct funding to undergraduate students through the “College Opportunity Fund” or “COF.” This program is also known as “vouchers” or “stipends.” If an undergraduate in-state student applies for and authorizes use of the voucher, COF vouchers will be applied to the student’s university bill.

For details, see www.CollegeinColorado.org.

Residency Classification for Tuition Purposes

Tuition classification is governed by Colorado statutes that apply to all state-funded institutions in Colorado. Institutions are bound by the provisions of this statute and are not free to make exceptions to the rules set forth.

Students are initially classified as in-state or out-of-state for tuition purposes at the time of application. The classification is based upon information furnished by the student and from other relevant sources. After the student’s status is determined, it remains unchanged in the absence of satisfactory evidence to the contrary.

Once a student is classified as a nonresident for tuition purposes, the student must petition for a change in classification. Petitions must be submitted **NO LATER THAN THE FIRST OFFICIAL DAY OF CLASSES** of the term for which the student wishes to be classified as a resident. It is preferred that petitions be received 30 days prior to the beginning of the term. Late petitions will not be considered until the next semester. Specific information may be obtained from the Office of Admissions.

The final decision regarding tuition status rests with the university. Questions regarding residence (tuition) status should be referred only to the tuition classification officer. Opinions of other persons are not official or binding upon the university. Additional information is available in the brochure *Classification of Students for Tuition Purposes*, which may be obtained from the admissions office.

BASIC REQUIREMENTS

The statute provides that an in-state student is one who has been a legal domiciliary of Colorado for one year or more immediately preceding the beginning of the term for which the in-state classification is being sought. Persons over 23 years of age or who are emancipated establish their own legal domicile. Those who are under 23 years of age and unemancipated assume the domicile of their parent or court-appointed legal guardian. An unemancipated minor’s parent must, therefore, have a legal domicile in Colorado for one year or more before the minor may be classified as an in-state student for tuition purposes.

ESTABLISHING DOMICILE

Domicile is established when one has a permanent place of habitation in Colorado and the intention of making Colorado one’s true, fixed, and permanent home and place of habitation. The tuition statute places the burden of establishing a Colorado domicile on the person seeking to establish the domicile. The question of intent is one of documentable fact and needs to be shown by substantial connections with the state sufficient to evidence such intent. Legal domicile in Colorado for tuition purposes begins the day after connections with Colorado are made sufficient to evidence one’s intent. The most common ties with the state are (1) change of driver’s license to Colorado, (2) change of automobile registration to Colorado, (3) Colorado voter registration, (4) permanent employment in Colorado, and most important, (5) payment of state income taxes as a resident by one whose income is sufficient to be taxed. Caution: payment or filing of back taxes in no way serves to establish legal domicile retroactive to the time filed. In order to qualify for in-state

tuition for a given term, the 12-month waiting period (which begins when the legal domicile is established) must be over by the first day of classes for the term in question. If one’s 12-month waiting period expires during the semester, in-state tuition cannot be granted until the next semester.

Resident Tuition for Active Duty Military Personnel

The Colorado legislature approved resident tuition for active duty military personnel on permanent duty assignment in Colorado and for their dependents. **ELIGIBLE STUDENTS MUST BE CERTIFIED EACH TERM.** Students obtain a completed verification form from the base education officer, and submit the form with their military ID to the registrar’s office after they have registered, but before the end of the drop/add period. At the time the verification form is certified in the registrar’s office, the student’s bill will be adjusted to reflect the resident tuition rate. Students who have been certified remain classified as non-residents for tuition purposes and must petition to change their status once they establish permanent ties to Colorado.

FINANCIAL AID

Director of Financial Aid: Patrick McTee

Office: North Classroom, 1030

Telephone: 303-556-2886

E-mail: finaid@cudenver.edu

Web site: www.cudenver.edu/finaid

The Office of Financial Aid offers more than \$70 million in financial aid awards to qualified students at the downtown Denver campus each year. If the student’s financial aid application materials are received before the April 1 priority date, then the student is considered for a package of need-based grant, work-study (part-time employment), and/or student loan funds. If the financial aid application materials are received after the April 1 priority date, then the student is usually considered only for a Federal Pell Grant and student loans.

Eligibility

Each student must qualify for UCDHSC financial aid as follows:

1. Be a U.S. citizen or be admitted to the U.S. by the INS on a permanent basis.
2. Be classified as a degree-seeking student by the downtown Denver Office of Admissions. Teacher certification students are eligible to apply for financial aid and are considered undergraduate students according to federal guidelines.
3. Be enrolled for a minimum number of credits as specified on the financial aid award letter.
4. Meet the minimum requirements of Financial Aid Academic Standards.
5. Apply for financial aid by submitting all of the required documentation. The Free Application for Federal Student Aid (FAFSA) is required for all programs.
6. Not be in default on any student loan or owe a refund on any educational grant.
7. Male applicants must be registered with the Selective Service.

Applying

Each applicant must complete the financial aid application materials for submission to the Office of Financial Aid. Complete information must be available to the office before eligibility can be determined.

Limited Funds—The majority of general financial aid funds are awarded on a first-come, first-served basis to eligible students who document significant financial need and who complete their application materials in the Office of Financial Aid by the April 1 priority date. Application completion is defined as having the results of the FAFSA (Free Application for Federal Student Aid) and all other required

documents into the Office of Financial Aid. Financial aid is awarded to needy students who meet the priority date until all of the funds are committed for the year. If the file is completed after April 1, then awards will probably be limited to Federal Pell Grant (for needy undergraduate students only) and/or student loans. Application for financial aid must be made each year; application materials are available in January of each year.

It is the student's responsibility to be sure application materials are complete. Please contact the Office of Financial Aid for application forms and complete details. All financial aid policies and procedures are subject to change due to revisions in federal and state laws, regulations and guidelines.

Qualifying

FINANCIAL NEED

Most financial aid awards are based on the concept of financial need. Financial need is calculated as cost of attendance (tuition, fees, books, living expenses) minus family contribution (student/spouse contribution and parents' contribution for dependent students).

The cost of attendance is the estimated cost to attend UCDHSC, including tuition and fees, room and board, books and supplies, transportation and personal expenses. The Office of Financial Aid determines standard budgets based upon average tuition and fees charged and other budget items established by the Colorado Commission on Higher Education. Current cost-of-attendance figures are available on our Web site at www.cudenver.edu/finaid.

The contributions from the student/spouse and from the parents are calculated by a standardized formula that is required by federal law. The formula considers income, savings and other assets, family size, number of children in postsecondary school, and other factors.

If the student/spouse contribution plus the parents' contribution is equal to or greater than the cost of attendance, then the student will not qualify for need-based financial aid. Students may appeal for special consideration if they are experiencing unusual circumstances. Financial aid is intended to supplement and not replace financial contributions from the student and parents.

DEPENDENCY

The federal government provides specific guidelines that define dependency for financial aid purposes. Students classified as dependent are required to provide household and financial information from their parents when applying for financial aid. If a student is classified independent, then the student's parental information is not considered when the calculation of family contribution is made.

Current law defines an independent student as one who meets at least one of the following conditions:

1. Age 24 or older
2. Graduate student
3. Married student
4. Student with legal dependents other than a spouse
5. Veteran of the U.S. armed forces or currently on active duty
6. Orphan or ward of the court

Dependency may be appealed to the Office of Financial Aid if unusual circumstances exist. Contact the office for appeal guidelines.

COURSE LOADS

Most undergraduate financial aid programs require at least 12 credits per semester, and graduate programs require at least 5 credits per semester. Federal Stafford Loan recipients must carry at least a half-time credit load (6 hours for undergraduates per semester and 3 hours for graduates per semester). Higher or lower minimums may be required for individual awards (check your award letter for the exact number of credits required).

ACADEMIC PROGRESS

UCDHSC students must make satisfactory academic progress as defined by the Office of Financial Aid to be eligible for financial aid. Students should review the Financial Aid Academic Standards policy, available on our Web site or from the office.

REFUNDS AND REPAYMENTS

If a recipient of federal financial aid withdraws from all classes on or before the 60 percent point in time in the term, that student may be required to repay a portion of his/her financial aid. The federal government has defined that the recipient has only earned a portion of their financial aid, and the earned aid is directly proportional to the percentage of time the student attended classes up to and including the 60 percent point in time in the term. The rest of the financial aid is defined as unearned financial aid and must be returned to the federal financial aid programs. Unearned aid includes both the amount allocated to tuition and fees and the amount allocated to the student for other educational expenses. For a complete description of these requirements, request a copy of the Financial Aid Repayment policy from the Office of Financial Aid.

APPEALS

Students may appeal all decisions of the Office of Financial Aid by completing a request for review form and submitting it to the office. Appeals are considered within three weeks and a written response is mailed to the student.

FIND IT HERE

Not sure of the difference between the registrar and the bursar? Questions about student loans? Here's a quick guide to finding what you need.

Admissions

CU-Denver Building Annex, 200
303-556-2704
www.cudenver.edu/Admissions
Application: pick up, drop off, application fee payment, admission status
Establishing domicile for tuition classification
General transfer credit information
Information about UCDHSC
Residency forms
Scholarship guides
Talk to and admission counselor

Bursar

North Classroom, 1003
303-315-2710
www.cudenver.edu/Bursar
Application fees payments by credit card
College Opportunity Fund (vouchers)
Departmental deposit transactions
Payment of tuition and fees
Refunds
Student account reconciliation
Student Service Center—one-stop processing for bursar, financial aid, registration and admission functions
Third-party billing

Financial Aid

North Classroom, 1030
303-556-2886
www.cudenver.edu/FinAid
Free Application for Federal Student Aid (FASFA)
Grant, work-study and student loan information
Short term loans
University application for financial aid

Registrar

CU-Denver Building Annex, 100
303-556-2389
www.cudenver.edu/Registrar
Class registration
Course descriptions
Diplomas
Enrollment verification
Grades and GPA
Schedule adjustment (drop/add) forms
Schedule Planner (online course schedule)
SMART (online registration system)
Transcripts
Tuition appeals

Student Debt Management

North Classroom, 2204
303-556-2301
www.ucdhsc.edu/admin/studentfinancialservices/debtmanagement
Past due tuition collection
Student loan processing

REAPPLY EACH YEAR

Financial aid awards are not automatically renewed each year. Students must reapply and meet priority dates each year. Application materials for the next academic year are available beginning January 1.

Awards

Students are notified in writing of their financial aid eligibility approximately 4–6 weeks after all application materials have been received in the Office of Financial Aid. If awarded, an award notice is e-mailed to the student; it includes the types and amounts of aid awarded and the minimum number of credit hours required each term.

Grants, Loans and Work-Study

The following aid programs are funded by the federal government:

1. *Federal Pell Grant*—Eligibility for the Federal Pell Grant is determined before any other aid is awarded. Awards are defined by a strict need-based formula provided by the federal government, and award amounts vary depending upon amount of financial need and enrollment status. Only undergraduate students are eligible.
2. *ACG and SMART Grants*—Academic Competitiveness Grants (ACG) are awarded to freshman and sophomore Pell Grant recipients who are U.S. citizens and who have graduated from high school programs designated as a rigorous program. National Science and Mathematics Access to Retain Talent Grants (SMART) are awarded to junior and senior Pell Grant recipients who are U.S. citizens and who are majoring in specific areas of physical, life or computer sciences; mathematics, technology, engineering or a critical foreign language.
3. *Federal Stafford Loan*—The subsidized Federal Stafford Loan program requires that students show financial need in order to qualify. Interest on the subsidized loan is paid for the student by the federal government as long as the student remains enrolled at least half-time and for a six-month grace period after dropping below half-time enrollment. The unsubsidized Federal Stafford Loan program does not require the student to document financial need. Eligibility is calculated as the cost of attendance minus other financial aid awarded. Interest is not paid by the federal government for the unsubsidized program, and the student may elect to pay the interest currently or to allow the interest to be added to the total loan amount. Interest rates for the Federal Stafford Loan programs are 6.8 percent. Graduate students and parents of dependent students are eligible to borrow under the Federal PLUS program. The PLUS program is unsubsidized, and interest payments become the responsibility of the borrower at the time of disbursement. The interest rate on the PLUS program is 8.5 percent.

4. *Federal Supplemental Educational Opportunity Grant (SEOG)*—This is a need-based grant program for students who have not yet obtained a bachelor's degree. Students must be eligible for a Federal Pell Grant to be considered for SEOG.
5. *Federal Perkins Loan*—This need-based loan program, with an interest rate currently at 5 percent, is based at UCDHSC. No repayment of interest or principal is due until nine months after the student ceases to be enrolled at least half-time.
6. *Federal College Work-Study*—Work-study is a need-based program that allows students to work on a part-time basis on campus or off campus at nonprofit agencies to help meet their educational costs.

The state of Colorado funds the following programs:

1. *Colorado Student Grant*—A need-based grant for resident undergraduate students.
2. *Colorado Leveraging Educational Assistance Partnership Grant*—A need-based grant for resident undergraduates who have not yet obtained a bachelor's degree. This grant is funded 50 percent by the federal government and 50 percent by the state of Colorado.
3. *Colorado Graduate Grant*—A need-based grant for resident graduate students.
4. *Colorado Work-Study*—A program similar to the College Work-Study program but limited to resident undergraduate students.

Limited amounts of Colorado Work-Study are available to students regardless of financial need.

Scholarships

For a complete listing of the many scholarships offered at the downtown Denver campus, go to www.cudenver.edu/admissions. In addition, many Internet search programs are available to help students identify scholarships for which they may be eligible. One of the largest is www.FastWeb.com.

Other Sources

There are several other sources of funds for students. Employment opportunities are listed in the Student Employment Office and the Career Center. Graduate students should inquire about additional types of financial aid through their academic departments. American Indian students should request information about Bureau of Indian Affairs and tribal scholarships from their tribe.

Short Term Loans

Short term loans are available to enrolled students to cover unexpected financial needs. Loans are generally limited to \$500 and are due within 30 days. There is a \$10 per loan administrative charge.

Registration and Records

UCDHSC offers students a completely automated system of planning their schedules (*Web Schedule Planner*) and registering for classes (*SMART*), helping you avoid long registration lines and unnecessary visits to campus. As a student, you are responsible knowing the deadlines, rules, regulations, course loads, pre-requisites and policies of the university, as well as those of the college or school in which you are enrolled, all of which is provided within this catalog, as well as online.

Office of the Registrar

Registrar: Teri Burluson
Office: CU-Denver Building Annex, 100
Telephone: 303-556-2734
E-mail: Teri.Burluson@cudenver.edu
Web site: www.cudenver.edu/Registrar

REGISTRATION

Students should review the sections of this catalog that describe in detail the academic programs available at UCDHSC's downtown Denver campus.

New and transfer undeclared undergraduate students, as well as prebusiness and pre-engineering students, should contact the Academic Advising Center at 303-352-3520 to arrange for an advising appointment prior to registration. Other freshmen and transfer students should contact their school or college to arrange for an advising appointment prior to registration.

A *Web Schedule Planner* is made available by the registrar's office every semester prior to registration. Downtown Denver students register for courses via SMART (Student Menu and Access to Records and Transactions). To log on go to www.cudenver.edu/registrar, then click on the SMART logo. The registrar's office will send an e-mail message to the student's university-assigned e-mail address, inviting the student to register and including registration information and a registration time assignment. Registration is by time assignment only. Students may register on or after their assigned time.

Web Registration and Student Information

Downtown Denver students can register and obtain information regarding their academic and financial records by accessing a secure site from the SMART link on the homepage. An assigned student I.D. and personal identification number (PIN) are required to access the registration or student record options.

Online registration allows the student to check the availability of specific courses prior

to their registration time and to search for available courses by department, course level, or meeting time. If registration in a course is denied, the Web registration system will specify the reason.

Student information available online currently includes mailing address verification (or change), admission application status, financial aid information, schedule by semester, grades by semester, unofficial transcript, account balance, and degree audit (for some programs). Online payment is now available. For security reasons, none of the student information screens will display a student's name or student number.

The catalog and *Schedule Planner*, as well as additional information regarding programs, faculty, courses, and policies, are available at the home page: www.cudenver.edu.

Definition of Full-Time and Part-Time Status

Individual students receiving financial aid may be required to complete hours in addition to those listed below. The exact requirements for financial aid will be listed in the student's financial aid award letter.

FALL AND SPRING

Undergraduates and nondegree graduate students:

Full-time	12 or more semester hours
Part-time	6 or more semester hours

Graduate degree students:

Full-time:	5 or more hours
	0 hours as candidate for degree
	1 or more hours of thesis (not master's reports or thesis preparation)

Half-time:	3 or more hours
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SUMMER (10-WEEK TERM)

Undergraduates and nondegree graduate students:

Full-time	12 or more semester hours
Part-time	6 or more semester hours

Academic Calendar*

FALL 2007

Registration	Begins April 2
August 20	First day of classes
September 3	Labor Day holiday (campus closed)
November 19–25	Fall break for students (no classes)
November 22	Thanksgiving holiday (campus closed)
December 10–15	Finals week
December 15	Commencement

SPRING 2008

Registration	Begins November 12
January 21	Martin Luther King Jr. holiday (campus open, no classes)
January 22	First day of classes
March 24–30	Spring break (campus open, no classes)
May 12–17	Finals week
May 17	Commencement

SUMMER 2008

Registration	Begins March 10
May 26	Memorial Day holiday (campus closed, no classes)
May 27	First day of classes
July 4	Independence Day holiday (campus closed, no classes)
August 2	End of Term

*The university reserves the right to alter the academic calendar at any time. Consult the Web site at www.cudenver.edu for application deadline dates, deadlines for changing programs and registration dates and procedures.

Graduate degree students:

Full-time:

- 3 or more hours
- 0 hours as candidate for degree
- 1 or more hours of thesis (not master's reports or thesis preparation)

Half-time:

- 2 or more hours
- 3 or more hours of mixed-level classes

Notes

Enrollment verification including full-time/part-time attendance can be certified beginning the first day of class.

Hours for calculating full-time/part-time attendance do not include interinstitutional hours, nor do they include hours on another CU campus, unless the student is enrolled through concurrent registration.

Students receiving veterans benefits should contact the Veterans Affairs coordinator for definition of full-time status for summer sessions.

Individual exceptions to the minimum graduate course-load levels are considered for financial aid purposes by the Financial Aid Committee. Students must file a written appeal with the Office of Financial Aid.

Add/Drop

Specific add/drop deadlines are announced in each semester's *Web Schedule Planner*.

1. Students may add courses to their original registration during the first eight days (five days of classes in the summer) of full-term classes, provided there is space available.
2. Students may drop courses without approvals during the first 12 days of the fall or spring semester (the first eight days of the summer session). Tuition will not be charged. No record of the dropped course will appear on the student's permanent record.
3. After the 12th day of a fall or spring semester (eighth day of the summer session), the instructor's signature is required for all drops. The instructor's signature and dean's signature are required for all adds. No tuition adjustment will be made for drops.
4. After the 10th week of the fall and spring semesters (the fifth week for summer session) *all* schedule adjustments require a petition and special approval from the dean's office.
5. Dropping *all* courses after the 12th day (eighth in the summer) requires an official withdrawal from the term. No tuition refunds are available.

Drop deadlines for module courses and intensive courses are published in the *Web Schedule Planner* each term.

Administrative Drop

An administrative drop is implemented by university officials in the registrar's office or the dean's office. A student may be administratively dropped from one or more classes or withdrawn from all classes for any of the following reasons:

- failure to meet certain preconditions, including, but not limited to:
 - failure to pay tuition and fees by designated deadlines
 - class cancellations
 - failure to meet course prerequisites
- whenever the safety of the student, faculty member or other students in a course would be jeopardized
- academic suspension, including, but not limited to failure to attain or maintain a required GPA
- disciplinary suspension for having been found to have violated the Student Code of Conduct
- disruptive behavior determined by the chair and/or associate dean to be detrimental to the progress of the course and the education of other students

Auditing Courses

To qualify as an auditor for fall or spring semester, a student must be 21 years of age or older or approved by the registrar. Auditors may not be registered for any other University of Colorado courses during the time they are auditing and are not eligible to audit courses if they are under suspension from the university or have outstanding financial obligations to the university. The registrar's office does not keep any record of courses audited; therefore, credit for these courses cannot be established. Auditors may attend as many courses as they wish (except those courses with laboratories or where special equipment is used), provided they have received permission from each instructor.

An auditor's card is issued after classes begin. This card should be presented to the instructor. Auditors, whether resident or nonresident, pay resident tuition for the audited courses during the fall or spring semester for class instruction and library privileges only. Auditors do not receive student parking privileges and are not eligible for other student services. For more information, contact the bursar's office.

Senior citizens (aged 60 and over) may audit classes at no charge. Contact the Division of Enrollment and Student Affairs at 1250 14th Street, 303-556-8427.

Candidate for Degree

During the semester in which you take the comprehensive exam, defend your dissertation or thesis or present your final project, you must be registered. If you will NOT be registered for any other courses, you MUST register for CAND 5940. Candidate for Degree. You may only register for CAND 5940. Candidate for Degree once.

In order to register for CAND 5940. Candidate for Degree, you may NOT be registered for any other courses—obtain the call number from your department or program director. Registration for CAND 5940 is available through SMART, and you will be billed at one credit hour of resident tuition plus the SIS fee and the information technology fee. Students registered for CAND 5940 will be considered full-time for financial aid and enrollment verification purposes.

Correspondence Study

Correspondence courses are offered by the CU-Boulder Division of Continuing Education. Applicability toward a degree program should be sought from the student's degree advisor prior to registration.

Course Load/Restrictions

In most cases, students wishing to take more than 18 semester hours (12 in the summer session) must have the overload approved by the dean of their college or school. Consult the individual college or school for specific guidelines as to course-load restrictions.

Credit by Examination

Degree students may take examinations for credit. To qualify for an examination, the student must be formally working toward a degree at UCDHSC, have a GPA of at least 2.0, and be currently registered. Contact the registrar's office for instructions. A nonrefundable fee is charged. Students should contact their degree advising office to determine whether the credit will apply to their degree.

No Credit

Students may register for a course on a no-credit basis with the consent of their instructor and the dean of their school or college. No grade or credit is awarded. The transcript reflects the name of the course taken and an *N/C* notation.

Pass/Fail Procedure

1. Students who wish to register for a course on a pass/fail basis (or to revert from pass/fail to graded status) may do so only during the drop/add period.
 2. Up to 16 semester hours of course work may be taken on a pass/fail basis and credited toward the bachelor's degree. *Only 6 hours of course work may be taken pass/fail in any given semester.* (Note: Individual schools and colleges may have additional restrictions as to pass/fail credits. See the accompanying chart for an overview.)
 3. Instructors will not be informed of pass/fail registration. All students who register for a pass/fail appear on the regular class roster, and a normal letter grade is assigned by the professor. When grades are received in the registrar's office, those registrations with a pass/fail designation are automatically converted by the grade application system. Grades of *D–* and above convert to grades of *P*. Courses taken pass/fail will be included in hours toward graduation. Pass grades are not included in a student's GPA. An *F* grade in a course taken pass/fail will be included in the GPA.
 4. Pass/fail registration records are maintained by the registrar's office.
 5. Exceptions to the pass/fail regulations are permitted for specified courses offered by the School of Education & Human Development, the extended studies programs and study abroad programs.
 6. Graduate degree students can exercise the *P/F* option for undergraduate courses only. **A grade of *P* will not be acceptable for graduate credit to satisfy any Graduate School requirement.**
 7. Students who register for a course on a pass/fail basis may not later (after the drop/add period) decide to receive a letter grade.
- Note:* many other institutions will not accept a *P* grade for transfer credit.

PASS/FAIL OPTION RESTRICTIONS

Core Curriculum courses used to satisfy Intellectual Competencies cannot be taken on pass/fail basis.

College	General	Maximum
Business and Administration	Only nonbusiness electives may be taken pass/fail.	Only 6 semester hours may be taken pass/fail.
Engineering and Applied Science	Required courses may not be taken pass/fail. Upper division humanities and social sciences electives are acceptable; otherwise, major department approval is required.	A maximum of 16 semester hours may be taken pass/fail, including courses taken in the honors program.
Liberal Arts and Sciences	College requires a minimum of 30 semester hours of courses with letter grades. Courses used to satisfy major, minor, or foreign language cannot be taken on a pass/fail basis.	No more than 6 hours pass/fail any semester. A maximum of 16 semester hours may be taken pass/fail.

Short-Term Courses

Courses are also offered in five-week modules, in special weekend courses, and in seminars. Students should contact the college/school for information on short-term courses offered each semester.

Withdrawal from the University

To withdraw from the University of Colorado at Denver and Health Sciences Center, students must drop all courses for the semester. During the first 12 days of the semester (eight days for the summer), students must use the Web Registration and Student Information System to drop courses. Courses dropped during this period are not recorded on the student's permanent record.

After the 12th day of the semester (eighth day in the summer), through the 10th week (seventh week for summer), students must submit a withdrawal form with the approval of the dean and the Office of Financial Aid. Courses dropped during this period will be recorded on the student's permanent record with a grade of *W*.

Students seeking to withdraw after the 10th week (fifth week for summer) must petition the associate dean of their school or college.

A student who stops attending classes without officially withdrawing from the university will receive grades of *F* for all course work during that term.

Deadlines for dropping module and intensive courses appear in the *Web Schedule Planner*.

Other Registrations

CONCURRENT ENROLLMENT

Degree-seeking students who wish to attend two University of Colorado campuses concurrently must obtain permission from their school or college on their home campus. A student in a degree program registered on the Denver campus may take up to two courses or 6 semester hours (whichever is greater) on another CU campus if:

- the student obtains a concurrent registration form from the office of the academic dean or the registrar's office
- the course is a required course for the student's degree (not an elective) and not offered at the downtown Denver campus
- the student obtains approval from the academic dean
- there is space available at the other (host) campus
- the student pays tuition at the downtown Denver campus (home campus) at downtown Denver campus rates
- the home campus school or college arranges for space in the host campus classes
- the concurrent request is processed before the end of the drop/add period on both the host and home campuses

Students may *not* register for an independent study course through concurrent registration. Students may not take courses pass/fail or for no credit through concurrent registration.

To drop a concurrent course during the *host* campus drop/add period, arrange the drop at the home campus registrar's office. To drop a concurrent course after the end of the *host* campus drop/add deadline, drop the course at the host campus registrar's office.

INTER-INSTITUTIONAL REGISTRATION

UCDHSC degree students may enroll in courses offered by the Community College of Denver. Students must be enrolled at UCDHSC for at least one course during the term to be eligible to register inter-institutionally. Registration is on a space available basis. Interinstitutional courses are evaluated for transfer credit and are not included in a UCDHSC student's GPA.

POOLED COURSES AT METROPOLITAN STATE COLLEGE OF DENVER

Certain courses in the College of Liberal Arts and Sciences have been pooled with similar courses at Metropolitan State College of Denver (MSCD). *Undergraduate* students at UCDHSC's downtown Denver campus may register for any of the pooled courses listed in the UCDHSC *Web Schedule Planner*. Restrictions apply to the pooled courses:

1. UCDHSC downtown Denver campus graduate students are not eligible to register for MSCD pooled courses.

- MSCD pooled courses will not be included in the University of Colorado GPA. MSCD courses will appear on the University of Colorado transcript and will count in hours toward graduation. See an academic advisor for approval.
- MSCD courses cannot be used to meet specific course requirements toward the major without prior written approval of the student's dean.
- UCDHSC downtown Denver campus students who wish to take nonpooled MSCD courses must apply directly as a nondegree student to MSCD and pay tuition and fees to MSCD. Nonpooled classes will not appear on the University of Colorado transcript and will not be used in determining course loads for financial aid eligibility. Students may request an MSCD transcript to be sent to the UCDHSC downtown Denver campus at the end of the term to determine if credit can be transferred.
- MSCD common pool courses will not satisfy residence requirements at USCHSC downtown Denver campus. The last 30 semester hours applied toward the baccalaureate degree must be taken in residence at the downtown Denver campus.
- UCDHSC downtown Denver campus students taking MSCD common pool courses are subject to the MSCD grading policy and student code of conduct.

ACADEMIC RECORDS

Student Classification

Students are classified according to the number of semester hours passed:	
Freshman.....	0–29 hours
Sophomore.....	30–59 hours
Junior.....	60–89 hours
Senior.....	90+ hours

All transfer students will be classified on the same basis according to their hours of credit accepted by the University of Colorado.

Grading System and Policies

The following grading system and policies have been standardized for all academic units of the university. Other academic policies are listed in the University Policies chapter of this catalog.

GRADE SYMBOLS

The instructor is responsible for whatever grade symbol (*A*, *B*, *C*, *D*, *F*, *IF*, *IW*, or *IP*) is to be assigned. Special symbols (*NC* and *W*) are indications of registration or grade status and are not assigned by the instructor. Pass/fail designations are not assigned by the instructor but are automatically converted by the grade application system, as explained under “Pass/Fail Procedure.”

Standard Grades	Quality Points
<i>A</i> = superior/excellent	4.0
<i>A</i> (–) =	3.7
<i>B</i> (+) =	3.3
<i>B</i> = good/better than average	3.0
<i>B</i> (–) =	2.7
<i>C</i> (+) =	2.3
<i>C</i> = competent/average	2.0
<i>C</i> (–) =	1.7
<i>D</i> (+) =	1.3
<i>D</i> = minimum passing	1.0
<i>D</i> (–) =	0.7
<i>F</i> = failing	0.0

Instructors may, at their discretion, use the PLUS/MINUS system but are not required to do so.

IF—incomplete—changed to an *F* if not completed within one year.

IW—incomplete—changed to a *W* if not completed within one year.

IP—in progress—thesis at the graduate level only.

P/F—pass/fail—*P* grade is not included in the GPA; the *F* grade is included; up to 16 hours of pass/fail course work may be credited toward a bachelor's degree.

H/P/F—honors/pass/fail—intended for honors courses; semester hours count toward the degree but are not included in the GPA.

NC indicates registration on a no-credit basis.

W indicates withdrawal without credit.

EXPLANATION OF *IF* AND *IW*

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

An *IF* or *IW* 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.

The instructor who assigns an *IF* or *IW* sets the conditions under which the course work can be completed and the time limit for its completion. The student is expected to complete the requirements by the established deadline and not retake the entire course.

It is the instructor's and/or the student's decision whether a course should be retaken. If a course is retaken, it must be completed on the Denver campus or in extended studies classes. The student must reregister for the course and pay the appropriate tuition.

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

At the end of one year, *IF* and *IW* grades for courses that are not completed or repeated are changed to an *F* or *W*, respectively.

GRADE POINT AVERAGE (GPA)

GPA is computed by multiplying the credit points per hour (for example, *B* = 3) by the number of hours for each course. Total the hours, total the credit points and divide the total points by the total hours. Grades of *P*, *NC*, *****, *W*, *IP*, *IW*, and *IF* are not included in the GPA. *IF*s that are not completed within one year are calculated as *F* in the GPA.

If a course is repeated, all grades earned are used in determining the GPA. Grades received at another institution are not included in the University of Colorado GPA.

Undergraduate, graduate, and nondegree graduate GPAs are calculated separately. Enrollment in a second undergraduate or graduate program will not generate a second undergraduate or graduate GPA.

Students should refer to their academic dean's office for individual GPA calculations as they relate to academic progress and graduation from their college or school.

Good Academic Standing

Good academic standing requires a minimum GPA that is determined by the student's school or college. Grades earned at another institution are not used in calculating the GPA at the University of Colorado.

Degree students should consult the academic standards section of their school or college for degree program requirements.

Continuation as a nondegree student is contingent upon maintaining an overall GPA of 2.0 upon completion of 12 or more semester hours.

Failure to maintain the required average will result in a nondegree student being suspended. The suspension is for an indefinite period of time and becomes part of the student's permanent record at the university. While under suspension, enrollment at the university is restricted to summer terms or courses offered through extended studies.

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

Automated Degree Progress

A degree progress report is an automated record reflecting a student's academic progress toward completing degree requirements in a declared major. Each degree progress report draws its information from the university's Student Information System (SIS). Each time a new report is run, the most up-to-date course information and grades are used. A report can be requested by logging on to SMART. Students should contact their schools and colleges for additional information on the availability of a specific degree progress report.

Grade Reports

Grade reports are normally available within two weeks after the end of the semester. Grade reports are available through the Web registration and student information system. Consult the registrar's Web page by going to www.cudenver.edu and clicking on the SMART icon.

Mid-Term Grades

Instructors will assign midterm grades for certain populations of students. Students in academic difficulty may be contacted and counseled about support services available to them. Note: academic support services are available to all students through the Center for Educational Opportunity Programs, North Classroom, 2012, 303-556-2065; the Student Advocacy Center, North Classroom, 2012, 303-556-2546; and the Center for Learning Assistance, North Classroom, 2006, 303-556-2802.

Graduation

UNDERGRADUATES

Students should make an appointment with the advising office of their school or college to determine what requirements remain for graduation. Students intending to graduate must complete an Intent to Graduate application found on the Office of the Registrar's Web page under "Graduation Information" between the first day of registration for the term and the last day of drop/add (noted on the academic calendar). Students will not be officially certified to graduate until a final audit of the student's record has been completed approximately six weeks after the end of the term. After students have been certified to graduate, they must reapply to return to the downtown Denver campus.

GRADUATES

Students on the Denver campus must file an application for candidacy with their graduate school office and complete an Intent to Graduate application found on the Office of the Registrar's Web page under "Graduation Information" between the first day of registration for the term and the last day of drop/add. Check with your school for more information. Students will not be officially certified to graduate until a final audit of the student's record has been completed, approximately six weeks after the end of the term. After students have been certified to graduate, they must reapply to return to UCDHSC.

COMMENCEMENT

In early March, informational brochures will be mailed to students eligible to participate in the May spring-semester commencement. In early October, information regarding the December commencement will be mailed to students who graduated in summer term or expect to graduate in fall term. Information will be provided about ordering special display diplomas, fittings for caps and gowns and obtaining diplomas and transcripts with the degree recorded.

Official Transcripts

The official transcript includes the complete undergraduate and graduate academic record of courses taken at all campus locations or divisions of the University of Colorado. It contains the signature of the registrar and the official seal of the university.

Official transcripts are available approximately three weeks after final exams. A transcript on which a degree is to be recorded is available approximately eight weeks after final exams.

On the Denver campus, transcripts may be ordered through SMART or requested by fax at 303-556-4829. Transcript request forms are available at www.cudenver.edu/registrar; click on Forms.

Requests include the following:

- student's full name (include given or other name if applicable)
- student number
- birth date
- the last term and campus the student attended
- whether the current semester grades are to be included when a transcript is ordered near the end of a term
- whether the request should be held until a degree is recorded
- agency, college or individuals to whom transcripts are to be sent. (Complete mailing addresses should be included. Transcripts sent to students are labeled "issued to student.")
- student's signature. (This is the student's authorization to release the records.)

There is no charge for individual official transcripts. Transcripts are prepared only at the student's request in writing or through online student PIN authentication. A student with financial obligations to the university that are due and unpaid will not be granted a transcript. Official transcripts require five to seven working days.

Notification of Rights Under FERPA at University of Colorado at Denver and Health Sciences Center

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

1. The right to inspect and review the student's educational records within 45 days of the day that the university receives a request for access. Students should submit to the registrar, dean, head of the academic department or other appropriate official written requests that identify the record(s) they wish to inspect. The university official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the university official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.
2. The right to request the amendment of the student's educational records that the student believes are inaccurate or misleading. Students may ask the university to amend a record that they believe is inaccurate or misleading. They should write the university official responsible for the record, clearly identify the part of the record they want changed and specify why it is inaccurate or misleading. If the university decides not to amend the record as requested by the student, the university will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.
3. The right to consent to disclosure of personally identifiable information contained in the student's educational records, except to the extent that FERPA authorizes disclosure without consent. One exception that permits disclosure without consent is disclosure to school officials with legitimate educational interests. A school official is a person employed by the university in an administrative, supervisory, academic or research, or support staff position (including

law enforcement unit personnel and health staff); a person or company with whom the university has contracted (such as an attorney, auditor or collection agent); a person serving on the board of trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks. A school official has a legitimate educational interest if the official needs to review an educational record in order to fulfill his or her professional responsibility. Upon request, the university discloses educational records without consent to officials of another school in which a student seeks or intends to enroll.

4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by the University of Colorado to comply with the requirements of FERPA.

Family Policy Compliance Office
U.S. Department of Education
400 Maryland Avenue, SW
Washington, DC 20202-4605

The following items are designated “Directory Information” and may be released at the discretion of the University of Colorado at Denver and Health Sciences Center unless a student files a request to prevent their disclosure:

- name
- address
- e-mail address
- telephone number
- dates of attendance
- registration status
- class
- major
- awards
- honors
- degrees conferred
- past and present participation in officially recognized sports and noncurricular activities
- Physical factors (height, weight) of athletes

Forms to prevent the disclosure of directory information can be obtained at the Student Service Center in North Classroom, 1003. Questions regarding student rights under FERPA should be directed to the registrar’s office, 303-556-2389.

University Policies

Every organization, large and small, runs more smoothly when policies and procedures are in place. This chapter touches briefly on policies that are most important to students and their academic pursuits. The UCDHSC Policies and Guidelines Web site, www.ucdhsc.edu/admin/policies/, provides a complete list of policies for every facet of the organization, including those from other organizations that affect the downtown campus, such as the Laws of the Regents and policies of the Auraria Higher Education Center.

ACADEMIC HONOR CODE AND DISCIPLINE POLICIES

Policies related to academic credit and grades are explained in the Registration and Records chapter of this catalog.

Academic Honesty

A university's reputation is built on a standing tradition of excellence and scholastic integrity. As members of the University of Colorado at Denver and Health Sciences Center academic community, faculty and students accept the responsibility to maintain the highest standards of intellectual honesty and ethical conduct in completing all forms of academic work at the university.

Forms of Academic Dishonesty

Students are expected to know, understand and comply with the ethical standards of the university. In addition, students have an obligation to inform the appropriate official of any acts of academic dishonesty by other students of the university. Academic dishonesty is defined as a student's use of unauthorized assistance with intent to deceive an instructor or other such person who may be assigned to evaluate the student's work in meeting course and degree requirements. Examples of academic dishonesty include, but are not limited to the following:

A. PLAGIARISM

Plagiarism is the use of another person's distinctive ideas or words without acknowledgement. The incorporation of another person's work into one's own requires appropriate identification and acknowledgement, regardless of the means of appropriation. The following are considered to be forms of plagiarism when the source is not noted:

- word-for-word copying of another person's ideas or words
 - the mosaic (the interspersing of one's own words here and there while, in essence, copying another's work)
 - the paraphrase (the rewriting of another's work, yet still using their fundamental idea or theory)
 - fabrication (inventing or counterfeiting sources)
 - submission of another's work as one's own
 - neglecting quotation marks on material that is otherwise acknowledged
- Acknowledgement is not necessary when the material used is common knowledge.

B. CHEATING

Cheating involves the possession, communication or use of information, materials, notes, study aids or other devices not authorized by the instructor in any academic exercise or communication with another person during such an exercise. Examples of cheating are:

- copying from another's paper or receiving unauthorized assistance from another during an academic exercise or in the submission of academic material

- using a calculator when its use has been disallowed
- collaborating with another student or students during an academic exercise without the consent of the instructor

C. FABRICATION AND FALSIFICATION

Fabrication involves inventing or counterfeiting information, i.e., creating results not obtained in a study or laboratory experiment. Falsification, on the other hand, involves the deliberate alteration or changing of results to suit one's needs in an experiment or other academic exercise.

D. MULTIPLE SUBMISSION

This is the submission of academic work for which academic credit has already been earned, when such submission is made without instructor authorization.

E. MISUSE OF ACADEMIC MATERIALS

The misuse of academic materials includes but is not limited to the following:

- stealing or destroying library or reference materials or computer programs
- stealing or destroying another student's notes or materials or having such materials in one's possession without the owner's permission
- receiving assistance in locating or using sources of information in an assignment when such assistance has been forbidden by the instructor
- illegitimate possession, disposition or use of examinations or answer keys to examinations
- unauthorized alteration, forgery or falsification of academic records
- unauthorized sale or purchase of examinations, papers or assignments

F. COMPLICITY IN ACADEMIC DISHONESTY

Complicity involves knowingly contributing to another's acts of academic dishonesty.

Procedures in Cases of Suspected Academic Dishonesty

All matters of academic policy, including academic dishonesty, are under the jurisdiction of each of the university's schools and colleges pursuant to Article IX.2.B and Article VI.C of the Laws of the Regents. Accordingly, each school and college has established procedures for addressing matters of academic dishonesty and for determining the severity and consequences of each infraction. Students should contact their school or college for standards and/or procedures specific to their school or college. As a general rule, all school and college procedures contain the following requirements and provisions:

Schools and colleges have appropriately empowered committee(s) to hear charges of alleged academic dishonesty. Policies and procedures vary between the UCDHSC schools and colleges. Contact the dean's office for policies and procedures.

Cases of alleged academic dishonesty are heard by the student's or faculty member's home college, independent the school or college in which the alleged dishonesty occurred.

Faculty, staff, administrators and students may submit charges of academic dishonesty. A student considering submission of formal charges of alleged academic dishonesty should contact the dean's office for procedures.

Cases of academic dishonesty by UCDHSC students and faculty include but are not limited to UCDHSC and the Auraria campus institutions.

It is recommended that faculty who wish to bring charges of academic dishonesty against a student discuss the situation with the student prior to filing formal charges. Faculty must notify students of the alleged academic dishonesty in writing and outline students' rights to due process through the appropriate college channels.

Faculty authority in cases of alleged academic dishonesty varies by college and may include a failing grade in the course. There is no specific list of actions a school or college may bring against an individual participating in academic dishonesty. Severe sanctions may include suspension, expulsion and/or a transcript notation.

Students or faculty may appeal to their home college dean in cases where ethics procedures were not correctly followed or in cases where a review of the judgment is requested.

CODE OF STUDENT CONDUCT (STUDENT RIGHTS AND RESPONSIBILITIES AND PROCEDURES FOR DISCIPLINARY REVIEW AND ACTION)

Assistant Director of Student Life: Larry Loften

Office: Tivoli Student Union, 303

Telephone: 303-556-3682

Standards of Conduct For Which Action May Be Taken if a Violation Occurs

All persons on university property are required, for reasonable cause, to identify themselves when requested by university or Auraria public safety officials acting in the performance of their duties. Acting through its administrative officers, the university reserves the right to exclude those posing a danger to university personnel or property and those who interfere with its function as an educational institution.

All persons on UCDHSC/Auraria property who are not students or employees of the university are required to adhere to the Code of Conduct applicable to university students and to abide by university policies and campus regulations.

The behaviors outlined below will not be tolerated, because they threaten the safety of individuals and violate the basic purpose of the university and the personal rights and freedoms of its members.

1. Intentional obstruction, disruption or interference with teaching, research, disciplinary proceedings or other university activities, including its public service and administrative functions or activities on the UCDHSC/Auraria premises.
2. Willful obstruction or interference with the freedom of movement of students, school officials, employees and invited guests to all facilities of the UCDHSC/Auraria campus.
3. Physical abuse of any person on property owned or controlled by the UCDHSC/Auraria Higher Education Center or at functions sponsored or supervised by the university or conduct that threatens or endangers the health or safety of any such person.
4. Verbal or physical harassment and/or hazing in all forms, which includes but is not limited to striking, laying hands upon, threatening with violence or offering to do bodily harm to

another person with intent to punish or injure; or other treatment of a tyrannical, abusive, shameful, insulting or humiliating nature. (This includes but is not limited to demeaning behavior of an ethnic, sexist or racist nature, unwanted sexual advances or intimidations.)

5. Prohibited entry to or use of UCDHSC/Auraria facilities, defined as unauthorized entry or use of UCDHSC/Auraria property or facilities for illegal purposes or purposes detrimental to the university.
6. Forgery, fraud (to include computer fraud), falsification, alteration or use of university documents, records or instruments of identification with intent to gain any unentitled advantage.
7. Theft or damage to UCDHSC/Auraria property and the private property of students, university officials, employees and invited guests when such property is located upon or within UCDHSC/Auraria buildings or facilities. This includes the possession of known stolen property.
8. Possession of firearms, explosives or other dangerous weapons or materials within or upon the grounds, buildings or any other facilities of the UCDHSC/Auraria campus. This policy shall not apply to any police officer or other peace officer while on duty authorized by the university or others authorized in writing by the chief of the Auraria Campus Police Department or designee. (A dangerous weapon is an instrument that is designed to or likely to produce bodily harm. Weapons may include but are not limited to firearms, explosives, BB guns, slingshots, martial arts devices, brass knuckles, Bowie knives, daggers or similar knives or switchblades. A harmless instrument designed to look like a firearm, explosive or dangerous weapon which is used by a person to cause fear in or assault on another person is expressly included within the meaning of the terms firearms, explosive or dangerous weapon.)
9. Sale, distribution, use, possession or manufacture of illegal drugs within or on the grounds, buildings or any other facilities of the UCDHSC/Auraria campus.
10. Physical restriction, coercion or harassment of any person; significant theft; sale/manufacture of illegal drugs (includes possession of a sufficient quantity with intent to sell); damage, theft or unauthorized possession of university property; or forgery, falsification, alteration or use of university documents, records or instruments of identification to gain any unentitled advantage.

University Standards and Criminal Violations

As a member of the university community, you are held accountable not only for upholding civil and criminal laws, but university standards as well. Enrollment does not confer either immunity or special consideration with reference to civil and criminal laws. Disciplinary action by the university will not be subject to challenge or postponement on the grounds that criminal charges involving the same incident have been dismissed, reduced or are pending in civil or criminal court. In addition, the university reserves the right to pursue disciplinary action if a student violates a standard and withdraws from the university before administrative action is final.

Use of University/Auraria Property or Facilities

Nothing in this code of conduct shall be construed to prevent peaceful and orderly assembly for the voicing of concerns or grievances. The university is dedicated to the pursuit of knowledge through a free exchange of ideas, and this shall be a cardinal principle in the determination of whether or not a proposed use of university facilities is appropriate.

The Auraria Higher Education Center has established campus regulations and procedures governing the use of UCDHSC/Auraria grounds, buildings and other facilities. Such regulations are designed to prevent interference with university functions and activities. Except where otherwise specifically authorized, or when members of the public are invited, the use of UCDHSC/Auraria facilities shall be limited to

faculty, staff and students of the UCDHSC/Auraria campus and to organizations having chapters, local groups or other recognized university-connected representation among faculty, staff or students of the three academic institutions on the Auraria campus.

Classroom Conduct

Students are expected to conduct themselves appropriately in classroom situations. If disruptive behavior occurs in a classroom, an instructor has the authority to ask the disruptive student to leave the classroom. Should such disorderly or disruptive conduct persist, the instructor should report the matter to the Auraria Campus Police Department and/or the appropriate dean's office. The appropriate dean or his/her representative may dismiss a student from a particular class for disruptive behavior, while the Student Discipline Committee may recommend to the vice chancellor for academic and student affairs to withdraw, suspend, permanently expel and/or permanently exclude the student from the campus. Appeal questions concerning disruptive behavior should be directed to the academic dean's office when withdrawal from a class is involved and to the director of student life when suspension or expulsion from the university is involved.

Non-Academic Discipline Policies

Violations of Standards of Conduct should be reported to the assistant director of student life during working hours. The Auraria Campus Police Department should be contacted during nonbusiness hours.

If a violation occurs on campus and it is not in a specific building, Auraria Campus Police Department and/or the assistant director of student life should be contacted.

If emergency help is needed when on campus, contact the Auraria Campus Police Department; for help off campus, contact the Denver Police.

Actions available to campus officials include, but are not limited to: asking those involved in inappropriate behavior to cease and desist; requesting offender(s) to leave the Auraria campus; denying or restricting use of facilities or services; calling the Auraria Campus Police Department for assistance; billing offender(s) for any physical damages; pressing civil charges; and referring student(s) to the director of student life.

STUDENT LIFE POLICIES AND PROCEDURES

When one of the 10 standards of conduct listed in this code is violated, the student may be referred to the assistant director of student life. Any person may refer a student or student group suspected of violating this code to the assistant director of student life. Persons making such referrals will be asked to provide information pertinent to the case. The assistant director will make a determination as to the seriousness of the case. This will be done in most situations by asking the student(s) involved in the case to come in for an administrative interview to determine what actions, if any, will be taken by the university. Students will be notified in writing of the results of such administrative reviews.

The assistant director of student life has the authority to:

1. Dismiss the case.
2. Take no further action other than talking with the accused student(s).
3. Issue a university warning (a statement that a student's behavior has been inappropriate and any further violation of university rules will result in stronger disciplinary action).
4. Place the student on disciplinary probation, a violation of the terms of which could result in suspension or expulsion from the university.
5. Refer cases to the Student Discipline Committee or other hearing officer when the above sanctions are determined to be inadequate.
6. Take other actions including but not limited to counseling, insuring the violator(s) provide(s) compensation for theft or damage and/or placing stops on registration.

STUDENT DISCIPLINE COMMITTEE POLICIES AND PROCEDURES

Disciplinary proceedings shall be conducted as *administrative* proceedings and not as *judicial* proceedings. The university is not a part of the judicial branch of the state government. The university has authority to promulgate and enforce internal rules of behavior that shall be administered in a fair and impartial manner in harmony with its educational objectives and administrative nature. As part of the administrative nature of the committee's proceedings, fundamental rules of fairness will be followed. Copies of these procedures are available in the Office of Student Life.

This committee, composed of students, faculty and staff members, makes decisions about whether students charged with violations of the student conduct code may continue to attend the University of Colorado at Denver and Health Sciences Center.

The Student Discipline Committee has the authority to:

1. Dismiss the case.
2. Take no action other than talking with the accused student.
3. Issue a university warning (a statement that a student's behavior has been inappropriate and further violation of university rules will result in stronger disciplinary action).
4. Place the student on disciplinary probation, a violation of the terms of which could result in suspension or expulsion from the university.
5. Recommend suspension of a student from the university for disciplinary reasons. This suspension may be for various lengths of time ranging from one semester to an indefinite period of time. After the period of disciplinary suspension has expired, a student may apply in writing to have the notation on the student's record removed.
6. Recommend expulsion of a student from the university; notation on the student's record will be kept permanently. When a student is suspended or expelled for disciplinary reasons, an additional sanction may include being excluded from the Auraria campus.
7. Take other actions including but not limited to counseling, insuring the violator(s) provide(s) compensation for theft or damage and/or placing stops on registration.

Student(s) must be notified in writing of the disciplinary action taken within five (5) days.

REVIEW PROCEDURES

A student may submit a request to review the recommendation of suspension or expulsion by the Student Discipline Committee within seven (7) working days to the associate vice chancellor for enrollment and student affairs. Except in cases involving the exercise of the power of summary suspension (see below), the sanctions of suspension or expulsion for disciplinary reasons shall be effective only after the administrative review by the associate vice chancellor for enrollment and student affairs has been exhausted or waived. The associate vice chancellor's decision shall be in writing to the student(s), with a copy to the Student Discipline Committee. Copies of review procedures may be obtained from the office of the associate vice chancellor for enrollment and student affairs.

SUMMARY SUSPENSION

Summary suspension is a suspension from the university which begins immediately upon notice from the appropriate university official without a formal hearing by the Student Discipline Committee. A hearing before the Student Discipline Committee is then scheduled as soon as possible (usually within seven calendar days) to determine the disposition of the case. Summary suspension may also include a physical exclusion from the campus if deemed necessary.

The chancellor and/or a vice chancellor or associate vice chancellor has (have) the authority to suspend summarily any student when in their opinion(s) such suspension is necessary to:

1. Maintain order on the campus.
2. Preserve the orderly functioning of the university.

3. Stop interference in any manner with the public or private rights of citizens on UCDHSC/Auraria-owned or -controlled property.
4. Stop actions that are threatening to the health or safety of any person.
5. Stop actions that are destroying or damaging property of the UCDHSC/Auraria campus, its students, faculty, staff or guests.

PERMANENT RECORD NOTATIONS

While disciplinary proceedings are pending or contemplated, a temporary hold may be placed on the student's academic record. It will not be released until all actions and appeal procedures have been completed or finalized by the university. Only in those cases where suspension, deferred suspension or permanent expulsion results from disciplinary action will notations be placed on the academic record.

RELEASE OF DISCIPLINARY INFORMATION

Access to any student's academic transcript or disciplinary file shall be governed by provisions of the Family Educational Rights and Privacy Act of 1974. Only the student charged or those university officials who have a legitimate educational interest in disciplinary information may have access to the files. All other inquiries, including but not limited to employers, governmental agencies, news media, friends or Denver Police, must have a written release from the student to gain access to university disciplinary files.

Every effort will be made by the university to respect the privacy of the student. However, where the identity of the student has been publicly disclosed in the news media, the university reserves the right to respond as it deems appropriate to describe fairly and accurately the disposition of disciplinary matters.

REFUND POLICY AFTER DISCIPLINARY ACTION

Submission of registration materials obligates the student to pay the assessed tuition and fees for that term. If a student is suspended or expelled from the university, the amount of tuition/fees which would be refunded may be the same as when a student voluntarily withdraws from a term. See the Tuition, Fees and Financial Aid chapter of this catalog or the bursar's office Web site for more information.

The official withdrawal date applicable for tuition/fee refund purposes will be the date of the Student Discipline Committee's decision.

TRI-INSTITUTIONAL VIOLATIONS

Procedures in deciding violations of the code of student conduct involving students from other academic institutions on the Auraria campus have been developed by the downtown Denver campus and the institution(s) involved. In such cases, the assistant director of student life should be contacted.

AMOROUS RELATIONSHIPS

Amorous relationships exist when two individuals mutually and consensually understand a relationship to be romantic and/or sexual in nature. The policy requires only that direct evaluative authority not be exercised in cases where amorous relationships exist or existed within the last seven years between two individuals whether the same or opposite sex.

The policy is intended to establish a reporting structure to protect participants in these relationships from violations of university conflict-of-interest guidelines (when a direct evaluative relationship exists between two employees or between an employee and a student). The relationship must be disclosed to the unit head, department chair, dean or head of the primary unit with all parties present. The person to whom disclosure is made must take action to resolve the conflict and must keep the information confidential. The individual in the evaluative position shall recuse her or himself from all future evaluative actions. The parties may choose to have this disclosure in written form placed in their own personnel files. (This information is removed and destroyed

seven years after the time of disclosure if requested and if the relationship has ended.) The responsibility to disclose rests with the person in the evaluative position. A report of the action taken to resolve the conflict must be made to the chancellor or designee who may require other action.

When a relationship exists, either current or within the last seven years, between an individual and an employee who, although not his/her direct supervisor but is in a direct line of report (e.g., dean involved with a faculty member in his/her college or a second or higher level supervisor who is involved with a staff member in the unit), the higher-level employee may not act in an evaluative capacity. When these individuals are parties to a personnel action (appointments/hiring, firing/layoff, promotions/demotions, tenure decisions, salary setting, performance appraisals, grievance and disciplinary procedures), the evaluative authority must recuse himself/herself from participating in the action. The action taken to resolve the conflict must be reported to the chancellor or designee.

ANTIVIOLENCE

The University of Colorado at Denver and Health Sciences Center strives to maintain a campus free of and prohibits violent behavior, including but not limited to verbal and/or physical aggression, attack, threats, harassment, intimidation or other disruptive behavior in any form or by any media, which causes or could cause a reasonable person to fear physical harm by any individual(s) or group(s) against any person(s) and/or property. This policy applies to academic, administrative, research and service departments, programs activities and/or services wherever university business is conducted, including extended studies and international locations.

Employees, students and visitors who engage in prohibited behavior shall be held accountable under university policy, as well as local, state and federal law. Any employee or student who commits or threatens to commit violent behavior shall be subject to disciplinary action, up to and including dismissal or expulsion, as well as arrest and prosecution. Any visitor who commits or threatens to commit violent behavior shall be subject to exclusion from the campus, termination of business relationships and/or arrest and prosecution.

Prohibited Behaviors

Examples of prohibited behaviors may include but are not limited to: (1) disturbing the peace by violent, tumultuous, offensive or obstreperous conduct; (2) engaging in intimidating, threatening or hostile statements or actions; (3) making gestures that convey threats; (4) raising one's voice in anger or using fighting words; (5) uttering ethnic, racial or sexual epithets; (6) using unseemly, profane, offensive or obscene language or making obscene gestures; (7) making bizarre comments about or references to violent events and/or behaviors; (8) waving fists, pushing, stalking, bullying, hazing; (9) engaging in the abusive exercise of legitimate authority; (10) destroying personal property in the workplace; (11) destroying university property; (12) throwing objects at persons or property; (13) physically assaulting or attacking persons or property; (14) engaging in vandalism, arson or sabotage.

Weapons

The possession, display or use of any weapon, including any firearm, or the display or use of any object as a weapon, by any person other than a law enforcement officer in the course of his/her duty, in any location where university business is conducted, is in violation of regental policy (14-I) and is strictly prohibited. Possession of a firearm or weapon on University of Colorado-owned property or the Auraria campus is cause for immediate termination of employees or expulsion of students.

Procedures

- A. Violent, Emergency or Life Threatening Situations
1. In case of a violent, emergency or life-threatening situation, immediately call 911. A call to 911 will go to the Auraria Campus Police Department or to an appropriate city or county law enforcement agency.
 2. A call to 911 from any Auraria campus telephone automatically registers the on-campus location of the telephone on which the 911 call was placed, even if no words are spoken.
 3. Anyone who calls 911 from any location and is able to speak to the 911 operator should follow the instructions given by the 911 operator.
- B. All Other Situations
1. In all other situations, immediately notify one or more of the following: supervisor, program director, department chair, dean, the ombuds office (303-556-4493), Office of Human Resources (303-315-2700), Auraria Campus Police Department (303-556-3271), Denver Police Department (303-640-2011) or other appropriate local law enforcement agency.
 2. Anyone receiving a report of threatened, potential or actual violent behavior or possession, display or use of any weapon shall immediately notify the Auraria Campus Police Department and the chancellor's office. Any supervisor who fails to make such a report shall be subject to disciplinary action.
 3. All reports of threatened, potential or actual violent behavior or possession, display or use of any weapon will be investigated, verified, documented and confronted.
 4. The chancellor will designate individuals to investigate reports regarding threatened, potential or actual violent behavior or possession, display or use of any weapon, and to work in conjunction with law enforcement authorities to coordinate the university's response to violent behavior.

COMPUTING

UCDHSC's downtown campus computing policies and procedures for the following items can be found online by going to www.UCDHSC.edu/admin/policies and scrolling down to Computing.

- antivirus
- computer security and Windows updates
- computing policy
- e-mail
- remote maintenance client software
- Web CMS procedures
- Web publishing
- Windows domain
- wireless

The IT Services Help Desk provides assistance to students, faculty and staff. Help Desk technicians maintain personal computers and are available to assist with hardware and software planning and installation, acquisitions, Internet connectivity, troubleshooting and general questions. For further information, call the IT Services Help Desk at 303-315-HELP.

DRUGS AND ALCOHOL

The downtown Denver campus of UCDHSC recognizes the health risks associated with the use of illicit drugs and the abuse of alcohol and is committed to providing a drug-free educational and drug-free workplace that supports the research, teaching and service mission of the university. This Denver campus policy statement on drugs and alcohol is designed to address the university's concerns about substance abuse and to ensure that the university community complies with the Federal Drug-Free Workplace Act of 1988 (the "Drug-Free Workplace Act") and the Drug-Free Schools and Communities Act Amendments of 1989 (the "Drug-Free Schools Act"). These acts require the university as a recipient

of federal funds to take measures to combat the abuse of drugs and alcohol. The continuation of federal financial support for our students, as well as our academic programs and academic support service programs is based upon compliance with these statutes and their regulations.

The UCDHSC policy on drugs and alcohol prohibits the unlawful manufacture, distribution, dispensation, possession or use of any controlled substance (illicit drugs of any kind or amount) and the abuse of alcohol by students and employees on university property or as part of any of its activities. This prohibition covers 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.

It is a violation of university policy for any member of the faculty, staff or student body to jeopardize the operation or interest of the university through the use of alcohol or drugs. Those individuals found to be in violation are engaged in serious misconduct and are subject to legal sanctions under local, state or federal law and are also subject to disciplinary action consistent with the Code of Student Conduct, the Faculty Handbook, applicable rules of the State Personnel System and the university's Unclassified Staff Handbook. Sanctions that will be imposed by the university for employees who are found to be in violation of this policy may include requiring satisfactory participation in a substance abuse treatment, counseling or education program as a condition of continued employment, suspension or termination of employment and referral for prosecution.

To acquaint members of the downtown Denver campus community with applicable laws, the university counsel has prepared a description of local, state and federal laws concerning drugs and alcohol. This information is available for direct and immediate 24-hour per day access to all students, faculty and staff on the Web page at www.cudenver.edu/Resources/Human+Resources/Policies-Rules-Procedures/Policies/Legal+Sanctions.htm.

The Web address for the Colorado Department of Human Services' director of licensed treatments programs is www.cdhs.state.co.us/ohr/adad/Treatment/directory.asp.

Health risks associated with the use of illicit drugs and the abuse of alcohol include but are not limited to the following:

- Violence—Fights, vandalism, sexual assaults, homicide and suicide are far more likely to occur when drinking is involved.
- Unprotected Sex—Individuals are less likely to use safer sex practices when drinking, which can result in unplanned pregnancy and infection with a sexually transmitted disease.
- Serious Injury—More than 53 percent of all fatal automobile accidents in the U.S. involve alcohol use.
- Death from overdose.
- Addiction—Although anyone can become addicted, those with a family history of alcohol or other drug addiction are at least four times more likely to develop alcoholism.
- Lowered Resistance to Disease/Illness—Increased risk of ulcers, heart disease and cancers of the liver, mouth, throat and stomach.
- Fetal Alcohol Syndrome/Fetal Alcohol Effects (FAS/FAE)—Women who drink during pregnancy may give birth to infants with physical deformities, brain damage and/or mental retardation. If a woman is pregnant, trying to become pregnant or suspects she is pregnant, she should abstain from alcohol and other drug use.

All university faculty and staff members, as well as any students employed at the university, acknowledge that they will as a condition of their employment abide by the terms of this university policy. In addition, any employee who is convicted of a violation of any criminal drug law occurring in the workplace must report that conviction to his or her immediate supervisor within five days. The Drug-Free Workplace Act makes a strict compliance with this policy statement a condition of employment on all federal grants and contracts. Within 10 days of learning of a drug conviction resulting from workplace activities of any individual engaged in work under grants or contracts funded by a federal agency, the university is required to notify the relevant funding agency that a violation of this policy statement has occurred.

Who to call when you need help:

ADA COORDINATOR

Contact: Richard L. Webb
Office: Lawrence Street Center, 1050

Telephone: 303-315-2724

E-mail: Richard.Webb@uchsc.edu

Contact the ADA coordinator to report disability discrimination.

AURARIA POLICE DEPARTMENT

Office: 1201 5th Street, 110

Telephone: 303-556-5000

Emergency: 911

Contact the Auraria Police Department to report on-campus criminal conduct, including sexual assault or other serious allegations of sexual harassment in which the complainant believes that his or her safety is threatened. Allegations of serious sexual harassment should be reported to the Auraria Police Department if they occur after hours or on weekends.

DISABILITY RESOURCES AND SERVICES

Director: Lisa McGill

Office: Arts Building, 177

Telephone: 303-556-3450

TTY: 303-556-4766

The Office of Disability Resources and Services provides equal opportunities and fosters the personal growth and development of students with disabilities. Contact DRS for priority registration for classes, assistance in identifying volunteer notetakers, alternative testing, oral/sign language interpreters, real-time captioning and textbooks in alternative formats.

EQUAL OPPORTUNITY/ AFFIRMATIVE ACTION

Compliance Officer:

Richard L. Webb

Office: Lawrence Street Center, 1050

Telephone: 303-315-2724

E-mail: Richard.Webb@uchsc.edu

Contact the compliance officer to report discrimination on the basis of race, color, national origin, sex, age, disability, creed, religion, sexual orientation or veteran status.

HUMAN RESOURCES

Office: Lawrence Street Center, 1050

Telephone: 303-315-2700

Contact the Office of Human Resources for a referral and to speak to someone immediately about your problem.

OMBUDS OFFICE

Associate Director:

Mary Chavez Rudolph

Office: CU Denver Building, 107P

Telephone: 303-556-4493

Web site: www.uchsc.edu/ombuds/

The Ombuds Office is a confidential and impartial resource for students, faculty and staff. Contact the Ombuds Office: as a first step if you don't know where to turn, as a last resort, or anywhere along the way; when you are confused about university policy or procedure and would like clarification; to explore your options, share your concerns, evaluate your situation, and plan your next step; when you feel as if you have been treated unfairly; and for information and identification of resources to resolve issues.

SEXUAL HARASSMENT

Sexual Harassment Officer:

Richard L. Webb

Office: Lawrence Street Center, 1050

Telephone: 303-315-2724

E-mail: Richard.Webb@uchsc.edu

Contact the sexual harassment officer with questions about or to report sexual harassment.

STUDENT AND COMMUNITY COUNSELING CENTER

Contact: Patricia Larsen

Office: North Classroom, 4036

Telephone: 303-556-4372

Web site: www.cudenver.edu/Resources/Counseling+Center/

The Student and Community Counseling Center provides mental health counseling services to the student body as well as the metropolitan community. UCDHSC students receive 10 counseling sessions at no cost per fiscal year as part of their student fees.

University employees may contact the Office of Human Resources at 303-315-2700 (Lawrence Street Center, 1050) for more information regarding resources, programs and services available. Students may contact the Student and Community Counseling Center at 303-556-4372 (North Classroom, 4036) or the Student Health Center at 303-556-2525 (Plaza Building, 150) for confidential information and/or referrals. Information may also be obtained by calling the U.S. Department of Health and Human Services national drug and alcohol treatment referral service at 1-800-662-HELP.

This policy statement will be issued each year as part of the university's continuing effort to increase awareness about the dangers of substance abuse. This policy is based on the belief that well-informed members of the university community will choose wellness over illness and effectiveness over impairment. We ask your support in this important campus effort.

INCLUSIVENESS AND NONDISCRIMINATION

The University of Colorado at Denver and Health Sciences Center is committed to enhancing the inclusiveness of its work force and its student body. Inclusiveness among students, faculty, staff and administrators is essential to educational excellence and to accomplishing UCDHSC's urban mission. Inclusiveness among faculty, staff and administrators provides role models and mentors for students, who will become leaders in academe and in the larger society, and ensures that a broad array of experiences and world views informs and shapes teaching, research, service and decision making at UCDHSC.

Pursuant to Article 10, Laws of the University of Colorado Board of Regents, the university does not discriminate on the basis of race, color, national origin, sex, age, disability, creed, religion, sexual orientation or veteran status in admission and access to, and treatment and employment in, its educational programs and activities. The university takes action to increase ethnic, cultural and gender diversity, to employ qualified disabled individuals and to provide equal opportunity to all students and employees.

All students shall have the same fundamental rights to equal respect, due process and judgment of them based solely on factors demonstrably related to performance and expectations as students. All students share equally the obligations to perform their duties and exercise judgments of others in accordance with the basic standards of fairness, equity and inquiry that should always guide education.

A statement of Article 10 may be found online at www.cu.edu/regents/Laws/Article10.html. UCDHSC procedures for investigating complaints of discrimination may be found online at www.ucdhsc.edu/admin/policies/ucdhsc/hr/Discrimination%20Guideline%20-%20REVISED%20-%20READY%20FOR%20WEB.pdf.

To report a violation of Article 10 or for additional information, contact the UCDHSC Equal Opportunity/Affirmative Action Compliance Officer, Richard L. Webb, 303-315-2724 or by e-mail at Richard.Webb@uchsc.edu. Or visit his office is at 1380 Lawrence St., 1050. His mailing address is: EO/AA Compliance Office, UCDHSC, P.O. Box 173364, Campus Box 130, Denver, CO 80217-3364.

Disability Accommodation

The Americans with Disabilities Act (ADA) provides that individuals who are otherwise qualified for jobs or educational programs will not be denied access simply because they have a disability. Its goal is to guarantee that individuals with disabilities are not discriminated against or denied equal access to the same programs, services and facilities available to others. The ADA prohibits employers, including UCDHSC, from discriminating against applicants and workers with disabilities in all aspects of employment. The act also prohibits the university from discriminating on the basis of disability in access to its programs and services.

The ADA requires that UCDHSC provide reasonable accommodations to qualified individuals with disabilities who are employees or applicants for employment, and for persons who participate in or apply for participation in the university's programs and activities. Exceptions to the

obligation for providing accommodation may be made if doing so would cause undue financial or administrative burdens, fundamental alteration to a program or activity, or significant risk to health or safety to self and/or others. Additional information regarding the ADA may be obtained online at www.usdoj.gov/crt/ada/adahom1.htm.

If you are a student at UCDHSC and need assistance with access to or participation in the academic curriculum, contact the Office of Disability Resources/Services at: 303-556-3450; TTY 303-556-4766; mailing address P.O. Box 173364, Campus Box 118, Denver, CO 80217-3364.

Reporting Disability Discrimination

Article 10 of the laws of the University of Colorado Board of Regents prohibits discrimination on the basis of disability (or on the basis of membership in other protected classes) in admission and access to, and treatment and employment in, University of Colorado educational programs and activities. To report discrimination or to obtain additional information, contact the UCDHSC ADA coordinator, 303-315-2724; mailing address P.O. Box 173364, Campus Box 130, Denver, CO 80217-3364. Complaints of discrimination based upon disability will be processed according to the provisions of the UCDHSC nondiscrimination procedures, which may be found online at: www.ucdhsc.edu/admin/policies/hr/Discrimination%20Guideline%20-%20REVISED%20-%20READY%20FOR%20WEB.pdf.

SEXUAL HARASSMENT

The University of Colorado is committed to maintaining a positive learning, working and living environment. In pursuit of these goals, the university will not tolerate acts of sexual harassment or related retaliation against or by any employee or student.

Sexual harassment: consists of interaction between individuals of the same or opposite sex that is characterized by unwelcome sexual advances,

requests for sexual favors and other verbal or physical conduct of a sexual nature when: (1) submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment, living conditions and/or educational evaluation; (2) submission to or rejection of such conduct by an individual is used as the basis for tangible employment or educational decisions affecting such individual; or (3) such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile or offensive working or educational environment.

Hostile environment sexual harassment: (described in subpart (3) above) is unwelcome sexual conduct that is sufficiently severe or pervasive that it alters the conditions of education or employment and creates an environment that a reasonable person would find intimidating, hostile or offensive. The determination of whether an environment is "hostile" must be based on all of the circumstances. These circumstances could include the frequency of the conduct, its severity and whether it is threatening or humiliating.

Retaliatory Acts: It is a violation of this policy to engage in retaliatory acts against any employee or student who reports an incident of alleged sexual harassment or any employee or student who testifies, assists or participates in a proceeding, investigation or hearing relating to such allegation of sexual harassment.

The University of Colorado System Administrative Policy Statement (APS) on sexual harassment policy and procedures may be obtained from the UCDHSC sexual harassment officer (see "Reporting Sexual Harassment") or found online at: www.cu.edu/policies/Personnel/sexharass.html.

Reporting Sexual Harassment

If you need to report sexual harassment or if you have any questions regarding sexual harassment or policy above, please contact the UCDHSC sexual harassment officer at 303-315-2724; send correspondence to P.O. Box 173364, Campus Box 130, Denver, CO 80217-3364; or e-mail Richard.Webb@uchsc.edu.

At A Glance: Downtown Denver and Auraria

Location

Speer Boulevard and Auraria Parkway

Auraria Campus Facts

Opened in 1976

Serves three institutions and nearly 37,000 students

Largest campus in Colorado

Operates seven days per week

Students range in age from 16 to 80

27% are ethnic minorities

Approximately 80% work full- or part-time off campus

Local Attractions

Denver Performing Arts Complex. The second largest performing arts facility in the country and the site of countless symphony concerts, operas, regional theatre, Broadway shows, dance and cabaret performances.

The Pepsi Center. Home to the NBA Denver Nuggets, the Stanley-Cup winning Colorado Avalanche, the 2005 football arena champion Colorado Crush, the 2006 national lacrosse champions, the Colorado Mammoth and major concerts.

Unique shops and restaurants along Market Street in LoDo (Lower Downtown) and on the 16th Street Mall.

Coors Field. Home of the Major League Colorado Rockies.

Invesco Field at Mile High. Home of the Super Bowl champion Denver Broncos and our latest professional lacrosse franchise, the Outlaws.

The Denver Art Museum with its fabulous Native American, contemporary and New World collections, and the stunning new Daniel Libeskind-designed addition.

The Denver Public Library, which according to Hennen's American Public Library Ratings, is one of the top 10 libraries in the country and is itself an architectural beauty.

The Colorado Capitol, the gold-domed seat of state government.



Campus Map

See inside back cover of this catalog.

Transportation

Light Rail

Colfax at Auraria Station (Lines D, F and H)

Auraria West Station (Lines C and E)

RTD (Bus) Routes

Auraria Parkway, Routes 1 and AF

Larimer and 12th Street, Routes 2, 12 and 15

Colfax at Osage, Routes 16, 16HD, 30 and 31

Parking

19 parking lots/structures on campus

6,622 parking spaces

Overflow parking at the Pepsi Center

Dining on Campus

Tivoli First Floor Food Court

Freshens

Wok & Roll

McDonald's

Subway

Taco Bell

Tivoli Second Floor

Pete's Arena, 229

Quick Zone, 271

Cimarron Café & Grill, 240

Around Campus

Canteen-Stop Gap

South Classroom

Courtyard Café Express

Auraria Library

Courtyard Café

North Classroom

Einstein Bros Bagels

The Mercantile, 906 Curtis Street

Good Stuff, crossroads of Central

Classroom and the Library

Colorado Coffee South

N.E. Entrance

5th Street Café

Administration Building

Campus Life

The University of Colorado at Denver and Health Sciences Center's downtown Denver campus is physically located on the 127-acre Auraria campus, which is shared with two other institutions—Metropolitan State College of Denver and the Community College of Denver. Because we share facilities, our students have access to the level of resources found at much larger public universities. Since fall 2006, the university has also been able to offer student housing adjacent to this traditionally commuter campus. Details about the campus and Campus Village are explained in this chapter.

AURARIA CAMPUS

Since opening in 1976, Auraria has become the largest campus in Colorado, enrolling approximately 37,000 students—20 percent of all the students in public higher education in the state. This is the most efficiently utilized campus in the state. Classrooms on the Auraria campus are used an average of 50 hours per week. Classes are held from 7 a.m. to 10:30 p.m. Monday through Friday and from 8 a.m. to 6 p.m. on Saturday and Sunday. Some courses and programs are offered cooperatively by the Auraria educational institutions. Those pertaining to UCDHSC students are outlined in this catalog.

The Auraria campus offers numerous amenities to students, faculty and staff, from the largest bookstore in the Rocky Mountain Region to a state-of-the-art fitness facility. Details of these amenities are outlined in this chapter.

In addition to its proximity to the thriving business and industry of downtown Denver, the Auraria campus has a distinct historic flavor. The Tivoli Student Union is housed in a renovated brewery originally built in the 1860s. Historic Ninth Street Park, St. Cajetan's Church/Performing Arts Center, St. Elizabeth's Church, the Emmanuel-Sherith Chapel/Synagogue/Art Gallery and the Golda Meir House are also located on campus.

Auraria Higher Education Center

The Auraria Higher Education Center (AHEC) is the administrative body that coordinates the facilities, services and activities for the three educational institutions on campus. AHEC provides common services for the campus including: classroom scheduling, facilities management and construction, campus police, telecommunications infrastructure, student union, media services, book store, child care center, parking and transportation, mail services and facilities master planning. Visit their Web site, www.ahec.edu, for additional information.

CAMPUS AMENITIES

Auraria Campus Bookstore

Location: Tivoli Student Union,
900 Auraria Parkway

Hours: Mon.–Thurs., 8 a.m.–6 p.m.;
Fri. 8 a.m.–5 p.m.; Sat. 10 a.m.–3 p.m.;
call during vacation and interim periods

Telephone: 303-556-4286

Web site: www.aurariabooks.com

The Auraria Campus Bookstore, a department of Student Auxiliary Services—*your campus store*—is located in the historic Tivoli Student Union. The bookstore provides textbooks for the Auraria schools, plus a complete general book department that is especially strong in technical and reference areas. Best sellers, new releases and gift book selections change frequently and are often accompanied by displays of special value books on many subjects.

Students need to bring course printouts to locate textbooks. Books are located by school; subjects are arranged alphabetically—departmental abbreviations, with course and section numbers—and prices are printed on the shelf tag below. Each title has the designation of *Required*, *Preferred*, *Optional* or *Available*. You can also buy books online at www.aurariabooks.com.

The Auraria Campus Bookstore carries more used textbooks than any other book store in Colorado, but shop early as used books are the first to go. A full refund is given for new and used books accompanied by the receipt and returned within the *first three weeks* of class for regular semesters and during the *first week* of class for short terms.

Please read the refund policy attached to the receipt.

When a course ends, the textbook may still have value and may be bought back by the bookstore. The buy-back policy on used texts is to pay half of the new price on books that will be used again next semester on this campus. Other texts are purchased at lower percentages. The Auraria Campus Bookstore's buy-back services are dedicated to its student customers. A validated Auraria student or campus ID is required to complete a buy-back transaction. Books are bought for this campus throughout the semester; however, buyers from national textbook companies are on hand at the end of each semester to purchase used books that may be required at other schools.

Campus Computers, 303-556-3726, offers the latest in hardware and software technology. An educational discount is offered to Auraria campus students; a current, validated Auraria ID must be presented at the time of purchase. A full line of computer reference books and accessories is also available, as well as calculators and other small electronics. Campus Computers' hours are Mon.–Thurs., 8 a.m.–6 p.m.;

Fri., 8 a.m.–5 p.m.; Sat., 10 a.m.–3 p.m. It is located on the second floor of the Auraria Campus Bookstore.

A current photo ID is required for purchases paid for by check. The bookstore also accepts MasterCard, VISA and American Express.

The Auraria Campus Bookstore is owned by the State of Colorado and supports the Student Bond Fund.

Auraria Early Learning Center

Location: West Colfax and Ninth Street Park

Hours: Mon.–Fri. 7 a.m.–6 p.m.

Telephone: 303-556-3188

Web site: www.tivoli.org/earlylearning

The Auraria Early Learning Center serves the child care needs of Auraria's students, staff and faculty by providing high-quality early childhood education and care programs. The Auraria Early Learning Center is located on the southwest corner of the campus. Its programs are consistently recognized by the educational community for their high-quality early childhood care and education. Developmentally appropriate practices for young children guide the educational programs that are provided. Curriculum planning is flexible and based on children's interests.

Supervising teachers in the Auraria Early Learning Center are all degree teachers meeting the certification guidelines of the State of Colorado and of the National Academy of Early Childhood programs. Children aged 12 months to 5 years are served at the center. The center also has a fully accredited kindergarten program.

Auraria Event Center/Student Recreation Center

Location: 1255 Tenth Street Mall

Telephone: 303-352-4371 (fitness center); 303-556-3210 (recreation); 303-556-2755 (events)

Web site: www.mscedu/-cra

The Auraria Campus PE/Event Center is a 2,800-seat facility for team and individual sport activities, academic programs, events and conferences. Funds from student recreation fees support the use by students of the many health and recreation facilities found within the building. Adjacent to the building are softball fields, tennis courts and a track.

Auraria Library

Interim Dean/Director: Camila Alire

Associate Deans: Ellen Greenblatt, Teri R. Switzer

Office: 1100 Lawrence Street

Telephone: Administration 303-556-2805

Information 303-556-2740

Reference 303-556-2585

Web site: <http://library.auraria.edu>

FACULTY

Assistant Professors: Jeffrey Beall, MLS, University of North Carolina at Chapel Hill; Ignacio Ferrer-Vinent; Nina McHale

Associate Professors: Ellen Greenblatt, MA, University of Denver; Teri R. Switzer, MBA, Colorado State University

Senior Instructors: Orlando Archibeque, MA, University of Denver; Meg Brown-Sica, MA, University of South Florida; Vera Gao, MLS, University of South Carolina; Cynthia Hashert, MLS, North Texas State University; Elaine Jurries, MA, University of Minnesota; Nikki McCaslin, MA, University of Denver; Ellen Metter, MS, Drexel University; Marit S. Taylor, MLS, Vanderbilt University; Linda Tietjen, MA, University of Denver; Louise Treff-Gangler, MA, University of Denver; Diane Turner, MLS, University of Pittsburgh; Judith Valdez, MLS, Emporia State University; Eveline Yang, MSLS, University of Illinois

Instructors: Eric Baker, MLS, Indiana University at Bloomington; Thomas J. Beck, MLS, Emporia State University; Gayle Bradbeer, MLS, Emporia State University; Lorraine Evans, MLS, University of Maryland; Rosemary Evetts, MLS, Indiana University

LIBRARY SERVICES

Access to information is essential to academic success. The Auraria Library, located at the center of the campus, provides a wide range of learning resources and services to support academic programs. The library is administered by the University of Colorado at Denver and Health Sciences Center.

THE COLLECTION

The Auraria Library has a collection of approximately 600,000 volumes. In addition to a strong, up-to-date book collection, the library also has over 3,200 journal and newspaper subscriptions, access to more than 5,000 electronic journals and a film/videotape collection. The library is a selective depository for U.S. Government publications and a depository for Colorado State documents, with a collection of over 450,000 documents. The Auraria Library's collection is supplemented by providing access to other libraries within the state and nationally through interlibrary loan services.

AURARIA LIBRARY ELECTRONIC RESOURCES

Auraria Library provides on- and off-campus access to a wide variety of electronic resources available through the Library's home page: <http://library.auraria.edu>.

Available resources include:

Skyline: Auraria Library's online catalog provides access to books, journal holdings, media and government publications owned by the library. Reserve materials for courses are also listed.

Prospector Global Catalog: Auraria patrons can expand their searches for materials with Prospector, a catalog of 16 Colorado libraries. Prospector has 16 million holdings including public and academic libraries. You may request items that are checked out or missing from *Skyline* and if the Prospector item you need is checked out, you may place a hold. Materials are requested online and delivered to the Auraria Library circulation desk within two to four days. Items are checked out for three weeks with one renewal. Try this popular service by clicking on the "Search Prospector" tab in a *Skyline* catalog search or directly at prospector.coalition.org.

Article databases: Over 300 databases provide access to full text articles and journal citations in a variety of fields. Available on-campus to all and off-campus to current students, faculty and staff.

Reference resources: Dictionaries, encyclopedias, almanacs and numerous other reference resources.

Web resources: Internet resources in all fields that have been selected and evaluated by librarians.

Auraria Library information: Instruction guides, subject guides, instructions for off-campus access, hours, policies and other library information.

CIRCULATION SERVICES

Library materials are checked out from the circulation desk with a current Auraria ID or current Colorado picture ID. Undergraduate students may check out books for 28 days, and graduate students for 60 days. An Auraria student can check out up to 75 items from the general collection. Items can be renewed three times if not requested by another borrower online using *Skyline's* View Your Own Record, in person or by phone, 303-556-2639. Other services include patron-placed holds

in *Skyline* for checked-out items and e-mail circulation notices that allow for e-mail renewals. Fines are assessed when books are renewed or returned past their due date, and replacement charges will be assessed if items are 28 days overdue.

REFERENCE/INSTRUCTION SERVICES

The Auraria Library reference department strives to provide excellent service in assisting students and faculty with their research needs. The reference desk is staffed during most hours the library is open, and has librarians and staff trained in all subject areas in order to assist students with online and print sources of information. Contact the reference desk at 303-556-2585.

GOVERNMENT PUBLICATIONS

Most U.S. and Colorado government publications are in a separate location in the library and are available all the hours the library is open. Specialized assistance is available during weekday hours and at the reference desk evenings and weekends. Call 303-556-8372 for information and hours.

INFORMATION DELIVERY/INTERLIBRARY LOAN

Auraria Library participates in a worldwide electronic borrowing and lending network with other libraries. This service enables all Auraria campus students, faculty and staff to obtain materials not available at the Auraria Library. Requests from registered users can be initiated electronically through the Auraria Library's Web page using ILLiad. This department also loans material to institutions throughout Colorado and around the world. Access to materials from other Colorado libraries is available via Proquest. Contact the information delivery/interlibrary loan office at 303-556-2562.

LIBRARY INSTRUCTION

The library is committed to providing information skills through its instruction program. The program is varied, ranging from basic, introductory-level material to advanced research methodology for graduate students. Information on other electronic resources is an important component of the library Instruction Program. For more information about the library's instructional offerings, contact the library instruction office at 303-556-3683.

RESERVES/AUDIO, VIDEO AND MEDIA

The reserves/audio, video and media department is located in the northwest corner of the first floor and provides special short-term circulation of books, pamphlets, articles, videos, CDs and other materials needed for class instruction. The Auraria Library is pleased to offer an electronic reserve option to our faculty. Electronic reserve allows access to digitized reserve materials online 24 hours a day, seven days a week from any computer with an Internet connection. Materials processed through the electronic reserve system are password protected and made available only to students enrolled in the courses. Unlike traditional print reserves, more than one student may access the material at a time. For more information about the reserves/audio, video and media department, see our Web site at <http://library.auraria.edu/aboutus/whoware/reserves.html> or call 303-352-3847.

The loan periods for reserved items are short, and overdue follow-up is prompt so that the maximum number of students may have access to the materials. These materials include not only titles owned by the library, but personal copies made available by the faculty. Reserve materials may be checked out for two hours, one day or three days, with the exception of media items, which may be checked out for two weeks. The length of the check-out is determined by the professor. Materials will be checked out with either a student ID or valid Colorado picture ID.

ARCHIVES AND SPECIAL COLLECTIONS

The archives and special collections department of the Auraria Library acts as the archival repository for materials produced by the University of Colorado at Denver and Health Sciences Center, Metropolitan State College of Denver, Community College of Denver and the Auraria Higher Education Center. These materials include documents such as college catalogs, student newspapers, budgets and fact books. Manuscript collections at the Auraria Library focus on public policy issues and public affairs. Examples of manuscript holdings include the records from organizations such as the American Civil Liberties Union of Colorado, the National Municipal League and the American Association of University Women of Colorado.

The library's special collections area contains books on many different subjects, including Colorado and Denver history, theses and dissertations from the downtown Denver campus, science fiction, rhetoric and juvenile literature. For information and hours, call 303-556-8373.

COMPUTER COMMONS

The Computer Commons, located in the northeast corner of the Auraria Library, consists of 63 computers that are available only for Auraria campus students, faculty and staff. Each computer is equipped with Internet access and Microsoft Office applications. Printing is available by using the pay-for-print Go-Print system. The Computer Commons is open whenever the Library is open. For more information or to contact the Computer Commons call 303-556-6159.

SERVICES FOR PERSONS WITH DISABILITIES

The library is committed to making its resources and services available to all students. Library services to assist persons with disabilities include orientation to the physical layout of the library, retrieval of materials and some assistance with use of the online public access catalog, periodicals and indexes.

Adaptive computer equipment and software have been installed in the reference area and in the Combined Computer Access Center to assist a number of students with varying disabilities. This equipment connects to the online public access catalog, the Internet and other electronic access systems.

ADDITIONAL FACILITIES

Photocopiers, microform reader/printers, a copy center, pay phones and study rooms are all available at the library. To reserve a study room, call 303-556-2805.

FRIENDS OF AURARIA LIBRARY

The Friends of Auraria Library is an association formed in 1976 to promote the development of Auraria Library as a center for learning, study and research for the students and faculty of the University of Colorado at Denver and Health Sciences Center, Metropolitan State College of Denver and the Community College of Denver. The Friends of Auraria Library's ongoing objectives are:

1. To promote awareness of and good will toward Auraria Library on the campus, in the metropolitan area and in the region; and
2. To increase library resources through contributions, solicitations, grants, bequests and gifts of books and other appropriate materials.

For more information about the Friends of Auraria Library, call 303-556-2805.

Auraria Media Center

Location: 1100 Lawrence Street (Auraria Library), 015

Telephone: 303-556-2426

Web site: <http://mediacenter.auraria.edu/>

The Auraria Media Center offers a full range of media services:

- distance learning technologies including video conferencing, satellite teleconferencing, audio conferencing, video over IP, Web casts and videotaping of course delivery
- circulation of a wide range of audio, video and data (AVD) presentation equipment for one-time use
- long-term equipment check-out
- special events
- production of content on digital tape, DVD, CD and videotape by an award-winning staff using state-of-the-art digital editing, graphics and animation systems
- quantity duplication of DVD, CD, audio and videotape media
- equipment maintenance and repair
- equipment/systems consultation and installation

The Auraria Media Center's 34-channel closed-circuit campus cable system can be used in the classroom to broadcast channels such as CNN, MSNBC, History, Discovery, A&E, PBS, CSPAN, NASA and local television networks. One channel is dedicated to and managed by each institution for distribution of programming of their choice.

The Auraria Media Center staff are available to train faculty in the use of equipment in "smart" classrooms on campus and offer consulting services to faculty and other clients in such areas as media design and production, effective use of media types and effective use of distance learning technologies, effective use of those technologies and equipment selection to best meet instructional needs. A self-service Mac and PC lab is available for faculty to access slide scanners, flatbed scanners and film printers to transfer digital images to film. A self-service Mac lab is available for students and faculty to download media recorded on digital and analog tape to DVD. A limited array of software is also available for editing the digital images.

Clicks!

Locations: Tivoli Student Union, 211, 303-556-3702

North Classroom, 1811, 303-556-2291

Auraria Library, 303-556-2751

Hours: Vary by location

Clicks! is an on-campus copying, printing and graphic design department. Three full-service copy centers around campus provide high-speed copying, color copies, laminating, bonding and school supplies. Services vary by location.

Emmanuel Gallery

Location: 1205 Tenth Street Mall

Hours: Tues.–Fri. 10 a.m.–6 p.m.; Sat. 11 a.m.–5 p.m.

Telephone: 303-556-8337

Web site: www.emmanuelgallery.org

The Emmanuel Gallery hosts exhibits of students, faculty and nationally known artists. Stop in for a relaxing break.

Health Center of Auraria

Location: Plaza Building, 150 (lower level)

Hours: Vary (see below)

Telephone: 303-556-2525

Web site: www.mscd.edu/student/resources/health

All downtown Denver campus students are entitled to medical services at the Health Center at Auraria and student health insurance is NOT required to use this facility. The Health Center is approved to provide emergency care to persons covered by Medicare and/or Medicaid. Other medical conditions will be referred to approved Medicare/Medicaid providers. Physicians, physician assistants, nurse practitioners, radiological technologists and medical assistants staff the facility. Students will be asked to complete a sign-in sheet and show a current semester ID card each time they check in.

Services include:

- treatment of illness and injuries
- lab testing
- medications
- physicals
- annual GYN exams
- sexually transmitted disease information/testing
- birth control information/services
- minor surgery
- cholesterol screening
- immunizations
- HIV testing
- blood pressure checks
- casting
- suturing
- X-ray

All services listed above are low cost. Payment is required at time of service, except for students who participate in the Student Health Insurance Program. Classes regarding health-related topics are taught each semester and are offered free to all students.

Walk-in services begin at 8 a.m., Monday–Friday. Access is on a first-come, first-served basis. Walk-in varies daily, contingent upon when all patient slots have been filled; thus, the daily closure time for walk-in care is variable. Patients are encouraged to check in as early as possible. Brochures with additional information are available at the health center.

King Academic and Performing Arts Center

Location: 855 Lawrence Way

Telephone: 303-556-2179

Web site: www.kennethkingcenter.org

The King Center houses six performing spaces: three permanently assigned production studios, a 200-seat recital hall; 520-seat concert hall; and the 300-seat Courtyard Theatre. There are dressing rooms, green room, recording studio, lighting lab, music electronics lab, classroom space, box office, scene shop, paint shop and costume shop. All spaces are fully equipped with state-of-the-art equipment and a variety of spaces for exhibiting fine art. The entire facility has over 180,000 square feet dedicated to the education of the student and development of the student who wishes to study performance/the arts. The center can support many forms of entertainment, anywhere from legit theatre to large choral ensembles and other forms of performances.

Tivoli Student Union

Location: Ninth and Auraria Parkway

Telephone: 303-556-6330

Web site: www.tivoli.org/tivoli/

The Tivoli Student Union, managed by Student and Auxiliary Services, provides a wide variety of services for the Auraria community. The Student Union houses student government and student life offices, two credit unions and the tri-institutional services such as the GLBT student services.

If you want a break or a quiet place to study, the Tivoli Student Union is just the place. With a food court, coffeehouse and deli, and convenience store, you'll find a place to suit your appetite, schedule and budget. If you'd rather retreat than eat, you can watch TV in the Roger Braun Student Lounge, play a game of pool at Sigi's Pool Hall and Arcade, meet a study group in the multicultural lounge or study in total silence in the Garage Quiet Study Lounge.

Additional student services at the Tivoli Student Union include the Auraria Campus Bookstore, the Club Hub, Click's Copy Center, event services and the ID program and Commuter Resource Center.

Club Hub, 346, 303-556-8094.

This uniquely designed club space on the third floor of the Tivoli features work space for over 60 clubs, mailboxes for campus clubs, a limited number of lockers, club bulletin boards and a lounge area for group meetings. This office works closely with the Student Advisory Committee to the Auraria Board (SACAB) and the Student Activities/Life offices.

Auraria Campus Event Services, 325, 303-556-2755.

Through the event services office, meeting and conference space at the Tivoli Event Center, St. Francis and St. Cajetan's can be reserved for nonacademic purposes, including meetings, weddings and receptions. Conference Services has three caterers to choose from for all off-campus catering needs.

ID Program/Commuter and Housing Services, 269, 303-556-8385.

Auraria staff, faculty and students come here to get their ID cards, which are necessary for parking in some campus lots and for checking out library books. Student IDs also serve as an RTD bus pass and light rail with a semester validation sticker. The center provides off-campus housing resources, RTD bus information, a jobs kiosk, lost and found and a microwave oven.

Sigi's Pool Hall and Arcade, 145, 303-556-3645.

Sigi's, named after Tivoli Brewery founder Moritz Sigi, houses 15 video game machines and six billiard tables. Sigi's is open to the entire Auraria campus population as well as the public. The student-friendly atmosphere encourages community socialization and relaxation.

STUDENT SERVICES

Academic Success and Advising Center

Office: North Classroom, 1503

Telephone: 303-352-3520

Web site: www.cudenver.edu/Who+Am+I/Current+Students/AcademicSuccessAndAdvisingCenter

Academic advising is the foundation of a successful college experience and an important component in both choosing a major and career planning. This office serves as the first point of contact and provides academic advising for students who are prebusiness, pre-engineering, nondegree and undecided in the College of Liberal Arts and Sciences and all freshmen and undecided in the College of Arts & Media. In addition, the center provides general information and resource referrals to all students.

New freshmen and transfer students will be assigned an advisor who will meet with them every semester to plan a schedule, discuss academic support services and assist with referrals to other on-campus resources.

American Indian Student Services

Office: North Classroom, 2013

Telephone: 303-556-2860

Web site: www.cudenver.edu/Student+Life/EducationalOpportunities/Programs/AmericanIndianStudentServices

The American Indian Student Services program provides access and educational opportunities to American Indian students through specialized recruitment and retention efforts. The program provides academic advising, scholarship information, cultural programs, advocacy, student organization sponsorship and other supportive services tailored to the specific needs of the students. American Indian Student Services also serves as a resource to the campus, providing current information on issues and concerns of the American Indian community.

Asian American Student Services

Office: North Classroom, 2014

Telephone: 303-556-2578

Web site: www.cudenver.edu/Student+Life/EducationalOpportunities/Programs/Asian+Amer+Student+Services

Asian American Student Services provides academic advising, scholarship information, cultural programs, advocacy and student leadership development. Supportive services are tailored to meet the specific needs of students. Asian American Student Services also serves as a resource to the campus and community, providing current information on issues and concerns of Asian Americans.

Black Student Services

Office: North Classroom, 2010

Telephone: 303-556-2701

Web site: <http://thunder1.cudenver.edu/BSS>

The Black Student Services program provides access, educational opportunities and information to students of African descent through specialized recruitment and retention efforts. The program provides academic advising, scholarship information, cultural programs, advocacy, student organization sponsorship and other supportive services tailored to the specific needs of the students. Black Student Services also serves as a resource to the campus, providing current information on issues and concerns affecting the community of Africans in America.

Career Center

Director: Lissa Gallagher

Office: Tivoli Student Union, 260

Telephone: 303-556-2250

Web site: <http://careers.cudenver.edu>

The Career Center offers a full array of services that prepare students for their success. Students are encouraged to participate in career-related programs and services as early as their freshman year to begin planning their careers and gain the skills and experiences they need to be successful upon graduation.

CAREER PLANNING SERVICES

Career counselors can help you decide on a major; assess strengths, interests and values through career testing; research options; choose a career direction; and prepare for your job search.

INTERNSHIP AND COOPERATIVE EDUCATION PROGRAM

Enrich your studies, gain hands-on experience in your field of study while earning academic credit and/or pay, and maximize your employment potential at graduation by participating in internships and cooperative education.

EMPLOYMENT SERVICES

Connect with employers through the Career Center's employment programs and services:

- online job postings and resume referrals
- on-campus interviews
- career fairs
- networking events

Center for Learning Assistance

Office: North Classroom, 2006 and 2506

Telephone: 303-556-2802

The Center for Learning Assistance is designed to promote student success in the academic setting. Available to undergraduate and graduate students, services include study skills courses, tutoring, study strategies seminars, consulting and a minority resource library. First-generation college students may be eligible for intensive services through the Student Support Services and Ronald E. McNair TRIO programs within the center.

Disability Resources and Services

Director: Lisa E. McGill

Coordinator: Danielle Archunde

Office: Arts Building, 177

Telephone: 303-556-3450

TTY: 303-556-4766

E-mail: DisabilityResources@cudenver.edu

The Office of Disability Resources and Services (DRS) is committed to providing equal opportunities and fostering the personal growth and development of students with disabilities. The DRS staff strive to meet the needs of a large and diverse community of students with disabilities. We are available to provide assistance and to arrange for reasonable accommodations that will address specific educational needs.

Accommodations may include but are not limited to the following:

- priority registration for classes
- assistance in identifying volunteer notetakers
- alternative testing for assessment tests and classroom examinations
- oral/sign language interpreters
- real-time captioning
- textbooks in alternate formats (audiotaped, Braille, scanned onto diskette)

Gay, Lesbian, Bisexual, Trans (GLBT) Student Services at Auraria

Office: Tivoli Student Union, 213

Telephone: 303-556-6333

Web site: www.glbtss.org

Gay, Lesbian, Bisexual, Trans Student Services is open to all Auraria campus students as a resource for exploring sexual orientation issues. This program offers a variety of support, education and advocacy services for the entire campus community:

- support for those who may have questions about their own sexual orientation or that of a friend or family member
- advocacy for students experiencing discrimination or harassment based on a real or perceived GLBT identity

- speakers for events, workshops, and classes on various aspects of sexual orientation
- programs and workshops about working with the gay, lesbian, bisexual and trans communities more effectively and combating misinformation, misconceptions and homophobia
- resource library of 500 books and 90 videos (documentary and cinema) available for research and leisure, as well as a multitude of free literature regarding other organizations and services throughout Denver and Colorado that provide outreach, services and advocacy
- programs such as Gay, Lesbian, Bisexual, Trans Awareness Month and other forums providing information and dialogue about GLBT issues

The GLBT Student Services office is staffed by a director with the support of student employees and volunteers. Input and involvement from the entire campus community are welcomed.

Hispanic Student Services

Office: North Classroom, 2012

Telephone: 303-556-2777

The Hispanic Student Services program provides access and educational opportunities to Hispanic students through specialized recruitment and retention efforts. The program provides academic advising, scholarship information, cultural programs, advocacy, student organization sponsorship and other supportive services tailored to the specific needs of the students. Hispanic Student Services also serves as a resource to the campus, providing current information on issues and concerns of the Hispanic community.

Information Technology Services

Office: Lawrence Street Center, 1350

Telephone: 303-315-4357

Web site: <http://ucdhsc.edu/admin/its/index.htm>

Information Technology Services (IT Services) supports telephone, computer and network use for both the academic and administrative communities at UCDHSC. All centralized administrative systems are developed, maintained and processed by University Management Systems in Boulder, with output processing and user support provided by IT Services in downtown Denver. The downtown Denver campus maintains the campus communications network, which provides access to campus computing resources, such as access to the Internet, e-mail, file storage space, access to and sharing of course information and student Web development space, as well as connection to the Auraria Library Online Information System.

There are more than 2,500 personal computers located on the campus in 21 teaching laboratories, two public labs, individual laboratories and in offices. IT Services maintains the campus World Wide Web, where information is kept for reference by students, faculty, staff and others interested in the downtown Denver campus.

The IT Services Help Desk provides assistance to students, faculty and staff. Help Desk technicians maintain personal computers and are available to assist with hardware and software planning and installation, acquisitions, Internet connectivity, troubleshooting and general questions. The two IT Services-maintained computing laboratories provide students with access to Macintosh and Windows-based personal computers and software as well as access to the campus network and computing resources. The goal of IT Services is to assist all members of the downtown Denver campus community in using computing as an effective tool in their work. For further information, call the IT Services Help Desk at 303-315-HELP.

Ombuds Office

Office: CU Denver Building, 107P

Telephone: 303-556-0563 or 303-315-0563

E-mail: Mary.ChavezRudolph@cudenver.edu

Web site: www.uchsc.edu/ombuds/

The Ombuds Office is a designated neutral and independent resource available to all members of the university community to provide informal and confidential assistance in resolving conflicts, complaints and disputes. An ombudsperson does not advocate for any party but is an advocate for fair process.

The ombudsperson can provide information about policies, procedures, practices or decisions at UCDHSC and can assist individuals and groups in resolving their concerns by listening; probing for understanding; and helping to understand options. The ombudsperson will make referrals as necessary and can serve as an informal mediator or shuttle diplomat.

The Ombuds Office works toward positive change within the university, serving as a consultant in the preparation and review of policies and procedures and assisting in the solution of problems. While keeping names and cases confidential, the ombudsperson reports trends and pervasive problems to the appropriate resolution channels.

The Ombuds Office can also assist with large group issues by providing group facilitation, conflict management training and personality profile assessments. In addition, the office has a lending library comprised of books and videos available for check-out.

Due to its informal, confidential and independent role outside the administrative structure of the university, notice to the Ombuds about a problem does not result in the generation of records, nor does it constitute legal notice to the university about the existence of a problem. For those interested in making official complaints to the university about a problem, the Ombuds Office can assist by making appropriate referrals.

Pre-Collegiate Programs

Office: Administration Building, 360

Telephone: 303-556-2322

E-mail: pcdp@cudenver.edu

Programs offered by the Center for Pre-Collegiate Programs serve to motivate high school students to pursue post-secondary education and provide them the academic skills necessary to be successful in their college endeavors.

PRE-COLLEGIATE DEVELOPMENT PROGRAM

The Pre-Collegiate Development Program is a systemwide institutionally funded academic enhancement program for high school students. It is designed to motivate and prepare high school students who are first generation and from an underrepresented group in higher education to complete high school on a timely basis.

The primary focus of the program is to prepare youth (grades 9–12) for professional careers of specific interest to them. The program includes academic advising (by parents and guidance counselors working together) regarding high school course selections that will best help students attain their desired career objectives. In addition, during the academic year, students will take part in relevant Saturday Academics in basic study skills, interpersonal skills development and topics related to student preparation for the 21st century.

Between their sophomore and junior years, students will participate in a two-week session designed to enhance study and library research skills and provide a thorough introduction to college placement exams and career fields. Between their junior and senior years, students will attend a five-week academically intense Summer Academic Program. Students will experience university life on a firsthand basis and enhance their secondary school academics by taking courses designed to augment high school academic requirements (e.g., mathematics, sciences, writing, computer science, social sciences). Students also enroll in a three-credit college course.

SCHOLARS PROGRAM

This is an early college enrollment program for college-bound, high-achieving students, first generation and/or from an underrepresented group in higher education, who are enrolled in their senior year of high school. The program enables students to begin their college studies by taking one course at the downtown Denver campus during the fall term of their senior year in high school. The credit earned in the course can be applied toward a bachelor's degree. While enrolled in the program, students participate in monthly workshops designed to acclimate them to the university and prepare them for college study.

Student Activities Office

Office: Tivoli Student Union, 303

Telephone: 303-556-3399

Web site: <http://thunder1.cudenver.edu/studentlife/studentactivities.html>

The Office of Student Activities offers a comprehensive student activities program that helps bring about a positive college experience for each and every student. It is our goal to integrate what students learn from the full range of their experiences and to engage in active learning both inside and outside the classroom. We are committed to bringing you new and exciting programs that actively involve student learning and leadership development.

Student Advocacy Center

Office: North Classroom, 2012

Telephone: 303-556-2546

The Student Advocacy Center provides support services to UCDHSC students, particularly during their first year on campus. Services are designed to help students make a smooth transition to life at UCDHSC and to succeed in their college studies. Professional staff and student peer advocates provide information about campus resources and assist students with class scheduling, academic policies and procedures, and problem solving. The center also houses an extensive scholarship library.

Student and Community Counseling Center

Director: Patricia Larsen

Office: North Classroom, 4036

Hours: 10 a.m.–8 p.m.

Telephone: 303-556-4372

Web site: www.cudenver.edu/resources/counseling+center/default.htm

The Student and Community Counseling Center provides 10 counseling sessions per fiscal year at no charge to students attending the downtown Denver campus. We serve individuals, couples, families and groups for mental health concerns including but not limited to:

- stress management
- substance abuse
- relationships
- depression
- anxiety
- crisis intervention

If appropriate, we refer students to additional on-campus and/or community resources.

Also, by request, staff provide consultation, lectures and workshops to student, faculty and staff groups on mental health topics, diversity, center services and organizational and student development.

Student Government Association

Office: Tivoli Student Union, 301

Telephone: 303-556-2510

Web site: <http://thunder1.cudenver.edu/studgovt/>

The Student Government Association serves as a voice for students. Similar to the structure of the U.S. government, SGA has executive, legislative and judicial branches. Executives are elected each year in the spring. SGA assists students with information concerning student clubs and organizations, campus events, issues concerning student status and other information of general interest to students. SGA also provides students assistance with grievances and the opportunity to become more closely involved with the university community through active participation in student government itself or through service on university, tri-institutional and AHEC committees.

Student Health Insurance Office

Office: Tivoli Student Union, 303

Telephone: 303-556-6273

The Student Health Insurance Office strongly encourages all students to have adequate health insurance coverage. This will help assure success in your academic career even in the event of an unexpected medical expense.

The plan is designed to coordinate with the Health Center at Auraria to provide quality health care at the lowest possible cost.

Student Life

Office: Tivoli Student Union, 303

Telephone: 303-556-3399

Web site: <http://thunder1.cudenver.edu/studentlife/studentactivities.html>

The Office of Student Life is the advising, coordinating, resource and general information center for student clubs and organizations, student government, student programs and the academic honor societies. The office is responsible for the administration of the student fee budget and monitors all student fee expenditures to assure compliance with UCDHSC and state of Colorado regulations and procedures. The director of student and community enrichment represents the associate vice chancellor for enrollment and student engagement on selected UCDHSC, tri-institutional and AHEC committees and maintains effective lines of communication with MSCD, CCD and AHEC. This office also administers the student conduct and discipline procedures as described in the *Code of Student Conduct*.

Student Newspaper: The Advocate

Office: Tivoli Student Union, 345

Telephone: 303-556-2535

The purpose of the *The Advocate* is to provide students with information about campus issues and events. The newspaper strives to include good investigative reporting, feature articles and items of general interest to its campus readership. In addition, the newspaper is a tool to encourage and develop writers, journalists, artists and other student members of its general management and production staff.

TRIO Programs

Office: North Classroom, 2506

Telephone: 303-556-3420

TRIO programs are federally funded by the Department of Education. Student Support Services and the Ronald E. McNair programs are designed to provide support and services to first generation, low-income

and disabled students. Academic support, preparation for graduate school, career planning, workshops and cultural events are some of the services offered.

Veterans Affairs

Office: CU-Denver Building, 107F

Telephone: 303-556-2630

E-mail: vaoffice@cudenver.edu

The Office of Veterans Affairs (OVA) is an initial contact point for eligible veterans and dependent students attending UCDHSC who wish to utilize Veterans Administration educational benefits. This office assists students with filling out VA paperwork and in solving problems associated with the receipt of VA-related educational benefits.

The OVA maintains proper certification for eligible students to ensure that each student meets Veterans Administration requirements for attendance, course load and content, and other regulations necessary to receive educational benefits payments.

In addition, the OVA provides VA vocational rehabilitation referrals, information on VA tutorial assistance and VA work/study positions for qualified veterans.

Writing Center

Director: Justin J. Bain

Office: Central Classroom, 206

Telephone: 303-556-4845

Web site: <http://thunder1.cudenver.edu/writing/>

The UCDHSC Writing Center equips our community of writers (students, staff, faculty, alumni) with the necessary skills of composition to expand their academic opportunities and further their careers. We view writing as a process and all texts as works in progress. We build confident and accomplished writers through the development of strong cognitive and writing abilities. Our mission is to empower writers through collaborative work.

Services include one-on-one and small-group writing consultations in areas such as:

- Generating, organizing and developing ideas
- Establishing effective proofreading skills
- Analysis, synthesis and argument
- Summary, paraphrase and documentation
- Error pattern analysis
- Information literacy and research strategies

Computers are provided for writers' use, and online consultations are available. Walk-ins are welcome but appointments are recommended.

STUDENT HOUSING

Office: Tivoli Student Union, 303

Telephone: 303-556-3399

E-mail: housing@cudenver.edu

Web site: www.cudenver.edu/housing

Opened in fall 2006, Campus Village is located directly adjacent to the Auraria campus, within easy walking distance of campus and the downtown area. Campus Village houses 685 Auraria campus students in apartment-style accommodations and provides students with programs and resources to help foster their academic and social success. At Campus Village, housing is exclusively for students.

By focusing on the total student experience, life at Campus Village at Auraria reinforces the student's educational goals, as well as UCDHSC's commitment to community service and development. Through cultural and development programs coordinated by Campus Village staff, residents can participate in a wide variety of activities, including nutrition and fitness seminars, community outreach programs, and classes on career planning, time management, study skills and more.

Continued on page 65

CAMPUS VILLAGE FREQUENTLY ASKED QUESTIONS

Q. How close to campus is Campus Village?

A. Campus Village is adjacent to campus at 318 Walnut Street.

Q. Can I use my financial aid?

A. You should review any documentation concerning grants, loans or scholarships with your parents and the financial aid office. Most loans that would cover on-campus housing should cover Campus Village at Auraria student apartments. It is ultimately up to you to do the research.

Q. Do I have to have a meal plan?

A. All residents of Campus Village are required to have a dining fee account. Residents of the two-bedroom, two-bathroom suites will be required to deposit a minimum of \$250 into their dining balance account (DBA) each month. Residents of all other unit plans will be required to make a minimum monthly DBA deposit of \$75. Although nonrefundable and nontransferable, unused DBA balances can be carried over from month to month through the term of the lease.

Q. Is parking available?

A. Yes, we offer parking onsite and in an overflow lot on Campus. Parking is \$75 per installment and is first-come first-serve for prime spaces.

Q. What kind of security arrangements do you have?

A. We've done our best to create a safe and secure environment at Campus Village. The grounds are protected by key-card access, as is the building. The front desk is manned 24 hours a day. There are emergency phones in each parking lot and at the gates into the courtyard. Onsite staff will do rounds of the property, and they'll be equipped with cell phones to call for assistance if necessary. All the outside doors will be alarmed if they are propped open, the alarm will sound.

UCDHSC and the Auraria campus consistently rank amongst the safest campuses in Colorado. Campus Village has many systems in place to help ensure that we maintain this outstanding record of safety:

- 24-hour staffing including a 24/7 front desk
- card-access doors and limited points of entry
- onsite professional security personnel from dusk until dawn
- multiple evening and overnight patrols of the building and grounds
- emergency phones adjacent to the property
- text-messaging alerts for Campus Village students
- exterior doors are alarmed to prevent propping
- night rider shuttle service
- educational workshops and programs focused on safety

Q. Can I request an apartment or roommates?

A. Yes, but a request does not guarantee a roommate or an apartment. We do our best to match roommates, but their contracts must be the same along with other requests (themed living, etc.) You may request a roommate and apartment when you fill out your lease.

Q. What if my roommate leaves partway through the year? Will I be responsible for his/her share of the rent?

A. No, you won't. You're responsible only for the rent for your bed, whether you're in a studio or a four-bedroom unit. If one of your roommate bails, you're not on the hook for his/her rent.



Q. What utilities are included in my rent?

A. Rent includes: fully furnished apartment, high-speed Internet service, cable television, electricity, water, sewage and trash.

Q. What size are the beds?

A. The beds are extra-long twin size in the two-bedroom, two-bathroom, double-occupancy apartments/suites. All other apartments/suites have an 80-inch full-/double-sized bed.

Q. What do I need to hook up my computer to the Internet?

A. We provide internet connections in each apartment for the residents. All you need to provide is an Ethernet cord.

Q. What is the deadline for applying for a lease?

A. There is no deadline for submitting applications. However, contracts are signed on a first-come, first-serve basis, so it is better to send in a contract sooner rather than later.

Q. Do you have any rules about smoking?

A. Campus Village is a nonsmoking facility, including the outside courtyards. You can smoke outside but it's not permitted within the facility.

Q. I'm married. Can my spouse and I share a studio unit?

A. Campus Village is geared more toward singles; it's not set up as married student or couples housing. The rule is, "One head per bed"—so a married couple could not rent a studio at Campus Village. You can, however, rent a two-bedroom unit.

Q. Will the building be closed during semester breaks, spring break or summer vacation?

A. Campus Village is open year-round to residents—depending of course, on the timeframe of your lease agreement. The cafe and convenience store will also be open year-round.

Q. Do you allow pets?

A. Pets are not allowed at Campus Village.

Detailed information about Campus Village is available online at <http://thunder1.cudenver.edu/housing/>.

STUDENT RIGHT TO KNOW AND DISCLOSURE INFORMATION

This report was prepared with information provided by the Auraria Higher Education Center (AHEC) Campus Police Department in compliance with the federal *Student Right-to-Know and Campus Security Act*. Campus security can be reached at 303-556-3271.

AURARIA CAMPUS CLERY REPORT

Criminal Offenses	On Campus			Noncampus			Public Property		
	2003	2004	2005	2003	2004	2005	2003	2004	2005
Negligent Manslaughter	0	0	0	0	0	0	0	0	0
Murder/Non-negligent Manslaughter	0	0	0	0	0	0	0	0	1
Forcible Sex Offenses (including forcible rape)	0	0	0	7	1	0	0	0	1
Nonforcible Sex Offenses	0	0	0	0	0	0	0	0	0
Robbery	1	0	0	0	0	0	5	1	1
Aggravated Assault	5	2	3	7	0	1	5	2	5
Burglary	7	46 ¹	45	1	3	0	8	4	1
Motor Vehicle Theft	9	12	8	1	0	0	4	6 ¹	11
Arson	1	0	1	0	0	0	2	0	0
Hate Offenses	<i>On Campus</i>			<i>Noncampus</i>			<i>Public Property</i>		
	2003	2004	2005	2003	2004	2005	2003	2004	2005
Murder/Non-negligent Manslaughter	0	0	0	0	0	0	0	0	0
Aggravated Assault	0	0	0	0	0	0	0	0	0
All Forcible Sex Offenses (inc. forcible rape)	0	0	0	0	0	0	0	0	0
Forcible Rape	0	0	0	0	0	0	0	0	0
Arson	0	0	0	0	0	0	0	0	0
Negligent Manslaughter	0	0	0	0	0	0	0	0	0
Simple Assault	0	0	0	0	0	0	0	0	0
Arrests	<i>On Campus</i>			<i>Noncampus</i>			<i>Public Property</i>		
	2003	2004	2005	2003	2004	2005	2003	2004	2005
Liquor Law Violations	6	0	0	0	0	0	60	10 ²	11
Drug Law Violations	16	9	6	1	0	0	26	13 ²	26
Illegal Weapons Possessions	1	1	2	0	0	0	5	1 ²	0

1. The marked increase is due to the definition provided in the *Handbook for Campus Crime Reporting* published by the U.S. Dept. of Education/2005 stating: "If lawful entry cannot be proven, classify as a burglary." Many of these crimes were previously classified as a theft, which is a nonreportable offense for Clery.
2. The marked decrease is due to the definition provided in the *Handbook for Campus Crime Reporting* published by the U.S. Dept. of Education/2005 stating: "If your institution sponsors classes for inmates at a prison facility, you are not required to disclose offenses from this location because your institution does not own or control that space," as is the case for one previously listed location.

PERSISTENCE AND COMPLETION DATA

Section 103 of Title 1 of Public Law 101-542 as amended by Public Law 102-26 (the Federal "Student Right-to-Know" Act) requires that institutions produce and make available to current and prospective students the completion rate of first-time, full-time, degree-seeking undergraduate students entering the institution. Six years after entering, 35.9 percent of the fall 2000 cohort graduated, another 20.2 percent transferred to other public higher education institutions in Colorado and 15.5 percent were still enrolled at the downtown Denver campus for a total six-year combined persistence and completion rate of 72.2 percent.

Downtown Denver's one-year fall-to-fall retention rate is 71.1 percent for the fall 2005 cohort. That is, of the first-time, full-time, degree-seeking undergraduate students who entered the university in fall 2005, 71.1 percent were enrolled at the downtown Denver campus in fall 2006.

RIOT LAW (STUDENT RIOT BILL)

Student enrollment-prohibition-public peace and order convictions: 1) No person who is convicted of a riot offense shall be enrolled in a state-supported institution of higher education for a period of twelve months following the date of conviction; 2) a student who is enrolled in a state-supported institution of higher education and who is convicted of a riot offense shall be immediately suspended from the institution upon the institution's notification of such conviction for a period of twelve months following the date of

conviction, except that if a student has been suspended prior to the date of conviction by the state-supported institution of higher education for the same riot activity, the twelve month suspension shall run from the start of the suspension imposed by the institution; 3) nothing in this section shall be construed to prohibit a state-supported institution of higher education from implementing its own policies and procedures or disciplinary actions in addition to the suspension under (2) of this section, regarding students involved in riot.

SEX OFFENDER INFORMATION (CAMPUS SEX CRIMES PREVENTION ACT)

Sex offenders are required to list the locations of all institutions of post-secondary education where he or she volunteers or is enrolled or employed. The Colorado Bureau of Investigation maintains a database identifying all such persons and makes it available to all law enforcement agencies in which jurisdiction the institution of post-secondary education is located. The campus community can obtain this information by contacting the Auraria Campus Police Department at 303-556-3271.

VOTER REGISTRATION (NATIONAL VOTER REGISTRATION ACT)

In compliance with the National Voter Registration Act, the state of Colorado voter registration application form and information is available in the Office of the Registrar, 1250 14th Street, Lower Level Annex. The application form and information are also available at www.sos.state.co.us/pubs/elections/ or www.fec.gov/voteregis/vr.shtml.

Amenities

At Campus Village at Auraria, students will find a community to support their academic and personal interests. It's convenient, comfortable and affordable. Features include:

- apartment-style living with kitchenettes or full kitchens for all students
- lease rates that include heating, cooling, electricity, water, cable and high-speed Internet service
- a variety of floor plans (from individual studios to four bedroom apartments) to meet the needs of all students
- individual lease agreements for shared units
- fully furnished apartments
- various affordable meal plans

Diagrams of floor plans, details about meal plans, pricing, applications and exception forms are available on the Web site at www.cudenver.edu/housing/.

Live-In Requirement

In an effort to improve the quality of the undergraduate experience, the downtown Denver campus has a live-in requirement for first-time freshmen and first-time international students (undergraduate and graduate). For more information regarding this policy and the applicable exemptions, please see the "Exemptions" section.

Research has shown that living in student housing during the first year has numerous benefits for students both academically and socially. Student-housing participants tend to have:

- higher graduation rates than students who live off campus
- a higher level of satisfaction with their college experience
- a higher level of involvement in clubs and activities on campus
- more frequent interaction with faculty members and peers

First-time freshmen at UCDHSC are required to live in the two-bedroom, two-bath units with an efficiency kitchen. These units comprise an entire wing of the project and are designed with the unique needs of first-year students in mind:

- Additional staff—this wing of the complex will have a higher ratio of staff to students to help provide additional support, guidance and resources for first-time students.

- Special programming—Many of the programming efforts sponsored by the university will be taking place in this wing of Campus Village. Programs will focus on study skills, navigating the university and community, living with a roommate and a variety of other topics.
- Connections with other first-year students—First-year students share many of the same challenges and anxieties as they begin their college careers. Living in a community of students going through the same types of experiences provides a built-in support network and can lead to lasting friendships.
- First-year experience seminars—UCDHSC staff are planning first-year experience seminars for students living in Campus Village at Auraria. Ideally these sections will take place on site and will help to form additional connections between students and faculty.

EXEMPTIONS

First-time freshmen students wishing to live with parent(s) or legal guardian(s) or who qualify under at least one of the exemptions listed below must submit the special exemption form to be considered for exception from the live-in policy.

Exemptions to the first-time freshmen live-in requirement will be considered for those who are:

- living at home with parent(s) or legal guardian(s) for the 2007–2008 academic year
- veterans of the armed forces
- married or a parent with dependent(s)
- a part-time undergraduate student enrolled for less than 10 credit hours per semester.
- deemed medically excusable by the Office of Student Life (must be supported in writing by a doctor and with appropriate medical documentation).
- over 21 years of age

Exemptions to this policy will be evaluated and made on a case-by-case basis. Exemption forms are available through the Office of Student Life, Tivoli Student Union, 303, or online at www.cudenver.edu/housing/. For further information, please call the Office of Student Life at 303-556-3399 or via e-mail at housing@cudenver.edu.

At A Glance: CU Online

Students*

Online enrollments 2005–2006: 9,511
UCDHSC students taking
online courses in 2006: 22%

Faculty*

Spring 2007: 160 professors

Number of Online Courses

Spring 2007: 189

Degree Programs

Bachelor of Arts, Sociology (BA)
Bachelor of Arts, English Writing (BA)
Master of Business Administration (MBA)
Master of Science in Finance (MS)
Master of Science in Information Systems (MS)
Master of Arts in Information and Learning
Technologies (ILT) with an emphasis in
eLearning Design and Implementation (MA)
Master of Arts in Information and Learning
Technologies (ILT) with an emphasis in
School Library (MA)
Master of Engineering (MEng) with
an emphasis in Geographic
Information Systems
Master of Public Administration (MPA)
Master of Arts in Early Childhood Education



Certificates, Modules and Other Online Programs

Early Childhood Special Education,
Specialist License
Designing and Implementing
Web-based Learning Environments
Certificate Program
Special Education Generalist
Licensure Program
Early Literacy Certificate Program

Accreditation

CU Online is accredited through the North
Central Association of Colleges and
Schools and each program is accredited
through the individual school and college.

Bragging Rights

The Denver campus has had **62,033 online**
enrollments since CU Online's inception
in 1996... *That's enough to fill every seat in
Coors field and still have 1,200 extra people
to sell peanuts and hotdogs!*

CU Online started in 1996...two years later,
Google, iMac, and MySpace were
launched. Three years after that,
Wikipedia, Windows XP and iPod were
released.

CU Online has won the "Eddy" as the best
educational university site on the Web
by the Northwest Center for Emerging
Technologies. (1997)

*Student statistics may or may not be duplicated in profiles of other schools and colleges. Faculty statistics are duplicated in other profiles.

CU Online

You have a life filled with family and friends. A life filled with work and responsibilities. A life—filled... which makes a rigid school schedule seem even more impractical and unrealistic. That's why, in 1996, the University of Colorado at Denver developed CU Online for its downtown Denver campus, making a sought-after education not only convenient, but conceivable. And since becoming one of the first fully accredited online programs in the country, CU Online has continued to grow and evolve into the respected and renowned institution it is today.

Essentially, CU Online allows you the opportunity to attend the University of Colorado at Denver and Health Sciences Center (UCDHSC) on your time, at your convenience, while also providing the recognition and respect that only a brick and mortar university can offer. So besides the safety net of an actual campus, once you graduate you can proudly display your diploma with a level of honor and admiration that sometimes isn't found with virtual institutions.

But it's not only one or two electives or random courses; you can actually complete an entire degree (or 10) all online, without stepping a foot on campus. CU Online allows you to enjoy the same stimulating courses, top-notch faculty and dedicated resources as the on-campus students...but with the freedom and convenience that online courses naturally provide.

However, CU Online didn't always have the number of degree programs (10), certificates (6) or courses (350+) that are currently available. In that first semester in 1996, you could choose from up to three courses. Slightly less than the 148 courses that were available in fall 2006. And that's only the beginning. CU Online is well on its way to achieving its initial goal of providing students like you with the most comprehensive set of online courses, services and resources of any institution of higher education in the world.

So whether you're looking to start a degree, finish one or just take the occasional course or two, CU Online provides the opportunity to tailor courses around your life...rather than tailor life around your courses.

DELIVERY MEDIA

CU Online courses run on a traditional semester schedule and, although courses are not self-paced, they are flexible. As a student, you're able to log into your courses on a regular basis, at your convenience. You will be assigned a home page to access courses, find lectures and assignments and participate in class discussions and real-time course chat rooms.

Each course is developed to offer everything you would expect from UCDHSC. But online, instead of on-campus. So instructors deliver course content through cutting edge technology, such as streaming audio, video and multimedia slide shows. And for lectures, a variety of delivery methods (such as audio, video and PowerPoint presentations) are available to each UCDHSC instructor.

Some professors offer weekly assignments to help ensure you are right on track with the materials being taught. In addition, assignments may be uploaded to the site, which is much like creating an attachment in e-mail. Quizzes and tests can be timed to help affirm your mastery of the material.

Exams are taken and administered in a variety of ways. They can be administered online by using your course software with an internet browser, as a take home exam where you print out a hard copy and hand

it in, or proctored by outside parties, an instructor or the teacher's assistant (TA).

As a bonus, if you are registered for only online courses, you are simply responsible for the information technology fee and the student information system fee. **All other traditional fees are waived**, along with the incidental fees associated with commuting to campus, parking, child care, etc. There is also a special tuition discount if you are an out-of-state student enrolled only in online courses.

PROGRAMS

CU Online offers courses in liberal arts and science, arts and media, business, education, engineering, public affairs and architecture and planning. Below are the complete degree programs and certificates that can be completed exclusively through online courses:

Degree Programs

- Bachelor of arts, sociology (BA)
- Bachelor of arts, English writing (BA)
- Master of business administration (MBA)
- Master of science in finance (MS)
- Master of science in information systems (MS)
- Master of arts in information and learning technologies (ILT) with an emphasis in eLearning design and implementation (MA)
- Master of arts in information and learning technologies (ILT) with an emphasis in school library (MA)
- Master of engineering (M. Eng) with an emphasis in geographic information systems
- Master of public administration (MPA)
- Master of arts in early childhood education

Certificates, Modules and Other Online Programs

- Early Childhood Special Education, Specialist License
- Designing and Implementing Web-based Learning Environments Certificate Program
- Special Education Generalist Licensure Program
- Early Literacy Certificate Program

The credits you earn through CU Online courses are identical to credits earned through traditional on-campus courses. UCDHSC is a fully accredited institution, making credits easily transferable to other universities. And if you graduate solely by taking online courses, the degree is the same.

FREQUENTLY ASKED QUESTIONS

Q. What is CU Online's Web site address?

A. www.cuonline.edu.

Q. I'm not a UCDHSC student. Can I take a course through CU Online?

A. If you are not currently a student or attending a university other than UCDHSC, you may enroll in a CU Online course after applying and getting accepted as either a degree- or nondegree-seeking student. Visit the schools' and colleges' chapters in this catalog for specific admission requirements for each school. If you are a student at another institution, contact your school to find out if the CU Online course (and credit) will transfer as intended.

Q. What kind of credit will I receive for online courses?

A. The credits you earn through CU Online are identical to credits earned through traditional on-campus courses. UCDHSC is a fully accredited institution, making credits easily transferable to other universities. And if you graduate solely by taking online courses—the degree is the same.

Q. Does CU Online offer any core curriculum courses?

A. Yes. Approximately half of the courses offered are core curriculum, and can be applied toward an undergraduate degree program.

Q. Does my online course require textbooks?

A. Unless the instructor waives textbook requirements, all online courses are supplemented with textbooks. Further documentation may also be provided by the instructor, in a free downloadable format.

Q. What times does my online course meet?

A. Unless the instructor has designated a specific login time for a live chat session, you may login at any time, day or night.

Q. When does my hybrid course meet on campus?

A. Hybrid courses have varying campus meeting dates so it is integral that you attend the first campus meeting to receive the schedule. If you miss the first campus meeting, you should contact the instructor immediately, either by phone or e-mail.

Q. How long do online courses last?

A. Online courses typically follow the duration of the respective semester in which it is offered. Some instructors may opt to provide a shortened intensive semester course, which would be indicated in your course schedule.

Q. How do I sign up for an online course?

A. If you already applied to the university, you may register for online courses directly through the SMART system, www.cudenver.edu/registrar. If you are not a UCDHSC student, you may apply as either a degree- or nondegree-seeking student through the university's main site, www.cudenver.edu.

Q. What are the tuition differences for online courses?

A. There is a standard course fee (\$100 Colorado, \$125 out of state for online courses; \$50 Colorado, \$75 out of state for hybrid courses) that goes to pay for the online technology, support and 24-7 customer service.

Q. Are there tuition breaks for online courses?

A. Yes. If you are registered for only online courses, you are simply responsible for the information technology fee and the student information system fee. **All other traditional fees are waived**, along of course, with the incidental fees associated with driving, mass transit, parking, etc. There is also a special tuition discount if you are an out-of-state student signed up for only online courses.

Q. I dropped my online courses, why do I still owe tuition?

A. If an online course is not dropped within the initial add/drop period, you will not be able to receive tuition reimbursement. Be sure to check the drop/add dates stated online at www.cudenver.edu/registrar and in the printed schedule of courses.

Q. Will my degree say CU Online?

A. No. Degrees are awarded through the University of Colorado.

Q. What if I have questions about CU Online?

A. If you have further questions about courses, degrees, registration, tuition and fees or computer requirements, e-mail them to inquiry@cuonline.edu or call Kate Miller, 303-556-6528.

COURSES

The Business School

BUSINESS ADMINISTRATION

The professional MBA program at the Business School of UCDHSC is outstanding in its ability to integrate leading-edge research with practical business applications in an intellectually challenging environment. Business courses are accredited through AACSB International, the Association to Advance Collegiate Schools of Business International.

Located in the heart of Denver's business community, UCDHSC provides a high-quality program by listening to the needs of business and hiring faculty with the combined research and business credentials to meet those needs. The professional MBA program emphasizes active learning through case studies, computer simulations, real-world group projects, class discussions and involvement with Colorado businesses. A master's in business administration degree from UCDHSC prepares students with the management and leadership skills required to achieve their personal career goals. Program contact: Shelly Townley, Shelly.Townley@cudenver.edu.

The following are examples of courses available online from spring 2006 through spring 2007 along with proposed courses. Visit www.cuonline.edu/catalog for up-to-date information about online degrees and available courses. All courses are 3 semester hours.

- Managing Individuals and Teams
- Data Analysis for Managers
- Legal and Ethical Environment of Business
- Analyzing and Interpreting Accounting Information
- Marketing Management
- Information Technology Management
- Applied Economics for Managers
- Management of Operations
- Financial Management
- Strategic Management
- Emerging Technologies
- Business Forecasting
- Entrepreneurial Financial Management
- Quantitative Methods for Finance
- Macroeconomics and Financial Markets
- Financial Decisions and Policies
- Investment Management Analysis
- Security Analysis and Firm Valuation
- Management of Financial Institutions
- International Corporate Governance
- Short-term Financial Management
- Financial Modeling
- Object-Oriented Business Programming
- Business Process Management
- Analysis, Modeling and Design
- Data Base Management Systems
- IT Infrastructure
- Information Systems Management and Strategies

- Business Intelligence Systems
- Web Site Development Practice and Technologies
- Service Oriented Architecture
- Global Enterprise Systems
- Information Systems Security and Privacy
- Enterprise Knowledge Management
- IT Project Management
- Emerging Technologies
- Internet Marketing

FINANCE

The MS in finance at the Business School is a nationally respected graduate finance program. The unique curriculum has been created around a course selection that provides in-depth knowledge and the analytical skills needed for a career as a financial manager or finance specialist. The program provides a theoretical foundation for preparation for students planning to later take the CFA, and provides students with the specialized knowledge that will help them advance professionally. It is a practical degree that is geared towards working professionals. Program contact: Shelly Townley, Shelly.Townley@cudenver.edu.

The following are examples of courses available online from spring 2006 through spring 2007 along with proposed courses. Visit www.cuonline.edu/catalog for up-to-date information about online degrees and available courses. All courses are 3 semester hours.

- Data Analysis for Managers
- Applied Economics for Managers
- Financial Management
- Macroeconomics and Financial Markets
- Investment Management Analysis
- Financial Decisions and Policies
- Security Analysis and Firm Valuation
- Management of Financial Institutions
- International Corporate Governance
- Short-term Financial Management
- Financial Modeling
- Business Forecasting
- Entrepreneurial Financial Management

INFORMATION SYSTEMS—ENTERPRISE TECHNOLOGY MANAGEMENT TRACK

The information systems (IS) program in the Business School has established UCDHSC as a leader and innovator in the field. As part of that innovation, a new online master of science (MS) program has been developed to help keep UCDHSC students one step ahead of their collegiate peers when pursuing their information based field of choice.

This ETM track focus on information technology as the prime driver and enabler of business strategy. Course work focuses on the strategic, technological, financial and organizational issues involved with the effective management of information technology within an enterprise. Courses cover the emerging technologies and the evolving roles and importance of IT in modern organizations;

IT-enabled organizational processes and knowledge management; IT sourcing and alternative methods to develop, acquire and implement information systems; implementing and managing complex IT projects; and security and privacy issues associated with IT. Program contact: Shelly Townley, Shelly.Townley@cudenver.edu.

The following are examples of courses available online from spring 2006 through spring 2007 along with proposed courses. Visit www.cuonline.edu/catalog for up-to-date information about online degrees and available courses. All courses are 3 semester hours.

- Managing Individuals and Teams
- Data Analysis for Managers
- Legal and Ethical Environment of Business
- Analyzing and Interpreting Accounting Information
- Marketing Management
- Management of Operations
- Financial Management
- Strategic Management
- Business Process Management
- Analysis, Modeling and Design
- Data Base Management Systems
- IT Infrastructure
- Information Systems Management and Strategies
- Business Intelligence Systems
- Global Enterprise Systems
- Information Systems Security and Privacy
- IT Project Management
- Emerging Technologies

INFORMATION SYSTEMS—SYSTEM DEVELOPMENT AND IMPLEMENTATION TRACK

The information systems (IS) program in the Business School has established UCDHSC as a leader and innovator in the field. As part of that innovation, a new online master of science (MS) program has been developed to help keep UCDHSC students one step ahead of their collegiate peers when pursuing their information based field of choice.

This SDI track provide specialization in building and managing large systems using client/server, multimedia, distributed and service oriented architectures. The courses provide expertise in C#, multimedia, data warehousing, decision support, expert systems and business intelligence systems, management of large databases and systems integration. Project management course work enables graduates to successfully handle highly complex systems development projects in the business world. Program contact: Shelly Townley, Shelly.Townley@cudenver.edu.

The following are examples of courses available online from spring 2006 through spring 2007 along with proposed courses. Visit www.cuonline.edu/catalog for up-to-date information about online degrees and available courses. All courses are 3 semester hours.

COMPUTER REQUIREMENTS

Computer

To take full advantage of the interactivity of the courses, *the following minimum system profiles are required:*

MICROSOFT WINDOWS

Windows Me, 2000 or XP
62 MB RAM
28.8 kbps modem (56K recommended)
Sound card and speakers
At least one of the following browsers:
Internet Explorer 6.0 (recommended)
Internet Explorer 5.5 (supported)
Netscape Communicator 7.1 (recommended)
Netscape Communicator 6.2 (supported)
Firefox 1.x (supported)

MACINTOSH OS

MacOS 9.1 and OS X
32 MB RAM (64 recommended)
28.8 kbps modem (56K recommended)
Sound card and speakers
At least one of the following browsers:
Internet Explorer 5.1x, 5.2x (recommended)
Netscape Communicator 7.1 (recommended)
Safari 1.2 (supported)
Firefox 1.x (supported)

Internet Service Provider (ISP)

An ISP is a company that provides you with the software and access necessary for getting onto the Internet. You will need Internet access to take your courses.

E-mail Account

Your email address is established when you sign up with an ISP. Check with your ISP if you do not know what your email address is. Special characters can cause problems with some systems that make it difficult to reach the intended mailbox. We suggest that you do not use special characters, for example +, &, \$, etc., in your e-mail address.

Java Capable Browser

We support Microsoft Internet Explorer 5.5 and 6.0 for Windows and Internet Explorer 5.1 through 5.2 for Macintosh. Netscape Communicator 6.2 and 7.1 for Windows and Netscape Communicator 7.1 and Safari 1.x for Macintosh, are also supported.

For additional information, go to www.cuonline.edu.

- Managing Individuals and Teams
- Data Analysis for Managers
- Legal and Ethical Environment of Business
- Analyzing and Interpreting Accounting Information
- Marketing Management
- Management of Operations
- Financial Management
- Strategic Management
- Business Process Management
- Analysis, Modeling and Design
- Data Base Management Systems
- IT Infrastructure
- Object-Oriented Business Programming
- Business Intelligence Systems
- Web Site Development Practice and Technologies
- Service Oriented Architecture
- IT Project Management
- Emerging Technologies

School of Education

INFORMATION AND LEARNING TECHNOLOGIES WITH AN EMPHASIS IN ELEARNING DESIGN AND IMPLEMENTATION

The *eLearning Design and Implementation* (eDI) program offers an ILT MA degree that is specifically designed to meet the needs of practicing professional educators as they confront the increasingly important role electronic and online technologies are playing within post-secondary, K–12 and corporate education. The eDI MA program is for K–12 teachers, higher education instructors, trainers, content experts and corporate instructional developers. This is an exciting time for instructional design and technology professionals—there is a growing demand for people with eLearning expertise and few people with the knowledge and skills to meet the demand. Program contact: David Young, David.Young@cudenver.edu.

The following are examples of courses available online from spring 2006 through spring 2007 along with proposed courses. Visit www.cuonline.edu/catalog for up-to-date information about online degrees and available courses. All courses are 3 semester hours.

- Strategies for Online Learning
- Developing Educational Web Sites
- Media for Web-based Learning Environments
- Policies and Planning for eLearning Programs
- Instructional Message Design
- Research in Information and Learning Technologies
- Learning Processes in Instructional Technology
- Managing Instructional Development

INFORMATION AND LEARNING TECHNOLOGIES—SCHOOL LIBRARY

This MA prepares students with the knowledge-management skills and information access points for school library resources. Courses will integrate information and learning technology strategies, along with courses on school library management, collection development, collaborative planning, instructional design and instructional leadership topics close to the heart of what a school librarian does to collaborate with teachers on instructional units and create user-friendly school library programs that support the love for reading and information literacy. Finally, for this nationally recognized NCATE-AASL-approved school library media education program, students complete field experience in both elementary and secondary schools for the K–12 school library endorsement. Program contact: Laura Summers, Laura.Summers@cudenver.edu.

The following are examples of courses available online from spring 2006 through spring 2007 along with proposed courses. Visit www.cuonline.edu/catalog for up-to-date information about online degrees and available courses. All courses are 3 semester hours.

- Collection Development
- Information Literacy and Reference
- Instructional Development and Production
- Foundations of School Librarianship
- Information Storage and Utilization
- Management in ILT
- Field Experience-Elementary
- Field Experience-Secondary
- Research in Information and Learning Technology
- Adolescent Literature
- Children's Literature through the Ages
- Leadership and Practice in ILT

DESIGNING AND IMPLEMENTING WEB-BASED LEARNING ENVIRONMENTS CERTIFICATE

This is an exciting time for instructional design and technology professionals—there is a growing demand for people with eLearning expertise and few people with the knowledge and skills to meet the demand. The Designing eLearning Environments (DeE) certificate program focuses specifically on the skills needed to design and facilitate online learning opportunities for learners in K–12, higher education, and corporate settings. This program is perfect for educators who are not interested in a graduate degree. Program contact: David Young, David.Young@cudenver.edu.

The following are examples of courses available online from spring 2006 through spring 2007 along with proposed courses. Visit www.cuonline.edu/catalog for up-to-date information about online degrees and available courses. All courses are 3 semester hours.

- Strategies for Online Learning
- Developing Educational Web sites
- Media for Web-based Learning Environments

EARLY CHILDHOOD SPECIAL EDUCATION, SPECIALIST LICENSE

Graduates earning the Early Childhood Special Education Specialist license have the theoretical background and skills in assessment, teaching and collaboration necessary to work with young children with disabilities and typically developing children in a variety of settings. Graduates with this license assume professional roles including lead teacher, early interventionist, service coordinator, Child Find team member, special education consultant and behavior specialist.

The mission of the ECE online program at UCDHSC is to provide substantive support to persons who are preparing to become leaders in professional practice in one of two alternative career patterns: (1) early childhood accomplished teacher—the master's degree in ECE, and (2) specialist working with children with disabilities and their families—the license in Early Childhood Special Education (ECSE Specialist). Program contact: Suzanne Adams, Suzanne.Adams@cudenver.edu.

The following are examples of courses available online from spring 2006 through spring 2007 along with proposed courses. Visit www.cuonline.edu/catalog for up-to-date information about online degrees and available courses. All courses are 3 semester hours.

- Early Childhood Profession
- Curriculum and Program Development in ECE
- Approaches to Young Children's Learning
- Administrative Seminar
- Working with Parents and Families
- Social and Cognitive Development and Disorders
- Language and Literacy in Young Children
- Screening and Assessment in Young Children
- Literacy and Mathematics K–12
- Medical/Physiological Aspects of Developmental Disabilities
- Early Intervention Strategies
- Infant/toddler Practicum (170 clock hours—Online option not possible)

- Preschool Practicum (170 clock hours—Online option not possible)
- Primary Practicum (170 clock hours—Online option not possible)
- Advanced Child Growth and Development
- Measurement and Evaluation in ECE
- Basic Statistic
- Seminar: Research and Current Issues in ECE

EARLY LITERACY CERTIFICATE PROGRAM

This certificate program allows teachers to take courses in the specialty area of Early Literacy and apply these courses directly toward the full master's degree. The MA programs (K–6 and 7–12) in the School of Education & Human Development provide teachers with a means for completing a master's degree in curriculum and instruction with an emphasis in reading/writing while simultaneously fulfilling the requirements toward a Colorado Reading Teacher Endorsement. In light of federal NCLB and state CBLA initiatives, this supplementary certificate offers primary grade teachers, preschool teachers and para-educators greater background in the development, assessment and instruction of literacy for young children. Program contact: Sally Nathanson-Mejia, Sally.Nathanson@cudenver.edu.

The following are examples of courses available online from spring 2006 through spring 2007 along with proposed courses. Visit www.cuonline.edu/catalog for up-to-date information about online degrees and available courses. All courses are 3 semester hours.

- Literacy Development PreK–3rd Grade
- Early Literacy Routines and Assessment
- Early Literacy Instruction

SPECIAL EDUCATION GENERALIST K–12 ENDORSEMENT PROGRAM

This program is designed for teachers already licensed in elementary or secondary general education. Specifically, this program is geared toward teachers without the formal credentials required to serve students with disabilities, as well as teachers who want to improve their ability to meet the needs of all learners. Program contacts: Meredith Lopez, Meredith.Lopez@cudenver.edu, or Donna Sobel, Donna.Sobel@cudenver.edu.

The following are examples of courses available online from spring 2006 through spring 2007 along with proposed courses. Visit www.cuonline.edu/catalog for up-to-date information about online degrees and available courses. All courses are 3 semester hours.

- Special Education for the School Professional
- Instructional Strategies for Students with Special Needs
- Special Education Generalist Internship and Site (Online option not possible)
- Advanced Assessment in Special Education
- Literacy Intervention for Students with Special Needs
- Positive Behavior Supports
- Collaboration and Consultation
- The Use of Technology in Special Education
- Transition/Secondary Planning
- Special Education Generalist Internship and Site Seminar (Online option not possible)

College of Engineering and Applied Science

ENGINEERING WITH EMPHASIS IN GEOGRAPHIC INFORMATION SYSTEMS

The master of engineering degree—geographic information systems (MEng-GIS) option is directed to engineers and other environmental and urban infrastructure professionals seeking skills in using and managing these rapidly developing spatial data technologies. The MEng-GIS degree at UCDHSC is multidisciplinary involving civil engineering (environmental, geodesy and remote sensing, water resources, geotechnical and transportation), geography and environmental sciences (remote

sensing, ecology, air quality, environmental impact assessment), urban and regional planning (spatial analysis, community development), information systems (data structures, database systems and software engineering), applied mathematics (probability and statistics, networks, simulation and optimization) and engineering management (strategic planning, project management, policies). Program contact: Lynn Johnson, MEngGIS@cudenver.edu.

The following are examples of courses available online from spring 2006 through spring 2007 along with proposed courses. Visit www.cuonline.edu/catalog for up-to-date information about online degrees and available courses. All courses are 3 semester hours.

- Introduction to Geographic Information Systems
- GIS Spatial Database Development
- GIS Analyses—Theory and Practice
- GIS Management and Policies
- GIS Relational Database Systems
- GIS Laboratory (two or more versions may be available)
- Advanced Remote Sensing
- Master's Report Multiple Factor GIS Analysis

College of Liberal Arts and Sciences

ENGLISH WRITING

The Department of English writing major offers students the knowledge and skills necessary to write well in a number of contexts including nonprofit organizations, industry and academia. This is accomplished through a combination of traditional and new media courses, and through the service learning and internship opportunities provided for students. The flexible and interdisciplinary nature of this degree appeals to students wishing to enter graduate school or pursue jobs in education, law, editing, professional writing and other areas. Program contact: Joanne Addison, Joanne.Addison@cudenver.edu

The following are examples of courses available online from spring 2006 through spring 2007 along with proposed courses. Visit www.cuonline.edu/catalog for up-to-date information about online degrees and available courses. All courses are 3 semester hours.

- Grammar, Rhetoric and Style
- Introduction to Creative Writing
- Advanced Composition
- Technical Writing
- Business Writing
- Language Theory
- Argumentation and Logic
- Special Topics in Rhetoric and Writing
- Senior Seminar in Writing

SOCIOLOGY

Sociology is the study of group life: its characteristics, changes, causes and consequences. It combines scientific and humanistic perspectives in the study of urban and rural life, family patterns and relationships, social change, intergroup relationships, social class, environment, technology and communications, health seeking behavior, as well as social movements. Program contact: Rachel Watson, Rachel.Watson@cudenver.edu.

The following are examples of courses available online from spring 2006 through spring 2007 along with proposed courses. Visit www.cuonline.edu/catalog for up-to-date information about online degrees and available courses. All courses are 3 semester hours.

- Introduction to Sociology
- Urban Sociology
- Introduction to Research Methods
- Introduction to Statistics
- History of Sociological Theory
- Contemporary Sociological Theory

School of Public Affairs

PUBLIC ADMINISTRATION (MPA)

This master of public administration (MPA) degree will help students manage government and nonprofit organizations as well as the related skills needed 'to thrive in' this growing field. The curriculum is built upon core courses that develop essential problem-solving and decision-making skills. Organizational Management and Change, Economics and Public Finance, Democracy and Policy Making, and Research and Analytic Methods are just some of the courses that offer first-hand opportunities to study the important issues of public affairs. The required curriculum will help hone skills in management and analysis, but students may gain specific insights into an area of interest by pursuing one of three concentrations available. Each is designed to equip students with the management and analysis skills demanded of managers in challenging public affairs positions. Program contacts: Dawn Savage, Dawn.Savage@cudenver.edu (for students with last names A–K); Antoinette Sandoval, Antoinette.Sandoval@cudenver.edu (for students with last names L–Z).

The following are examples of courses available online from spring 2006 through spring 2007 along with proposed courses. Visit www.cuonline.edu/catalog for up-to-date information about online degrees and available courses. All courses are 3 semester hours.

- Introduction to Public Administration and Public Service
- Organizational Management and Change
- Research and Analytic Methods
- Economics and Public Finance
- The Policy Process and Democracy
- Leadership and Professional Ethics
- Advanced Seminar in Public Policy and Management

Hybrid Courses

A hybrid course is just like it sounds. It is half on-campus and half online. The best of both worlds. So if you're taking online courses and enjoy the scheduling flexibility, but feel that you're missing out on some of the intangibles of being in a classroom, then the hybrid courses are for you. Hybrid courses meet approximately 50 percent of the normal classroom hours on campus, and the remainder of the time is completed online.

Supplemental Courses

An online technology supplemented campus course is a course that uses technology delivered instruction and materials (e.g., Web, CD ROM, etc.) to supplement classroom or laboratory instruction. CU Online also supports faculty using Web-based courseware to augment their traditional classes. Many faculty use instructional technology to post their syllabi, lecture notes, hold online quizzes and practice exams, and to coordinate Web resources and library media. But these materials do not substitute for or reduce the amount of traditional on-campus instructional contact time.

Contact CU Online at 303-556-6505, visit the Web site at www.cuonline.edu, or send an e-mail to inquiry@cuonline.edu

FACULTY

The professors and faculty of traditional classes are the same ones teaching online courses. That might not immediately evoke your applause and admiration, but it's actually great news. Four out of five full-time faculty hold doctoral degrees with many years of teaching experience, and many are actively engaged in their fields outside the classroom. Not only do they have real world experience, but many of our faculty are consultants, advisers and partners to the leading organizations that frequently hire UCDHSC graduates.

At A Glance: College of Architecture and Planning

The College of Architecture and Planning is a multi campus college with graduate programs on the Denver campus and undergraduate programs on the Boulder campus. The statistics below apply to graduate programs only.

Students*

Graduate: 498

Degrees Awarded 2006‡

Graduate: 180

Undergraduate (Boulder): 173

Faculty*†

Full-time: 51

Lecturers: 53

Student-Faculty Ratio*

16:1

Graduate Degree Programs

Architecture, MArch
Design and Planning, PhD
Landscape Architecture, MLA
Urban and Regional Planning, MURP
Urban Design, MUD

Key Areas

Emerging Design Practices
Sustainable Urbanism
Healthy Environments
Preserving Heritage

Accreditation

Landscape Architecture Accreditation Board (LAAB)
National Architecture Accrediting Board (NAAB)
Planning Accreditation Board (PAB)

Student Organizations:

American Institute of Architecture Students (AIAS)
American Planning Association for Students (APAS)
American Society of Landscape Architecture Students (ASLAS)

Alumni

Graduate: 3,392



Sample Companies Hiring Alumni

Bennett Wagner & Grody Architects
Buchanan Yonushewski Group
Cities of Aurora, Boulder, Lakewood and Longmont
Civitas
David Owen Tryba Architects
Davis Partnership
Design Workshop
DHM Design
EDAW
National Forest Service
New Town Builders
Pei Cobb Freed & Partners

Research Centers

Children, Youth and Environments Center for Research and Design helps design and planning professionals around the world to promote the health, safety and welfare of children and youth.

Colorado Center for Community Development is a public service unit that for 30 years has provided Colorado with design and planning assistance on a wide range of open space, development and community service issues.

Colorado Center for Preservation Research helps Colorado protect its heritage in the built environment, through research and documentation of historic buildings and landscapes.

Colorado Center for Sustainable Urbanism facilitates the conversation among Colorado designers, planners, and developers to envision future communities and towns that will enhance our quality of life and moderate the impact of the state's explosive growth.

Bragging Rights

Solar powered houses designed and constructed by a team of CU architecture and planning and architectural engineering students won the first two national Department of Energy Solar Decathlon Competitions held in 2002 and 2005.

A team of architecture and planning graduate students and Leeds Business School students won the prestigious national Urban Land Institute Gerald D. Hines Student Urban Design Competition in spring 2005. They received a \$50,000 prize from ULI and a proclamation from the Denver City Council.

Our mentoring program was named one of three Best Practices in Mentorship nationally by the American Institute of Architects in 2005.

*Fall 2006 end-of-term enrollment data ‡Fiscal year 2005-2006 data †Faculty numbers represent both campuses

College of Architecture and Planning

Dean
Mark Gelernter

**Associate Deans of
Academic Affairs**
Denver: Yuk Lee
Boulder: Peter Schneider

Contact Office

CU-Denver Building
1250 14th Street, 3rd floor
303-556-3382
Fax: 303-556-3687
www.cudenver.edu/CAP

Mailing Address
College of Architecture and Planning
Campus Box 126
P.O. Box 173364
Denver, CO 80217-3364

Advising and Admissions
Undergraduate: 303-492-2804
Peggy.Gordon@colorado.edu
Graduate Professional: 303-556-3382
ANPDeansoffice@storm.cudenver.edu
PhD: 303-492-1319
kkelly@colorado.edu

Application Deadlines

Fall Semester

All professional programs—February 15
PhD in Design and Planning—March 1 to be
considered for financial support

Spring Semester

All programs—October 1
(In architecture, urban design and landscape
architecture, students starting in the spring will
only be able to select from a reduced set of courses
and will get on track starting the next fall.)

Applications received after these dates will be
considered only if space is still available.

If you're interested in a career in architecture, urban and regional planning, landscape architecture or urban design, you'll want to get acquainted with the College of Architecture and Planning on the downtown Denver campus of UCDHSC. We offer the only undergraduate and graduate education in these fields in the state of Colorado. Students intending to enter the design and planning professions normally complete the college's undergraduate degree as preparation for our graduate-level professional programs. Our graduate programs also are available for those who already hold an undergraduate degree in an unrelated field. Our graduate programs in architecture, landscape architecture, urban and regional planning and urban design, and our graduate certificates in preservation and design build are taught on the downtown Denver campus, in the heart of a vital downtown. Our undergraduate programs are held in Boulder, an environment ideally suited to the needs of undergraduates (see the CU-Boulder catalog for details). We offer a multidisciplinary PhD in design and planning across the two campuses. With a diverse faculty committed to excellence in teaching, research, scholarship and creative work, the college provides students with a broad range of learning opportunities.

The College's Vision

The faculty have developed a new vision for the college, called integrative design. This vision asserts that the creation of meaningful and beautiful environments involves design plus research and includes the following:

- focusing on real-world relevance, stressing technical, environmental, economic, social, cultural, aesthetic and ethical concerns
- creating and using a knowledge base for design and planning decisions
- fostering a multidisciplinary culture of individuals, each of whom is an expert in one of the core design and planning disciplines
- seeking and supporting a rich diversity of ideas and people to sustain the diverse communities we serve

In seeking a match between the college's core competencies and the design and planning challenges in the fast-growing Denver metro area and Western region, the college faculty are focusing on four themes: 1) pedagogy, 2) contemporary urbanism, 3) history, theory, conservation and preservation; and 4) design,

including design/build, digital visualization and modeling, green/sustainable design and the relationships between environments and health and behavior. This vision and these signature themes will position the college well, as we all tackle the significant challenges in the design and planning of our built environment in the next few decades.

Special Activities and Programs

The college provides a diverse range of opportunities that enrich and enhance the education of its students. Through activities and functions—including a lecture series, a visiting critic series, exhibits, publications and active student organizations—the college encourages contact among students, faculty and members of the design professions. Each summer, the college offers foreign study-travel programs, which in recent years have traveled to Prague, Rome, Turkey, China, Helsinki and Spain. The college also offers a semester abroad program in Florence for its undergraduates each fall and spring. The college makes available

a range of scholarships and fellowships, some of which are based on need, others on performance and still others of which are specifically intended to provide enrichment opportunities. The college supports an active and focused internship program for its students, giving them access to elective internship opportunities in the Denver metropolitan area and beyond. Finally, the college encourages students to take control of their own education and supports, within its ability, any reasonable proposals from students that would enrich their own educational experiences.

College Facilities

The college's administrative headquarters and graduate programs are located at 1250 14th Street in downtown Denver, on the northeastern edge of the Auraria campus. This favorable location gives easy access both to the extensive campus facilities and to the urban amenities of Denver's lively lower downtown. Most of the major professional design offices in Denver and many planning firms and agencies are within easy reach of the college. These provide many opportunities for contact between students and practitioners. College facilities include studio spaces for students, lecture and seminar rooms, design jury spaces, exhibition spaces and faculty offices. The college also provides a photographic darkroom and studio, a model and furniture-making woodshop, a laser cutter laboratory and an extensive computer laboratory whose focus is computer-aided design (CAD), computer 2-D and 3-D imaging and analytic tools for planning. Also located in the college is a geographic information system (GIS) computer laboratory, which is open to all UCDHSC students.

Scholarships/Financial Aid

Students in the college have access to a number of scholarships and other financial assistance funds. Some of these funds are provided by the institution itself, while others are provided by external sources like the American Institute of Architects Education Fund, the American Planning Association, the American Society of Landscape Architects and the Rocky Mountain Masonry Institute. For further information on these scholarships and graduate tuition awards, visit the college's Web site at www.cudenver.edu/Academics/Colleges/ArchitecturePlanning/Graduate+Scholarships.htm or request a list via e-mail at Angie.Pendell@cudenver.edu. For information on federal and state financial aid, contact the Office of Financial Aid, University of Colorado at Denver and Health Sciences Center, Campus Box 125, P.O. Box 173364, Denver, CO 80217-3364, 303-556-2886 or visit www.cudenver.edu/finaid.

ADMISSIONS

General Requirements

Applicants to the College of Architecture and Planning are required to submit the following credentials:

- University of Colorado Application for Graduate Admission form
- Two official transcripts from each institution the applicant has attended. Transcripts must be mailed by the institution directly to the college. A certified literal English translation also must be submitted for documents that are not in English.
- Letters of recommendation: U.S. residents, three letters; international applicants, four letters.
- Statement of purpose: Applicants to all programs must submit a statement summarizing career objectives and reasons for pursuing the intended program of study. Applicants to the MURP program should indicate their area of concentration. Applicants to the PhD program also must indicate a proposed area of specialization and, if possible, a potential faculty mentor.
- Supporting materials for architecture and landscape architecture: Applicants to the graduate architecture and landscape architecture programs are required to submit a portfolio (6-12 bound pages, 8.5 × 11 inches). Slides are not accepted. A portfolio is an orderly presentation of one's work. This includes examples of creative and

analytical work including but not limited to essays, papers, photographs and photographic reproductions of artistic work such as sculptures, drawings, paintings, musical compositions and other fine arts. A stamped, self-addressed envelope must be included for return of the portfolio. Applicants to architecture and landscape architecture are encouraged to submit GRE scores if their GPAs are below 3.0.

- Supporting materials for urban and regional planning: Applicants to the urban and regional planning program should submit, in an 8.5 × 11-inch bound document, their statement of purpose, a resume and a copy of a student or professional paper or project. Applicants to the urban and regional planning program are encouraged to submit GRE (general) scores; those whose undergraduate GPA is below 3.0 are required to submit GRE scores.
- Supporting materials for the PhD: Applicants to the PhD program must submit a sample of written work and any other evidence relevant to admission to the program, in accordance with submission guidelines that can be obtained from the college. Applicants to the PhD program are required to submit GRE scores.
- Application fee. Nonrefundable (\$50, U.S. residents; \$75, international applicants).

Confirmation Deposit

A nonrefundable confirmation deposit of \$200 is required to secure an applicant's place in the architecture and landscape architecture programs, and in the PhD program. The deposit is due at the time the applicant accepts the program's offer of admission. The deposit will be applied to the first semester's tuition when the student registers for classes.

COMPUTING IN THE COLLEGE

The College of Architecture and Planning requires all incoming graduate students to acquire and utilize their own computers and software applications in their studies. To assist students with procurement of their personal computers, the IT committee formulated performance-based computing specifications. These are listed on the Web site at www.cudenver.edu/Academics/Colleges/ArchitecturePlanning/Computing+in+the+College/default.htm. Please note that UCDHSC neither endorses nor requires students to procure a machine from a particular vendor. While desktop configurations are listed, students are urged to procure laptops mainly for reasons of security and mobility in studios and classrooms.

Software application (program) requirements relate to specific course curriculum. In general, students widely use products such as Microsoft Office for word processing, e-mail, presentations and spreadsheet applications. Consult with instructors or refer to course syllabi regarding applications for imaging, CAD, GIS, modeling or rendering prior to their procurement. In addition, not all programs are needed during the first semester; certain release versions may be preferable over others. The college intends to provide computer IT orientation sessions at the beginning of each semester.

ACADEMIC POLICIES

Academic Standing

Students must maintain a minimum overall GPA of 3.0 in the graduate programs to remain in good standing and to graduate. If a student's GPA falls below a 3.0, then he or she will be placed on academic probation beginning the following semester. If the GPA remains below a 3.0 after the probationary semester, then he or she may be dismissed from the college.

Appeals

Any student may appeal the grade he or she receives in a class within 30 days from the issuance of the grade. The student should first discuss

the issue and adjustment sought with the relevant course instructor. If the course instructor does not reply within 30 days, the student submits a written appeal to the department chair. Within 30 days, the department chair shall process the appeal and prepare a written report explaining the reason(s) for the department recommendation. If the grade appeal still remains unresolved at the department level, the student submits a written request to the associate dean of academic affairs, who will direct the Academic Affairs Committee to review the appeal. If the grade appeal remains unresolved at the college level, the student may appeal to the dean.

Attendance and Timeliness of Work

Students are expected to attend all meetings of classes. Excessive unexcused absences may result in a grade reduction at the discretion of the instructor. Absence from a class will be excused for verified medical reasons, religious obligations or for extreme personal emergencies. The student may be required to furnish evidence.

Students' assignments are to be completed in a timely manner. Any assignment turned in late may have its grade reduced by an amount set at the discretion of the instructor. An assignment may be turned in late without penalty for verified medical reasons, religious obligations or for extreme personal emergencies. Students must have their instructor's written permission to turn an assignment in late. Students with excused late work may turn in the assignment by the end of finals week without penalty. Otherwise, the grade "IF" or "IW" will be assigned at the discretion of the faculty.

Course Sequencing and Advancement

Programs in the college are structured so that certain courses must be taken concurrently, others sequentially. Students will not be allowed to enroll in a course if its co-requisites or prerequisites have not been satisfied.

Originality of Work

Students must submit their own work. Where other sources are used in a student submission, they are to be clearly identified and referenced. The university considers plagiarism and similar acts of falsification to be a serious matter that may result in suspension or expulsion. Information on codes of conduct and grievance procedures are available from the Office of Enrollment and Engagement on the downtown Denver campus.

Retention of Student Work

The College of Architecture and Planning reserves the right to retain any student project submitted in fulfillment of class requirements for whatever period of time it deems necessary. This retained work is used to provide accrediting 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 requested by the university community and the general public.

PROGRAMS OF STUDY

Architecture

Chair: Hans Morgenthaler, 303-556-4227

Assistant Chair, Undergraduate Architecture

Pre-Professional Program: Allen Harlow, 303-492-5677

Office: CU-Denver Building, 330

Telephone: 303-556-3282

Fax: 303-556-3687

Faculty

Professors: *Mark Gelernter, PhD, Bartlett School of Architecture, University of London; *George Hoover, BArch, Cornell University; *Joseph Juhasz, PhD, University of California, Berkeley; *Patricia O'Leary, MArch, Arizona State University; *John M. Prosser, MArch, Carnegie Mellon University; *Peter Schneider, BArch, University of Cape Town; *Luis Summers, PhD, University of Notre Dame

Associate Professors: *Amir Ameri, PhD, Cornell University; *Robert H. Flanagan, MArch, University of Colorado; *Julee Herdt, MArch, Southern California Institute of Architecture; *Laurence K. Loftin, III, MArch, University of Virginia; *Taisto H. Mäkelä, PhD, Princeton University; *Hans R. Morgenthaler, PhD, Stanford University; *Ekaterini Vlahos, MArch, University of Colorado; *Ping Xu, DDesign, Harvard University

Assistant Professors: *Barbara Ambach, MArch, Southern California Institute of Architecture; *Michael Jenson, PhD, University of Edinburgh

Senior Instructors: *Joseph Colistra, MArch, University of Colorado; Allen Harlow, MArch, University of Colorado; *Martha L. Hutchinson, MArch, Cornell University; Matthew Jelacic, MArch, Harvard University; *Charles MacBride, MS, Columbia University; *Eric Morris, MArch, University of Houston; *Jason Rebillot, MArch, University of Illinois at Chicago; *Ranko Ruzic, MArch, University of Colorado; Shane Rymer, MArch, Southern California Institute of Architecture; *Melanie Shellenbarger, MBA, John Carroll University; *Erik Sommerfeld, MArch, University of Colorado; Bruce Wrightsman, MArch, University of Texas in Austin

Instructors: Kenneth Andrews, MArch, Rice University; Meredith Banasiak, MArch, Arizona State University; Marcel de Lange, MArch, Delft University of Technology; Tamarah Long, MArch, University of Florida; Wendy Lozada Sanchez, MA, National School of Restoration and Museum Preservation

Additional information about faculty in this department is available online at www.cudenver.edu/cap/people/faculty.

*Also teach graduate courses.

The architecture department's mission is to lead in the discovery, communication, and application of knowledge in the discipline of architecture. The department aims to excel in the education of its students, in the research and creative endeavors of its faculty and in service to the community. To respond to this mission, the department has developed a unique intellectual, educational and architectural culture.

- First, the department celebrates its place in a very special set of landscapes—urbanized Denver and the Front Range and the spectacular natural landscape of the high plains and the Rocky Mountains. The architecture department, therefore, focuses not only on the design of buildings, but also on the interactions between buildings and their urban and natural settings.
- Second, the department examines the interplay between architectural form and the complex cultural and technological context in which architects operate. As a result of these dominant concerns, the department has created an academic environment that is intellectually stimulating and educationally challenging and that aims to educate students who will become leaders in the discipline and profession of architecture.
- Third, the Department of Architecture follows the College of Architecture and Planning's mission of integrative design. The faculty research, teach and practice ways to design environments that are meaningful and beautiful. We plan, shape and interpret those environments in ways that are collaborative, responsible, sustainable, enabling and integrative. Promoting and acknowledging diversity in subject matter, method and orientation are essential to this integrative approach.

The faculty teach by integrating different design theories and practices into an educational matrix which emphasizes their connectedness, cross-disciplinary interdependence, research orientation and real-world relevance. The department collaborates to produce new knowledge while adding to the understanding of the role and identity of design and research in each of our connected disciplines. In this collaborative matrix, each research and design project asks a critical question, then answers it using an appropriate method. These questions stress environmental, economic, social, cultural, aesthetic and ethical concerns. In this knowledge-based matrix, our understanding of how integrative design shapes environments and settings constantly evolves and changes.

Degrees

The Department of Architecture, along with the Department of Planning and Design, offers a bachelor of environmental design (BEnvd) on the Boulder campus. The Department of Architecture also offers two graduate degrees on the Denver campus: the master of architecture (MArch) and the master of urban design (MUD). The following statement from the National Architectural Accrediting Board (NAAB), which is responsible for accrediting all architecture programs in the United States, should help a student choose the appropriate degree program:

“In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the bachelor of architecture, the master of architecture and the doctor of architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.

“Master’s degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.”

- The pre-professional degree offered by the College of Architecture and Planning is the BEnvd. The professional degree offered by the college is the master of architecture (MArch), which is fully accredited by the NAAB.
- The master of architecture, the college’s accredited professional degree for students intending to seek licensure as architects, offers two distinct paths. One track, the MArch/4+2, is offered to students who have completed the college’s BEnvd or any other pre-professional design degree from any NAAB-accredited institution. A second track, the MArch/3.5, is available to students who have completed an unrelated undergraduate or graduate degree or to students who hold professional architecture degrees from other countries but who seek to obtain an NAAB-accredited architecture degree. Students holding professional architecture degrees from foreign institutions will be given advanced standing commensurate with their previous educational experiences.

THE MASTER OF ARCHITECTURE (MArch)

MArch/4+2

The MArch/4+2 is intended for students who have completed the college’s BEnvd or any other pre-professional architecture degree from any NAAB-accredited institution. This six-year plan of study, with completion of both the four-year undergraduate BEnvd offered on the Boulder campus and the accredited two-year MArch on the downtown Denver campus, has been fully endorsed by the NAAB.

Program Requirements

Students completing the college’s bachelor of environmental design (BEnvd) on the Boulder campus—or completing a pre-professional

degree from another NAAB-accredited institution—complete a minimum of four semesters of course work (60 semester hours of credit) after entry into the MArch program. For further details on the BEnvd, and for descriptions of the pre-professional courses outlined below, see the University of Colorado at Boulder catalog.

Students entering ENVD 3210. Architecture Studio II must have the permission of the program chair.

Term by Term: Six-year MArch Curriculum

Undergraduate Sequence

Four years at Boulder—30 semester hours per year (approx.), 120 total credits

FIRST YEAR

<i>Fall</i>	<i>Semester Hours</i>
ENVD 1004. Introduction to ENVD	6
ENVD 2003. Ecology and Design	3
UWRP 1150. Expository Writing	3
Elective. Non-ENVD Elective	3
Total	15

Spring

ENVD 2002. ENVD Media	3
ENVD 2001. Introduction to Social Factors in ENVD	3
Social Science. (see list of options)	3
Humanities. (see list of options)	3
Elective. Non-ENVD Elective	3
Total	15

SECOND YEAR

Fall

ARCH 3114. History and Theories of Architecture I	3
ENVD 2110. Architecture Studio I	6
MATH 1300. Calculus I	5
Elective. Non-ENVD Elective	2
Total	16

Spring

ARCH 3214. History and Theories of Architecture II	3
ENVD 3001. Environment and Behavior	3
PHYS 2010. College Physics I	5
Elective. ENVD Elective	3
Total	14

THIRD YEAR

Fall

AREN 4035. Structures I	3
ENVD 3210. Architecture Studio II	6
ENVD 3352. Architecture Computer Media	3
Elective. ENVD Elective (ending in ‘4’)	3
Total	15

Spring

AREN 4045. Architectural Structures II	3
Elective. ENVD Elective (ending in ‘5’)	3
Electives. ENVD Electives	6
Elective. Non-ENVD Elective	3
Total	15

FOURTH YEAR

Fall

AREN 3050. Environmental Systems I	3
ENVD 4310. Architecture Studio III	6
ENVD 3115. Building Materials and Systems	3

Elective. ENVD Elective (ending in '2')	3
Total	15
<i>Spring</i> <i>Semester Hours</i>	
ARCH 4314. Architecture Theory	3
AREN 3060. Environmental Systems II	3
ENVD 4410. Architecture Studio IV	6
Elective. ENVD Elective	3
Total	15

Graduate Sequence

Two years at Denver— 30 semester per year (approx.), 60 total credits

FIFTH YEAR

ARCH 6150. Comprehensive Design Studio**	4
ARCH 6151. Comprehensive Design Seminar	2
LA 6632. Site Planning	3
Electives.*	6
Total	15

Spring

ARCH 5320. Build Construction and Methods	3
ARCH 6170. Advanced Design Studio	4
ARCH 6171. Advanced Design Seminar	2
Electives. †	6
Total	15

SIXTH YEAR

Fall

ARCH 5410. Professional Practice	3
ARCH 6170. Advanced Design Studio	4
—or—	
ARCH 6951. Thesis	6
ARCH 6171. Advanced Design Seminar or nothing if thesis taken ...	2
Electives. †	6
Total	15-17

Spring

Electives*	15
Total	15

* New students must take 9 semester hours each in cultural studies and professional studies (3 semester hours of which must emphasize the computer), and 6 credits in technology studies. The remaining 9 semester hours may be taken in any architecturally related electives on campus.

** If a student does not have four undergraduate studios with a grade of A, he or she must enroll in Studio IV as the first graduate studio.

† Take ARCH 6950. Thesis Preparation if undertaking a thesis in the next semester.

MArch/3.5

The MArch/3.5 is intended for those students who have completed an unrelated undergraduate or graduate degree, or for students who hold professional architecture degrees from other countries. This three-and-one-half-year plan of study on the downtown Denver campus has been fully accredited by the NAAB.

Prerequisites

- Students must complete the prerequisites of college-level trigonometry and physics before enrolling in ARCH 5310. Introduction to Building Technology. Since this class should be taken in the first semester in order to stay on track for graduation, students are strongly

encouraged to complete the trigonometry and physics requirements before beginning the MArch program.

- ARCH 5000. Math and Physics for Architects is offered in the summer on a pass/fail basis. This class meets the prerequisite requirements. This class does not count toward the number of credits required for the MArch degree.
- A Graphics Workshop is recommended for students who do not have a background in architectural drawing and model building. This class is offered each year before the beginning of the fall semester.
- Students are also expected to have achieved a basic level of computer literacy and should be familiar with PC or Apple operating systems.

Program Requirements

Students with a bachelor's or master's degree unrelated to architecture must complete a seven- or eight-semester sequence of course work and accumulate a minimum of 114 semester hours of credit. Advanced standing will be given to students who have completed a non-NAAB-accredited professional architecture degree in another country, and who wish to obtain the NAAB-accredited degree from this college. These students will work with the associate chair of the department to develop an individualized plan of study commensurate with their previous degrees and experience, and will have to complete at least 60 semester hours of credit in residence within the College of Architecture and Planning.

Course Sequence

The MArch program is divided into five major components: design studies, 45 semester hours; cultural studies, 12 semester hours; technology studies, 18 semester hours; professional studies, 6 semester hours; and electives, 33 semester hours. A wide array of electives in these areas allows students to tailor their graduate studies to their own interests.

FIRST YEAR

Fall

Semester Hours

ARCH 5110. Design Studio I	6
ARCH 5111. Design Seminar I	3
ARCH 5210. Introduction to Architecture	3
ARCH 5310. Introduction to Building Technology	3
Total	15

Spring

ARCH 5120. Design Studio II	4
ARCH 5121. Design Seminar II	2
ARCH 5220. History of Architecture I	3
ARCH 5320. Building Construction and Methods	3
LA 6632. Site Planning	3
Elective.*	3
Total	18

SECOND YEAR

Fall

ARCH 5130. Design Studio III	4
ARCH 5131. Design Seminar III	2
ARCH 5230. History of Architecture II	3
ARCH 5240. Human Factors in Design	3
ARCH 5330. Environmental Control Systems I	3
Elective.*	3
Total	18

Spring

ARCH 5140. Design Studio IV	4
ARCH 5141. Design Seminar IV	2
ARCH 5340. Environmental Control Systems II	3
ARCH 5350. Structures I	3
ARCH 5410. Professional Practice	3
Elective.*	3
Total	18

<i>Summer</i>	<i>Semester Hours</i>
ARCH 6150. Comprehensive Design Studio	4
ARCH 6151. Comprehensive Design Seminar	2
Electives.*	6
Total	12
THIRD YEAR	
ARCH 5360. Structures II	3
ARCH 6170. Advanced Design Studio	4
ARCH 6171. Advanced Design Seminar	2
Electives.*	9
—or—	
ARCH 6950. Thesis Preparation	6
—and—	
Electives.	3
Total	18
<i>Spring</i>	
ARCH 6170. Advanced Design Studio	4
ARCH 6171. Advanced Design Seminar	2
Electives.*	9
—or—	15
ARCH 6951. Thesis	6
Electives.*	9
Total	15

* Students must take 9 elective semester hours in cultural studies, 9 elective semester hours in professional studies (3 semester hours of which must emphasize the computer), 6 elective semester hours in technology studies and 9 elective semester hours in any architecturally related electives on campus.

POST-PROFESSIONAL PROGRAMS

The Post-Professional Program

The Post-Professional Degree Program is a mid-career, postprofessional intensive course for those individuals in the design fields who seek to expand their knowledge and to advance their professional careers. In this program, students have the opportunity to study recent developments in their design fields resulting from advances in information technology, new theories and methods, and emergent discoveries and associations. The program currently offers two primary areas of study, the master of architecture II and the master of urban design degree programs. Each of these programs has a research orientation and agenda, and their general intent is to create an educational context within which the fundamental practices of architecture and urbanism can be examined, advanced and extended. The programs have been designed to be both flexible and interdisciplinary so as to provide students with a broad range of options that can accommodate and respond to each student's own interests and study agenda through course work, independent study or optional training.

Post-Professional Program: The Master of Architecture II

The master of architecture II is an advanced degree program that provides its students with a range of opportunities for exploring and extending their knowledge of the practice of architecture. ***Students applying for admission to the program must have been awarded a five-year or six-year first-professional degree in architecture.*** They may enter the master of architecture II program in any semester of the academic year.

The master of architecture II program does not offer an NAAB first-professional degree; it is an advanced studies program for those who already hold this first-professional degree.

Students in the program must complete 30 semester hours of credit in required, recommended, and elective course work to qualify for the master of architecture II degree. To be eligible for graduation from the program, students must complete 12 semester hours of advanced design studio (ARCH 6170/6171 or UD 6600/6601) in the degree-area course sequence and 12 semester hours in required and/or focus-area course work particular to their area of study. The remaining 6 semester hours are elective course work. A typical sequence of course work within a focus area leading to the award of the master of architecture II degree is as follows:

SEMESTER ONE	<i>Semester Hours</i>
Advanced Design Studio	6
Focus-area required/recommended course work	6
Elective course work	3
Total	15
SEMESTER TWO	
Advanced Design Studio	6
Focus-area required/recommended course work	6
Elective course work	3
Total	15

Dual Degree Options

Students may enroll in a dual degree program with landscape architecture (MArch and MLA), with MURP (MArch and MURP), with MUD (MArch and MUD) or with the School of Business (MArch and MBA).

Landscape Architecture

Interim Chair: Austin Allen
Office: CU-Denver Building, 330
Telephone: 303-556-8564
Fax: 303-556-3687

Faculty

Associate Professors: *Austin Allen, PhD, Ohio University;
 *Lois A. Brink, MLA, University of Pennsylvania
Assistant Professors: *Ann Komara, MLA, University of Virginia;
 *Joern Langhorst, Diploma, University of Hannover
Senior Instructors: *Lori Cockerham, MLA, University of Pennsylvania; *John R. Frankhouser, MUP, Wayne State University;
 *Anthony R. Mazzeo, MLA, University of Pennsylvania
Instructors: *Charles Chase, MA, University of Colorado;
 *John Lanterman, MLA, University of Colorado

Additional information about faculty in this department is available online at www.cudenver.edu/cap/people/faculty

*Also teach graduate courses.

The department's mission is education, scholarly research and service in the discipline and practice of landscape architecture. The program of study prepares students to engage questions of and relationships between land, landscape, people and culture. It prepares students for the current practice of landscape architecture and provides a healthy setting for students to question, invent, create, test and advance the knowledge and capacity of the profession. At the program's heart is design, as it embodies the processes that lead to the planning and design of landscapes and that, in turn, results in diverse and assessable outcomes of consequences and value.

The program's "laboratories" are the urban, suburban, rural and wilderness landscapes mainly associated with the Mountain, Front Range, High Prairie and Western Slope regions of Colorado. These areas present diverse cultural and environmental situations and opportunities in which to shape regionally responsive landscape design and planning. Imperatives within the public and private realms of these landscapes fuel the academic and research agenda. While representing an accessible

spectrum of good and bad examples and situations to study, the knowledge and experiences derived apply globally to multiple scales and cultures.

The current discourse of critical topics includes the following:

- the challenges associated with urban and suburban growth and development
- the planning and design leading to the making of healthy and sustainable cities, communities and homes
- the role and making of civic infrastructure
- the use and conservation of precious land and water resources
- the reclamation and preservation of disturbed and historic landscapes
- the recognition and application of natural and urban conditions and values of the region

It is within this context that UCDHSC's Department of Landscape Architecture links theory with practice, history with change, technology with invention and designers with their constituents.

Program Objectives

Specific educational objectives of the program are as follows:

- To develop excellence in the design process and the creation of designed artifacts that lead to a variety of outcomes. Particular emphasis is given to exploring the strategies, methods and skills necessary to study, synthesize, experiment with and evaluate design precedents, design and design processes.
- To learn and develop competence in the core themes of the profession that include landscape architectural theory and precedent, technologies and materials, natural and cultural systems, and communications and inquiry media. Particular emphasis is placed on studying the means to develop ideas, to convey values and to criticize work.
- To learn and utilize methods that enable the student to engage independent research and design investigation based on rigorous, original and creative thinking, which leads to the completion of definitive scholarly work and/or enhances the outcome of creative works. Particular emphasis is placed on integrating research assignments within stated requirements of design studios, support classes and thesis options.
- To provide a working knowledge of the institutional framework within which the design process occurs. Particular emphasis is placed on building a strong understanding of professional practice and the skills required therein including management, leadership, marketing, ethical conduct and legal issues.
- To provide services using methods that apply to and extend course work, research and creative work to real world situations. Particular emphasis is placed on participating in opportunities to implement, enhance, demonstrate, communicate and evaluate ideas and skills, and to provide measurable benefits for constituents and ourselves.

MASTER OF LANDSCAPE ARCHITECTURE (MLA)

Prerequisites

Students are expected to have achieved a basic level of computer literacy. A graphics workshop is recommended for students who do not have a background in drawing and model building. The workshop is scheduled each year before the beginning of the fall semester.

Program Requirements

The landscape architecture program offers professional and advanced professional graduate degree curricula leading to the degree master of landscape architecture (MLA).

- The first-professional degree program, requiring a six-semester sequence of course work totaling 90 semester hours, is fully accredited by the Landscape Architecture Accreditation Board (LAAB) and recognized by the Council of Educators in Landscape Architecture (CELA).

- Students completing the college's bachelor of environmental design on the Boulder campus—or completing an undergraduate design degree at another institution—are given advanced standing in the three-year program and must complete at least 65 semester hours of credit.
- The advanced professional degree program for qualified students having already earned a first professional degree in landscape architecture or related discipline, requires 48 semester hours. Advanced standing may be commensurate with prior academic accomplishment.

Course Sequence (90-credit MLA for students without a professional degree in landscape architecture or related profession.)

The curriculum consists of core and elective course work. Core courses are grouped into six components: design studies, 36 semester hours; history and theory, 12 semester hours including 3 elective semester hours; landscape architectural technology, 14 semester hours including 3 elective semester hours; plants, 6 semester hours; and media, 4 semester hours; totaling 72 semester hours. The remaining semester hours are for additional elective courses.

Typical 90-semester-hour program of study in required courses for the first professional MLA degree

FIRST YEAR

<i>Fall</i>	<i>Semester Hours</i>
L A 5500. Introduction to Landscape Architectural Design Studio I and II	6
L A 5510. Graphic Media in Landscape Architecture	3
L A 5521. History of Landscape Architecture	3
L A 5572. Landscape Ecology	3
Total	15

Spring

L A 5332. Landform Manipulation	3
L A 5501. Introduction to Landscape Architectural Design Studio III and IV	6
L A 6632. Site Planning	3
L A 6641. Landscape Architecture Computer Applications	3
Elective.	3
Total	18

SECOND YEAR

Fall

L A 6631. Landscape Construction Materials and Methods	3
L A 6600. Landscape Architectural Design Studio V and VI	6
L A 6670. Plants in Design	3
Elective.	3
Total	15

Spring

L A 6601. Landscape Architectural Design Studio VII and VIII	6
L A 6620. Landscape Architecture Theory and Criticism	3
Elective.	3
Total	12

THIRD YEAR

Fall

L A 6700. Advanced Landscape Architectural Design Studio IX and X	6
Electives.	9
Total	15

<i>Spring Semester</i>	<i>Semester Hours</i>
LA 6750. Professional Practice	3
LA 6701. Advanced Landscape Architectural Design Studio XI and XII	6
LA 6721. Regionalism	3
Elective.	3
Total	15

Course Sequence (48-hour MLA for students with a professional degree in landscape architecture or related disciplines).

This route requires 48 semester hours and typically two years of full-time study. The core curriculum consists of two groups: design, 30 semester hours; history and theory, 12 semester hours, for a total of 42 semester hours; plus 6 semester hours of electives. The program director will advise each student engaged in this program of study.

Concentration Areas

The curriculum delivers required courses that enable students to learn and develop core themes of the profession inclusive of LAAB standards, with emphasis placed on studying the means to develop one's ideas, to convey one's values and to criticize one's work. In addition, the curriculum offers four concentration areas from which to choose elective courses offered by the program and other units within the college and university in order to explore advanced topics, challenge normative paradigms and develop new knowledge and capabilities. Majors from other areas are invited to enroll in landscape architecture electives.

Areas of Concentration

Urban Design

Advanced Landscape Architectural Technologies

Landscape Planning and Management

History, Theory and Criticism

These broadly defined areas of concentration reflect topics and issues related to the program's location and context in Denver and its larger metropolitan and regional contexts. They also reflect faculty interests and resources available from within the college, university and area. Students may pursue one or more concentrations within the required 24 elective hours, of which 18 are non-group related. Students are encouraged to consult with their assigned faculty advisor or other mentors as they make their decisions. (Note: 6 elective semester hours are to fulfill requirements in each of landscape architectural technologies and history and theory group.)

Urban Design

Denver, the surrounding metropolitan areas and the newly emerging urban areas within the greater region provide limitless issues, topics and situations fueling interests in urban design. The field of urban design is complex and crosses many disciplines including architecture, landscape architecture, urban planning, real estate development, law, engineering and the social sciences. Students interested in this concentration are urged to seek and enroll in courses that provide:

- an analytical understanding of the urban/built environment
- the understanding and skills from which to develop, synthesize, create and test responsive implementation strategies

Courses available to landscape architecture students include but are not limited to:

CE 5622. Urban Transportation Planning	3
LA 6686. Special Topics: Open Space in Urban Design	3
LA 6930. Landscape Architecture Internship (requires pre-approval by advisor/director)	3
LSOC 4230. City and Region	3
UD 6620. Architecture of the City	3
UD 6621. The City as an Artifact	3
UD 6686. Special Topics in Urban Design	3
URP 5520. Urban Spatial Analysis	3

URP 6633. Urban Form Theory	3
URP 6634. Preservation Theory and Practice	3
URP 6635. History of American City Building	3
URP 6665. Urban Market Analysis	3
URP 6670. Urban Economic Development	3
URP 6676. Urban Housing	3

Advanced Landscape Architectural Technologies

Many students will work within a variety of venues involving built works. Familiarity, competence and interest in learning, using, evaluating and developing existing and new technologies are compelling. These technologies include computer applications, design-build/learn by building, materials and construction processes. Students interested in expanding their knowledge, skills and future applications of technologies are encouraged to seek and enroll in courses that provide them with:

- significant exposure and facility with applied technologies
- appreciation for the value, strengths, weaknesses and potential of the technologies to develop, implement and evaluate their design works

Courses available to landscape architecture students include but are not limited to:

	<i>Semester Hours</i>
ARCH 5310. Introduction to Building Technology	3
ARCH 6390. Special Topics in Technology	3
ARCH 6410. Computer Graphics	3
ARCH 6411. Computer Applications in Practice	3
LA 6641. Computer Applications in Landscape Architecture	3
LA 6686. Special Topics: Advanced Landscape Architectural Technologies	3
LA 6686. Special Topics: Computer Applications (VARIES)	
LA 6930. Landscape Architecture Internship	3
URP 6612. GIS for Planners	3

Landscape Planning and Management

Landscape planning is an area in which landscape architects play an increasing and vital role, particularly in this region, resulting from pressures to develop nonurbanized or undeveloped lands and to develop and manage public lands. Study within this concentration area addresses development and advancing knowledge and capability of the profession in:

- ecological systems
- urban and regional growth
- land use
- real estate development and finance
- environmental impact assessment
- planning and development processes

Courses available to landscape architecture students include but are not limited to:

LA 6622. Visual Quality Analysis	3
LA 6641. Computer Applications in Landscape Architecture	3
LA 6930. Landscape Architecture Internship	3
URP 5530. Planning Law	3
URP 6612. GIS for Planners	3
URP 6640. Community Development Process	3
URP 6641. Social Planning	3
URP 6642. Neighborhood Planning	3
URP 6650. Environmental Planning II: Policy and Law	3
URP 6651. Environmental Impact Assessment	3
URP 6652. Growth Management	3
URP 6653. Natural Resource Management and Planning	3
URP 6660. Real Estate Development Process	3
URP 6661. Real Estate Development Finance	3
URP 6664. Fiscal Impact Analysis	3
URP 6671. Regional Economic Development	3
URP 6673. Transportation Planning I: Transport Network Analysis	3

History, Theory and Criticism

Advanced study in history, theory and criticism of design is fundamental to the landscape architect's knowledge of the built environment, the intellectual forces that create it and the theoretical construct of historic precedents in design influencing decisions.

Advancing knowledge and capability of the profession in this area of concentration is compelling and serves:

- to better inform designers eager to learn, generate and develop ideas and arrive at critical judgments about the worth of these ideas
- to enhance and inform one's perspective in a context of economic boom where new development is flourishing

Courses available to landscape architecture students include but are not limited to:

Semester Hours

ARCH 5230. History of Architecture II	3
ARCH 6161. Precedents in Architecture	3
ARCH 6210. History of American Architecture	3
ARCH 6212. History of Modern Architecture	3
ARCH 6220. History of Architectural Theory	3
ARCH 6221. Post-Structuralist Architecture	3
ARCH 6910. Teaching Assistantship	3
L A 6686. Special Topic: Architecture and the Landscape— Exploration in Boundary	3
L A 6686. Special Topic: Contemporary Theories and Criticism of Landscape Architecture	3
L A 6686. Special Topic: Landscape Architectural History	3
L A 6686. Special Topic: Modernism in Landscape Architecture	3
L A 6686. Special Topic: Open Space in Urban Design	3
L A 6686. Special Topic: Representations of Landscape Architecture	3
L A 6930. Landscape Architecture Internship	3

Dual Degree Options

Students may enroll in a dual degree program with architecture (MLA and MArch), with MUD (MLA and MUD) or with MURP (MLA and MURP).

URBAN AND REGIONAL PLANNING

Chair: Thomas A. Clark

Office: CU-Denver Building, 330

Telephone: 303-556-3688

Fax: 303-556-3687

Faculty

Professors: *Louise Chawla, PhD, City University of New York;

*Thomas A. Clark, PhD, University of Iowa; *Yuk Lee, PhD, Ohio State University; *Willem K.T. Van Vliet, PhD, University of Toronto

Associate Professors: Raymond McCall, Jr., PhD, University of California, Berkeley; *Peter Park, MUP, University of Wisconsin-Milwaukee

Assistant Professors: *Brian Muller, MPA, University of Texas

Senior Instructor: *Pamela Wridt, PhD, City University of New York

Instructors: John T. Barbour, MURP, University of Colorado;

*Leslie Lipstein, MArch, University of Illinois at Chicago

Additional information about faculty in this department is available online at www.cudenver.edu/cap/people/faculty

*Also teach graduate courses.

Urban and regional planners in the United States and other countries seek to identify social needs and environmental capacities, anticipate change and its impact on communities, shape the pattern of human settlements, provide essential infrastructure, maintain viable economies and achieve and preserve sustainable communities that are suitably fit to their natural surroundings. Study in planning considers how social needs are legitimated, knowledge about communities and regions is compiled and analyzed, possible courses of action are evaluated, plans

are formulated, implementation is transacted through the means of education, investment, negotiation and regulation and how plans' consequences are tracked over time.

These tasks require a high order of ability: to amass and manipulate information, to represent and model essential phenomena and processes, to simulate futures and to judge outcomes having diverse dimensions. They also require the ability to portray and communicate key concepts, diagnoses and actions and to harness knowledge about all the key actors on the scene in order to understand their needs, motives and possible responses to the public actions that plans provoke. Underlying these classes of abilities is a base of knowledge that easily overreaches the bounds of any one discipline.

Planners must understand theories regarding urban and regional process, concepts of presentation, communication and negotiation, technologies for the depiction and manipulation of spatial information, means by which to document, judge and forecast change in urban systems, private economic motives and constraints, the behavioral inclinations of all the major classes of players on the urban scene, the mesh of laws that empower planning and govern private action and the broader political economy of regional systems.

Needless to say, the education of planners can only begin in the university. It must be a life-long pursuit, and planning programs are becoming increasingly supportive of the continuing education needs of professionals. It is the intellectual excitement of this ongoing pursuit of knowledge that draws many to the field.

The Department of Planning and Design, along with the Department of Architecture, offers a bachelor of environmental design (BEnvd) degree on the Boulder campus. The Department of Planning and Design also offers the master of urban and regional planning (MURP) graduate degree on the downtown Denver campus. The master of urban and regional planning is fully accredited by the national Planning Accreditation Board and prepares students for professional careers in planning and for further study.

For further details on the BEnvd, see the University of Colorado at Boulder catalog. Additional details about the master's program follow.

THE MASTER OF URBAN AND REGIONAL PLANNING (MURP)

Prerequisites

Students are expected to have achieved a basic level of computer literacy and should be familiar with PC or Apple operating systems. Acquiring familiarity with digital visualization techniques is recommended for students who do not have a background in graphic communication.

Program Requirements

The master of urban and regional planning is the college's accredited degree for students intending to practice as planners.

- With no advanced standing, candidates for the MURP degree must complete a minimum of 51 semester hours of graduate work, including all core courses (27 semester hours), a concentration (15 semester hours minimum) and additional electives (9 semester hours).
- Entering students who have engaged in the study or practice of planning elsewhere may petition the faculty during their initial semester to determine whether any credit will be awarded or degree requirements relaxed as a result of these prior activities. A maximum of 15 credits of course work can be applied for advanced standing.

ADVANCED STANDING

- Students who receive the college's bachelor of environmental design (BEnvd) degree on the Boulder campus and who have maintained a GPA of at least 3.0 will be admitted to the MURP with advanced standing. These students can earn the MURP degree after completing a minimum of 42 semester hours, which will include the core courses and an approved concentration.

- Students holding the college’s BENVd degree who also completed the undergraduate planning option with a GPA of at least 3.0 (and with a grade of at least 3.0 in ENVD 4320. Planning Studio III) will, in addition, receive a waiver with credit for URP 6630. Planning Studio I. These students will earn the MURP degree upon completion of a minimum of 36 semester hours, including 21 semester hours of core courses and all requirements for an approved concentration.

The above conditions for advanced standing apply only to students who graduated from the college’s undergraduate program within the last five years. Those who graduated earlier may receive advanced standing at the discretion of the head of the graduate program in urban and regional planning, in consultation with program faculty.

Core Courses

Semester Hours

URP 5501. Planning Issues and Processes	3
URP 5510. Planning Methods I	3
URP 5511. Planning Methods II	3
URP 5520. Urban Spatial Analysis	3
URP 5530. Planning Law	3
URP 6630. Planning Studio I	6
URP 6631. Planning Studio II	6
Total	27

A thesis option (URP 6950. Thesis Research and Programming and URP 6951. Thesis) is available primarily for students who are interested in pursuing more advanced academic training in planning or related fields. Thesis work will substitute for Studio II.

Areas of Concentration

The concentrations and elective courses enable students to explore in depth an area of special interest. Students should, however, build on the expertise that they already possess. This can be done either by focusing on a related specialty or by increased specialization in a previously acquired area of expertise. The program supports three official concentrations: (1) land use and environmental planning, (2) urban place making and design and (3) economic and community development planning. A set of foundation courses is identified in each concentration, plus additional supporting electives.

Land Use and Environmental Planning emphasizes regulation of land uses and land development processes; management of transportation, infrastructure and other major public investments; and management of urban ecology, environmental quality and natural resources on both private and public lands. This concentration prepares students for plan-making and policy administration in urban neighborhoods, cities and counties, regions, open spaces and resource management areas. The curriculum focuses on practices and innovations in land use regulation; analytical methods including transportation modeling, land market evaluation, environmental impact analysis and use of decision support systems; administration of public policies and plans; management of negotiation and collaborative processes among diverse interest groups; and the politics of planning. Graduates take jobs in local, state and federal government, nonprofit organizations, consulting firms and the development industry.

Urban Place Making and Design emphasizes the interrelations between physical design, urban morphology, land-use regulations and other forces such as market trends and regional policies shaping the urban environment and their impacts on quality of life. Curriculum focuses on providing the students with a special kind of expertise that combines design thinking and land-use planning within the dynamic context of city hall politics. The goal is to produce planners, working in the public or the private sector, who can effectively guide the physical form of urban development to serve the needs and desires of an increasingly diverse public while negotiating the realities and constraints of the real estate market and economic development goals of cities and communities.

Graduates take jobs in local governments, nonprofit community organizations, consulting firms and the development industry.

Economic and Community Development Planning harnesses both the public and private sectors to fashion local economies able to support the essential needs of resident populations. The field of economic development features efforts to nurture, attract and retain firms that are suited to the fiscal, economic and environmental requirements, capacities and constraints of urban districts (e.g. neighborhoods, downtowns, industrial districts and mixed-use spaces such as TODs and the like), entire municipalities both small and large and multi-local regions. Economic development also concerns the cultivation of both human and social capital as it seeks to encourage an appropriately skilled resident workforce able to find work in both local and regional labor markets.

The field of community development features development *from within*. It encompasses the many means for engaging local residents and institutions, fostering democratic participation, formulating developmental plans that address residents’ most urgent needs and drawing together all parties whose involvement is essential for success. Our program stands apart in its determination to (1) join together these two distinct fields, (2) situate the economy within its essential “built,” social and environmental rubrics, and (3) encourage a sufficiently broad, hence robust, conceptualization of the economy and its spatial and temporal development. This joint enterprise travels a continuum from smaller-scale project-based activities through strategic planning at the multi-local regional scale that has utility across the booms and busts of the regional business cycle.

Urban and community economic development specialists find work in localities, sub-state regions and state offices, as well as in quasi-public and private firms and institutions. They work with local residents, neighborhood and community organizations, community development corporations, various other nongovernmental organizations, consulting firms and, of course, in public agencies. For most, although hardly all such graduates, the primary career destination will be the local public sector. Those having this objective in mind should be aware that the bulk of such jobs will marry an appreciation of the rudiments of community economic development to some related physical planning specialty. Others seeking positions explicitly tied to the tasks of economic development are advised to consider opportunities at the municipal, state and federal levels—often set apart from offices devoted primarily to physical planning—with local and regional chambers of commerce, in the private development community and in strategic institutional and corporate planning and development.

Course Sequence

FIRST YEAR

<i>Fall</i>	<i>Semester Hours</i>
URP 5501. Planning Issues and Processes	3
URP 5510. Planning Methods I	3
URP 5530. Planning Law	3
Elective course.	3
Total	12

Spring

URP 5511. Planning Methods II	3
URP 5520. Urban Spatial Analysis	3
URP 6630. Planning Studio I *	6
Total	12

SECOND YEAR

<i>Fall</i>	
Concentration Courses	9
Electives.	6
Total	15

Spring

URP 6631. Planning Studio II*	6
Concentration Courses	6
Total	12

* Both studios are offered in the fall *and* spring semesters.

DUAL DEGREE OPTIONS

Students may also enroll in dual degree programs with public administration (MPA-MURP), law (JD) and business (MBA). In addition, dual degree options are also available combining the MURP with landscape architecture (MLA) and architecture (MArch). Students may also take up to 6 semester hours of independent study, after first assembling a plan of study with one of the regular faculty. Up to 3 semester hours of internship may be applied to the 51-semester-hour program.

PhD in Design and Planning

Program Director: Willem Van Vliet
Telephone: 303-492-5015

The Department of Architecture, the Department of Planning and Design and the Department of Landscape Architecture share the idea that the complex problems of the built environment are best addressed through collaboration among the various design and planning disciplines and through developing bodies of knowledge about the built environment. To further these ends, the departments and program jointly offer the advanced research degree, the PhD in design and planning.

The college's interdisciplinary doctoral program examines the complex factors that help shape the planned and constructed environment. The program offers three areas of specialization:

1. Land Use and Environmental Planning and Design

Work in this area focuses on purposeful intervention in the physical environment, including mechanisms and procedures such as land use controls, design review processes and standards, and environmental policies. It also deals with the planning and design of housing, neighborhoods, cities, regions and the interrelationships among residential, economic, recreational and transportation systems.

2. Design and Planning Processes and Practices

Work in this area focuses on the theory and methods of planning and design and the development of models and tools to understand and support decision processes and design practices. This area of specialization also includes the examination of practice-related issues such as the development of alternative and appropriate building technologies, energy-efficient designs, manufactured housing and the design/build process.

3. History, Theory and Criticism of the Environment

Work in this area involves critical analysis of architecture, urban design, landscape architecture and planning, and of the theories, processes and policies that have regulated these fields. Whether focusing on contemporary or past environments, the aim is to understand and explain them in relation to individual and cultural values and in their cultural and technological contexts.

Prerequisites

Applicants must hold at least a bachelor's degree, although most will have also completed a master's degree. Field specialization and background are open and may include architecture, landscape architecture, architectural engineering, urban design, geography, urban economics, environmental law, urban sociology, real estate, management science, computer science, public administration or environmental psychology. A successful applicant will have an undergraduate GPA of at least 3.0 (out of a possible 4 points) and a graduate GPA of 3.5 or better.

If students do not hold a professional or a pre-professional degree in a design or planning field, they will have to complete 12 semester hours of upper-level undergraduate course work in the College of Architecture

and Planning. They will have to obtain in each of these courses a grade of *B* or higher. These courses are to be chosen from a selected list in consultation with the student's faculty advisor and are to be completed within two years of admission to the program.

A student must have completed 12 semester hours in an undergraduate program in **one** of the following prerequisites. The one that applies will depend upon the student's intended area of specialization. In exceptional cases, a student may complete this requirement by taking additional undergraduate courses and gaining a grade of *B* or higher in each course. The courses are to be chosen from a selected list in consultation with the student's faculty advisor and are to be completed within two years of admission to the program. They may count toward fulfilling the degree requirements.

- social and behavioral sciences
- environmental and natural sciences
- engineering
- humanities

A student must also have completed **one** of the following prerequisites. The one that applies will depend upon the student's intended area of specialization. In exceptional cases, a student may complete this requirement by taking additional undergraduate courses and gaining a grade of *B* or higher in each of these courses. The courses are to be chosen from a selected list in consultation with the student's faculty advisor and are to be completed within two years of admission to the program. They may count toward fulfilling the degree requirements.

- *Statistics.* Including probability theory, parametric and nonparametric methods and acquaintance with basic multivariate techniques. A minimum of 3 semester hours.
- *Mathematics.* Including differential equations, finite mathematics, algor data structures or other appropriate courses. A minimum of 3 semester hours.
- *Language.* Ability to read at least one foreign language relevant to the intended dissertation.
- *Computer.* Background in computer-aided design (CAD) or geographic information systems (GIS). A minimum of 3 semester hours.

The applicability of a student's prior course work will be decided by the graduate studies committee upon review of a student's transcript and additional materials. If the student does not have the requisite educational background, GPA or GRE scores, the student may be admitted on a conditional or provisional basis and additional course work may be required in accordance with Graduate School rules.

Program Requirements

The PhD requires 76 semester hours. Up to 18 transfer credits may be approved for students admitted with a master's degree. Students in the program will also have to meet the academic residency requirement, which requires six semesters of scholarly 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. However, at least four semesters of resident credit, two of which must be consecutive in one academic year, must be earned for work taken at this university. Completion of the program therefore takes three or four years depending on prior course work.

The PhD program has five components:

- (1) Core Curriculum: The **core** of 10 semester hours consists of seminars and colloquia on the theories and research methods in the fields of design and planning. All students, no matter what their specialization, must take the core in the first two years of their residence.
- (2) Research Specialization: For the **research specialization**, each student must take at least 12 semester hours of course work in one of the program's three specialization areas: land use and environmental planning and design; design and planning processes and practices; and history, theory and criticism of

the built environment. One of the courses must be an advanced methods class.

- (3) Minor Field of Study: The **minor field of study** provides students with a strong background that supports their chosen research emphasis. It requires completion of at least 12 semester hours of related course work that provides in-depth knowledge in a relevant area.
- (4) Electives: **Elective** course work consists of 12 semester hours of additional study in areas related to the dissertation topic. For the research specialization, the minor field of study and the electives, students develop an individualized course of study to reflect their specific foci and career aspirations. The required course work is determined jointly by the student, the faculty advisor and committee members.
- (5) Dissertation: The **dissertation** requires 30 semester hours of course work. Students are expected to define a research question in planning and design, to identify the research strategy to be used for answering this question, to conduct the research and to write up the project in the form of a dissertation. A student is guided in this process by a dissertation advisor and by the additional members who compose the student's dissertation committee.

Students must register for a minimum of 5 dissertation hours each semester of their dissertation work. If unable to register for at least 5 semester hours, they must request a leave of absence from the PhD program until able to complete the minimum dissertation requirement. Students may take up to a year's leave of absence before they are disenrolled from the program.

Evaluations and Examinations

Successful candidates for the PhD in design and planning pass four points of evaluation:

- (1) Preliminary Exam: A **preliminary exam** then evaluates the student's initial progress through the program.
- (2) Comprehensive Exam: The **comprehensive exam** is an examination based on papers prepared by the candidate that survey the literature of the field and that set out a proposed dissertation. This exam takes place after two semesters of residency and before the student becomes a candidate for the PhD degree.
- (3) Doctoral Dissertation: After advancement to candidacy, the student prepares a **doctoral dissertation**, which offers original research in the student's chosen field.
- (4) Final Exam: When the college's dissertation committee approves the final dissertation submission, it conducts a **final exam** based on the student's research. This exam is open to the public.

By the end of the first semester of residence, the student devises a degree plan, which is approved by the graduate studies committee.

Course Sequence

FIRST YEAR

Students develop their degree plan, take 5 semester hours of the required core curriculum, take additional courses in their specialty area, make up any prerequisite courses and take the preliminary exam.

SECOND YEAR

Students take the remaining core courses, continue to take electives in their minor and specialty areas, begin literature surveys and prepare for their comprehensive exam.

THIRD AND FOURTH YEAR

Students complete their literature surveys, prepare a dissertation proposal and take the comprehensive exam. After completion of the comprehensive exam, the rest of the third and fourth years is spent researching and writing the dissertation. Once the dissertation has been accepted, students take the final exam.

Master of Urban Design

Program Information: Pam Erickson
Telephone: 303-556-3387

The master of urban design is an interdisciplinary advanced degree program in which students articulate issues that integrate the fields of architecture, landscape architecture, urban planning, transportation, real estate and political affairs. The mission is to address the total realm of urbanization through research, collaboration and leadership development within the inclusive public domain. The program makes full use of its setting in the core of downtown Denver and explores the evolving environments of settlements, villages, towns, cities, metropolises and megalopolises in Colorado as wide ranging planning laboratories for the studio-based projects or thesis studies. The urban design problem-solving opportunities are further enhanced by the extensive public-private connections the college has established throughout a rapidly growing state.

Graduate Certificates

Contact: Pam Erickson
Telephone: 303-556-3387
E-mail: Pam.Erickson@cudenver.edu

HISTORIC PRESERVATION

The College of Architecture and Planning together with the Department of History in the College of Liberal Arts and Sciences offers a graduate certificate in historic preservation. The certificate can be earned as part of an MArch, MLA, MURP or an MA in history. It requires a total of 18 semester hours.

Requirements

Semester Hours

HIST 5232. Historic Preservation	3
URP 6634. Preservation Theory and Practice	3
Total	6

These are core courses on preservation theory and practice from the architect and planner's perspective of intervening through design and regulation and from the historian's perspective of how the past might guide the future.

A thesis or studio (6 semester hours) is required.

Students choose their remaining courses from a selection in the following categories:

- History of architecture, landscape architecture or historic places (3 semester hours)
- Preservation methods (3 semester hours), including preservation technology, documentation of sites and structures, visual research methods, and other subjects

Students are encouraged but not required to take an internship in preservation.

Preservation certificate students work out with their advisor a selection of courses appropriate to their needs and the requirements of their degree program.

DESIGN BUILD

The College of Architecture and Planning offers a graduate certificate in the emerging area of design build as an extension of the MArch program. It requires a total of 15 semester hours, some of which also count toward the MArch program, some of which do not. Course work in this extension emphasizes the designer's point of view.

Requirements

Four courses totaling 15 semester hours can be applied to the MArch graduation requirements:
 ARCH 6370. Introduction to Design Build.....3

ARCH 6371. Maintaining Quality, Managing Risk	3
<i>Semester Hours</i>	
ARCH 6373. Construction in Single Source Project Delivery	3
ARCH 6170/6171. Advanced Design Studio/Seminar	6
Total	15

GEOSPATIAL INFORMATION SCIENCE

The College of Architecture and Planning offers a **Certificate in Geospatial Information Science** through participating departments. The emphasis of this certificate is on applications of GIS in urban and environmental planning and design fields. The certificate is available to any student earning one of our graduate degrees; to students earning cognate degrees, for example in the School of Public Affairs, College of Engineering and Applied Science or from the Department of Geography; and to nondegree students who have already earned such a degree.

Requirements

A minimum of 18 semester hours (with at least 12 related planning and design hours to be earned in residence at CU-Denver or CU-Boulder); a minimum *B* (3.0) average and a minimum grade of *B-* (2.7) in any course, as outlined in the certificate curriculum:

One required introductory class: Introduction to GIS (both theory and

methods) (3 semester hours)

At least three additional courses in GIS or remote sensing methods to be approved in advance by the GIS committee. Such courses may include Cartography (Boulder and Denver, geography), GIS Analysis (Denver, civil engineering), GIS II (Boulder, geography), Advanced GIS Workshops (Boulder and Denver, multiple departments), GIS Management (Denver, civil engineering), Quantitative Methods in Geography (Boulder, geography), Remote Sensing (Boulder and Denver, multiple departments) (9 semester hours)

Applications Option 1: Studio or thesis project involving application of planning and design GIS-based methods to be approved by the faculty GIS committee (6 semester hours)

Applications Option 2: Internship or other work experience is strongly encouraged for all students and may at the discretion of the committee be substituted for other courses (6 semester hours)

It is not possible or desirable to specify every course that should count toward a certificate. CAP and other participating programs will continue to generate new GIS-related courses as the curriculum evolves, and CAP delivers much of its instruction through studio courses that vary in content each semester. A certificate program must include an ongoing structure for managing course requirements and determining when individual students have met them.

At A Glance: College of Arts & Media

Students*

1,189
Undergraduate: 1,174
Graduate: 15

Degrees Awarded 2006*

Undergraduate: 134
Graduate: 5

Faculty‡

Full-time: 51
Lecturers: 44

Student-Faculty Ratio‡

14:1

Undergraduate Degree Programs

Fine Arts (BA)—art history, drawing, painting, photography, sculpture
Fine Arts (BFA)—drawing, 3D graphics and animation, multimedia, painting, photography, sculpture
Theatre, Film and Television (BA)
Theatre, Film and Television (BFA)—cinematography; design; performance; post-production; production, direction and development; writing/directing
Music (BS)—music industry studies (technology or business), music business, performance, recording arts

Graduate Degree Program

Recording arts (MS)

Minors

Department of Visual Arts

Art History
Multimedia
Photography
Studio Art

Department of Music and Entertainment Industry Studies

General Musicianship
Music Industry Studies

Department of Theatre, Film and Video Production

Theatre, Film and Television



Accreditation

National Association of Schools of Music (NASM)

Research Center

National Center for Audio/Video Forensics

Student Organizations

MEISA—Music Entertainment Industry Student Association (MEIS)
CAM Records (MEIS)
AES—Audio Engineer Society (MEIS)
Sweetening Club (MEIS/TFVP)
AHSA—Art History Student Association
Sculpture Club
Theater Buffs

Alumni‡

788
Undergraduate: 99%
Graduate: 1%

Sample Companies Hiring Alumni

Fox Sports
High Noon Productions
Lucas Arts
NBC
Starz-Encore

Bragging Rights

Assistant Professor John Fishell was nominated for a Grammy for engineering the big band soundtrack, “Sing, Sing, Sing” on Dave Libeman’s album “Beyond the Line” (OmniTone).

The alumni group, the Fray, won three 2006 Billboard awards and received two Grammy nominations in 2007.

The student record label, CAM Records released “Colorado Cuts, Vol. 2” in April. Their last release, “Colorado Cuts,” was reviewed in the *New York Times*. The label as produced eight CDs to date.

Assistant Professor Judy Coe received a Fulbright scholarship award for research related to alternative expressions in Irish music and song.

Gregory Walker, associate professor of music, was given an ASCAPPLUS award in the Concert Music Division by the American Society of Composers.

Carol Golemboski, assistant professor of photography, won first prize in the prestigious Center’s Project Competition (formerly known as the Santa Fe Center for Photography).

The Starz FilmCenter was named “Best of Denver” in the 2007 issue of *Westword* as “Best Movie Theatre—Programming.”

*Fall 2006 end-of-term enrollment data ‡Fiscal Year 2005–2006 data †2005 Survey of 2003–2004 graduates one year after graduation

College of Arts & Media

Dean
David Dynak

Associate Dean
Frank Jermance

Assistant Deans
Holly Allen
Clark Stickland

Contact

Advising Office
Arts Building, 177
1150 10th Street
303-556-2279
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www.cudenver.edu/CAM

Mailing Address
College of Arts & Media
Campus Box 162
P.O. Box 173364
Denver, CO 80217-3364

Application Deadlines

MEIS Department:
April 1

Other Departments:
Fall—July 22
Spring—December 1
Summer—May 3

At the College of Arts & Media we believe that the arts are essential for us to express ourselves, know ourselves and understand the world around us. You'll find a variety of students in our programs. Many are from the Denver area, while others come from around the country and around the world. Some are seeking their first degree, others a career change, many others personal growth and enrichment. Our programs emphasize artistic excellence, whether in visual art or multimedia studies, theatre, film or music. We incorporate real-world knowledge in the classroom and provide that same experience for our students. Convocations with arts professionals, lectures and workshops by visiting artists, internships with start-up entertainment companies and other challenging opportunities let students test the theories while learning about and understanding the dynamics of their chosen profession. We've also established cooperative relationships with civic groups, regional arts agencies, museums, galleries, performance venues, public schools and community colleges, professional societies and the business community.

COLLEGE GOALS

1. The College of Arts & Media aims to instill, inspire and model creativity founded upon the accumulated knowledge of human civilization.
2. The college serves as an intersection of art, technology and commerce.
3. The college seeks to develop the artist committed to social responsibility and the citizen who will advocate for the role of the artist in society.
4. The college strives to become a center of cross-cultural exchange and understanding.
5. The college works to enrich the quality of life in the larger community, to foster community partnerships and to encourage mentorship.
6. The college aims to integrate interdisciplinary modes of learning and creating.
7. The college adapts to meet future needs of diverse student constituencies.

PROGRAMS

DECLARING A MAJOR/MINOR

All undergraduate degrees offered through the College of Arts & Media are comprised of

120 semester hours. Students must choose a major. Minors are not required.

Some majors require students to select a degree plan (BA or BFA) and an emphasis (see list of programs in At A Glance: College of Arts & Media). Additional information regarding the differences between a BA and BFA degree are noted in this chapter of the catalog. Information about specific emphases is available on the departmental Web sites (see www.cudenver.edu/cam).

Students may choose to pursue a double degree, double major, double emphasis or minor which may result in the student needing more than 120 semester hours to graduate. Students should consult a CAM advisor for additional information.

MINORS

The departments within the college have developed a variety of minors. A minor is not required for graduation. Students interested in completing a minor should contact the individual departments regarding requirements. A minimum of 12 semester hours in residence is required for all minors. Within each departmental section of this chapter, we list the specific requirements for minors.

Students are not required to have a minor to graduate. Students may choose to declare a minor within CAM or through another college/school within the university. Students wishing to declare a minor in CAM should consult with a CAM advisor for details. This may require more than 120 semester hours to complete both a major and minor.

DOUBLE EMPHASES

Students may graduate with more than one emphasis within their degree and major by completing all requirements for each emphasis (e.g., BFA in fine arts with emphases in sculpture and photography). This may require more than 120 semester hours to complete the requirements.

DOUBLE MAJORS

Students may graduate with more than one major within CAM by completing all requirements for each major (e.g., a BA with a major in fine arts, art history emphasis AND a second major in theatre, film and television). This may require more than 120 semester hours to complete the requirements.

DOUBLE DEGREES

Students may earn two degrees in the College of Arts & Media (CAM; e.g., BFA in art and BA in theatre) or from two different schools or colleges within the university (e.g., BS in music and a BS in physics) simultaneously by fulfilling all requirements for both degrees. Students must complete a minimum of 150 semester hours applied toward the two degrees.

SECOND DEGREES

Students who have been awarded a bachelor's degree may be granted a second bachelor's degree provided that (a) all general requirements for that degree have been met; (b) the degree plan for the second bachelor's degree is different from the major for the first; and (c) the college and major department residence requirements are satisfied. A second degree from the college requires a minimum of 30 additional semester hours of credit.

SCHOLARSHIP OPPORTUNITIES

Students are encouraged to review scholarship opportunities provided by CAM and the university. Information about specific scholarships and how to apply is available on the CAM Web site (www.cudenver.edu/CAM/Advising) and through the university's Scholarship Resource Office (303-352-3608; www.cudenver.edu/Admissions/Scholarship+Resources/).

Facilities

MUSIC RECORDING CORE (ARTS BUILDING FACILITIES)

- five recording studios (including one in the King Center able to record from all performance areas) with analog, digital and hybrid technology. Consoles have been used to record the Beatles, U2 AC/DC, Pink Floyd and others.
- Pro Tools in every studio, plus a 22-station computer lab
- three sound reinforcement systems
- mastering studio
- audio forensic station

KING ACADEMIC AND PERFORMING ARTS CENTER

- a 520-seat concert hall large enough to accommodate a full symphony orchestra yet intimate enough for chamber performances
- the 350-seat Courtyard Theatre where seating rotates for three theatre configuration
- a 200-seat recital hall, a classic "shoebox hall" offering a warm, simple music space designed to encourage a direct relationship between performer and audience
- fully accessible, even the catwalks

FILM PRODUCTION FACILITIES AT LOWRY

Theatre, film and video production students have access to film/video production facilities at the Lowry campus, through a joint venture with the Community College of Aurora, known as the Colorado Film School.

- 20,000 square feet dedicated to filming sets and computer laboratories
- three computer labs with 80 Mac (G5, G4, G3), PC and Irix computers
- four production studios with sets and "black boxes"
- a large inventory of film (S16mm, 16mm) and video (Beta SP, DVcam, DV) cameras
- lighting equipment that was used for the production of *Titanic*
- audio production and audio postproduction equipment (including sound room with Pro Tools TDM 24 station)

VISUAL ARTS (ARTS BUILDING)

- photography labs with black-and-white, nonsilver, digital imaging and color capabilities
- sculpture lab with wood shop and bronze-casting facilities
- slide library with more than 70,000 slides and a growing digital image bank
- drawing and painting studios with 12-15 easels for small class sizes

DIGITAL PRODUCTION STUDIOS (8TH FLOOR, CU-DENVER BUILDING)

These new computer labs, recording studios and studio spaces provide state-of-the-art equipment and a place where the lines between artistic fields blend into interdisciplinary thought and practice.

- Digital Animation Center computer labs
- digital imaging labs
- large format, color printing
- surround sound and audio sweetening studios

Requirements for Admission to the College of Arts & Media

A student matriculating in the College of Arts & Media (CAM) must be admitted at three levels: (1) as a student of UCDHSC, (2) as a student in CAM and (3) as a student within a CAM major, degree and emphasis. Acceptance to majors, degrees and emphases within the College of Arts & Media is highly selective based upon a variety of factors, which may include:

- careful evaluation of secondary school records, which may include recommendations from guidance counselors, advisors, teachers and others
- scores on standardized tests
- creative review in the form of an audition, portfolio review or other

Formal acceptance into specific degree program may be contingent on successful academic and creative work, assessed following completion of foundation courses within the major.

OVERVIEW

- Students may enter the college as an undecided arts and media student or may indicate their intended area of study.
- Student may be accepted on a provisional basis for specific programs, with full acceptance pending satisfactory completion of foundation course work and successful review by departmental faculty.
- The application is based on two parts: academic and creative/artistic.
 1. Admissions evaluates the academic component.
 2. In addition, undergraduate programs at CAM may require an incoming artistic/creative assessment such as an audition, portfolio review or an entrance interview.
- Artistic/creative review is conducted by the appropriate department or program (see specific programs for details). Both the academic application and the artistic/creative review are evaluated as a whole to determine admission and must be completed before an admissions decision can be made. Creative material should be mailed directly to the specific department or program. No admissions decision will be made until the candidate's file is complete and the department has forwarded artistic/creative review results to the Office of Admissions.

What is the difference between a BA and BFA degree?

The College of Arts & Media offers bachelor of arts (BA) and bachelor of fine arts (BFA) degrees in the areas of fine arts and theatre, film and television. Students wishing to pursue a major in fine arts or theatre, film and television must choose between a BA and BFA. This handout explains the difference between a BA and BFA degree and is designed to assist students in selecting the best degree for their vocational goals. Please visit the departmental sections of this catalog for curricular information.

	Bachelor of Arts (BA)	Bachelor of Fine Arts (BFA)
Program Type	<i>Liberal Arts:</i> Students have opportunities to combine their artistic interests with other areas offered in the university such as science and writing. The course work completed in the arts gives an excellent technical, conceptual, creative and aesthetic foundation that, when combined with other academic disciplines in the university, helps students develop into well-rounded artists and scholars.	<i>Professional:</i> General education courses provide a well-rounded education, preparing with solid foundation. The major foundation courses provide the base from which students select an emphasis and complete rigorous and in-depth course work, providing students the opportunity to discover their own artistic voice and graduate with a greater level of artistic development.
General Requirements	120 total credits, of which 45 credits must be taken at the upper-division (3000/4000) level.	120 total credits, of which 45 credits must be taken at the upper-division (3000/4000) level.
General Education	34 credits of general education credits are required.	34 credits of general education credits are required; some courses may be specified by major.
Foreign Language	Through second year in high school or second semester at the college level with sufficient grades.	Through second year in high school or second semester at the college level with sufficient grades.
Major Credits	45-48 major credits required as specified by emphasis.	73 major credits required as specified by emphasis.
General Electives	General elective credits are required. Theatre, film and television students are required to complete 9 “other arts” credits as part of their general elective credits. See advising sheets for specific credit requirements.	None required.
Minor Requirement	Minors are not required for any program.	Minors are not required for any program.
Emphases	<p><i>Visual art majors</i> must choose an emphasis:</p> <ul style="list-style-type: none"> • Art History • Drawing • Painting • Photography • Sculpture <p><i>Theatre, film and television majors</i> do not select a specified emphasis.</p>	<p><i>Visual art majors</i> must choose an emphasis:</p> <ul style="list-style-type: none"> • 3-D Animation¹ • Drawing • Painting • Photography • Multimedia • Sculpture <p><i>Theatre, film and television majors</i> must choose an emphasis:</p> <ul style="list-style-type: none"> • Performance • Design • Prod., Dir. and Dev. • Writing/Directing² • Cinematography² • Postproduction²
Capstone Experience	A senior-level capstone experience pulls together acquired knowledge in projects and/or portfolios that exhibit their strengths and specialization, preparing them for the next phase of their academic and professional careers.	Students complete the same capstone experiences as noted in the BA with additional requirements: <ul style="list-style-type: none"> • <i>Visual Arts:</i> exhibit in the BFA Thesis Exhibit • <i>Theatre, Film and TV:</i> produce digital portfolio
Prepares Students	To pursue graduate-level degrees (MA and PhD) in academic and studio fields and to work in arts and non-arts related fields.	To pursue MFA and PhD degrees and to work as a professional artist, commercial artist and non-arts related fields.
Timeline	Degrees are designed to be completed in four years for students beginning as freshmen. Students may be able to complete the degree requirements in as few as two years depending on emphasis, transfer credits and summer school.	Degrees are designed to be completed in four years for students beginning as freshmen. Regardless of summer school or transfer credits, students should expect to complete courses over a three- to four-year period, depending on major and emphasis, due to course sequencing.

¹ Tuition for emphasis courses exceeds main campus tuition; contact CAMadvising@cudenver.edu for specifics.

² May require students to begin their studies at the Community College of Aurora. See the departmental section of this catalog for information.

- Some departments/emphases have sophomore proficiencies prior to students declaring specific emphases. Please read through this chapter of the catalog for additional information.

New Freshmen

New freshmen must meet the university entrance requirements as outlined in the Information for Undergraduate Students chapter of this catalog in addition to appropriate artistic reviews/assessments as outlined in this chapter of the catalog.

New Transfers

New transfers must meet the university entrance requirement as outlined in the Information for Undergraduate Students chapter of this catalog in addition to appropriate artistic and academic reviews/assessments as outlined in this chapter of the catalog.

ADMISSION TO THE MEIS DEPARTMENT

Acceptance into the UCDHSC Department of Music and Entertainment Industry Studies (MEIS) is on a competitive basis with specific entrance evaluation requirements. Admission to the music major is competitive for both freshmen and transfer students. All applicants will be placed in an enrollment pool, and admissions decisions will be based upon several factors which include an indexed composite score of cumulative GPA, Music Aptitude Exam score and an audition, (if applicable). Application materials must be received by the deadline—no late applications will be considered.

Prospective students should refer to the MEIS Web site for current requirements, deadlines and procedures: www.cudenver.edu/cam/meis.

Notes:

- Please be aware that neither the university nor CAM returns creative materials and will not assume any liability or responsibility for original materials submitted by an applicant that are lost or damaged while in its possession.
- Candidates are urged to complete and file their applications as soon as possible. Applicants will be notified promptly if additional information is required. No admission decision will be made without complete information.
- Courses reach maximum enrollment quickly; students are encouraged to apply early.

INTRA-UNIVERSITY TRANSFER

Students who want to transfer to the College of Arts & Media from another college or school within the university must formally apply to the College of Arts & Media and pass appropriate reviews/assessments as outlined in this section of the catalog. To be considered for admission, students must have a minimum 2.5 cumulative CU GPA.

TRANSFER OF MAJOR WITHIN THE COLLEGE OF ARTS & MEDIA

Undergraduate students who wish to transfer from one department to another within the college must currently be in good academic standing, pass appropriate reviews/assessments as outlined in this section of the catalog and notify the CAM advising office by submitting a change of major form.

ADDITIONAL PROGRAM-SPECIFIC ADMISSION REQUIREMENTS

Music Major Entrance and Sophomore Review Requirements

All entering freshmen and transfer students applying for admission to the BS in music must submit additional materials. Students wishing to pursue a performance-based emphasis (i.e., performance, music business or recording arts) must successfully complete a music audition at time of application to the university. Students applying for the music industry studies emphasis must complete an audition deferment form, which allows students to postpone their audition until completing foundation

course work in performance and musicianship. Audition information and the audition deferment form are available at www.cudenver.edu/cam/meis.

The BS in music with an emphasis in recording arts and MIS-music technology permits provisional program acceptance only, pending completion of sophomore-level review, including foundation course work, formal application and acceptance by departmental faculty. Students will not be allowed to take upper-division audio production-type courses unless they have been formally accepted into the emphasis/focus. Please visit www.cudenver.edu/cam/advising or contact us at CAMadvising@cudenver.edu for additional information.

Students who wish to pursue the BS in music with an emphasis in performance must pass a sophomore proficiency on their primary instrument prior to being able to declare the emphasis and beginning advanced applied music courses.

Theatre, Film and Television Major Entrance and Sophomore Review Requirements

All entering freshmen and transfer students planning to pursue a BA or BFA in theatre, film and television must review the program orientation and submit the last page (available at: www.cudenver.edu/cam/tfvp).

ACADEMIC ADVISING

Office of Advising and Student Services

Location: Arts Building, 177

Telephone: 303-556-2279

Fax: 303-556-2335

E-mail: CAMadvising@cudenver.edu

Web site: www.cudenver.edu/cam/advising

The College's Office of Advising and Student Services houses academic advisors for the college and CU-Denver Live, and serves as the main information center for CAM. The role of advisors is to assist students in tracking their academic progress, discuss remaining requirements and course sequencing and offer appropriate referrals to faculty and other university programs (e.g., Career Center). The office also coordinates student notifications (e.g., Dean's List, probation/suspension, scholarship opportunities) and college events (e.g., open house, commencement, graduation) and maintains advising-related materials. Academic advising is a service provided to students, and students are ultimately responsible for their academic progress.

Academic advising may be mandated or suggested prior to registration depending on the student's status. All new freshmen and transfer students are required to meet with an academic advisor prior to registering for their first semester of courses. Continuing students are encouraged to meet with an advisor annually and may be required to meet with an advisor prior to registration. Continuing students who have a registration block placed on their account by the advising office will be notified in advance (via e-mail as provided in the SMART system). Students can check for registration blocks from their advising office as well as other university offices (e.g., financial aid, bursar, admissions, etc.) by clicking on the "Reg Status" tab on the SMART system. Advising related information can be found at www.cudenver.edu/cam/advising.

New Freshmen

All new freshmen are required to attend new student orientation (NSO) where they will:

- take the Accuplacer exam (if required)
- learn about the university
- attend the CAM session about CAM policies and course registration

Information about NSO will be mailed to students and is available at www.cudenver.edu/NSO or by calling 303-352-3520. Students are encouraged to register for the earliest orientation they are able to attend.

Second Semester Freshmen and Undecided Students

Freshmen and undeclared arts and media majors are assigned to the Academic Success and Advising Center. ASAC introduces students to university and college policies and explains core and basic degree requirements. These students are required to meet with an advisor prior to registering each semester. Students are encouraged to bring a sample schedule to their advising appointment. An online planner is available through the *Web Schedule Planner* (www.cudenver.edu/registrar).

Academic Success and Advising Center
Location: North Classroom 1503
Telephone: 303-352-3520
E-mail: ASAC@cudenver.edu
Web site: www.cudenver.edu/asac

New Transfers

Transfer is a two-step process.

1. The Office of Admissions will evaluate the student's transfer transcript(s) and determine an initial set of courses to be transferred. Admissions will mail a copy of this transfer evaluation to the student.
2. CAM advisors and faculty determine how these courses fit into the student's degree plan, course by course. Students should contact a CAM advisor to complete this process by calling 303-556-2279. Students may be referred to the faculty for review of courses within the major.

If certain courses are not initially accepted by the Office of Admissions, the student and advisor can discuss the petition process for accepting these courses. If the student's petition is approved, the advising office will request that the Office of Admissions accept the course(s) in transfer.

Continuing Students

Students with a declared major who have completed at least 30 semester hours are assigned to the College's Office of Advising and Student Services. Please see top of the "Academic Advising" section for contact information and location.

Students are encouraged to meet with an advisor at least once per year. Students are encouraged to bring a sample schedule to their advising appointment. An online planner is available through the *Web Schedule Planner* (www.cudenver.edu/registrar).

Periodically, students may have a block placed on their registration by the Office of Advising and Student Services, which requires students to meet with a CAM advisor prior to registering. The advising office will notify students via e-mail (as provided in the SMART system) if a registration block has been placed by the advising office. As other offices may also place a block on a student's registration, students are encouraged to check their "Reg Status" on the SMART system and resolve any registration blocks through the appropriate office prior to their registration date/time.

Students approaching their junior and senior years are encouraged to meet with a faculty mentor in their area of study to discuss internships, career/employment opportunities, graduate school, professional organizations and other postgraduation information. Faculty contact information is available on the CAM Web site: www.cudenver.edu/cam. Students also may contact the Office of Advising and Student Services for suggested faculty referrals by interest.

Academic Policies

Students are referred to the Registration and Records and the University Policies chapters of this catalog for academic policies that apply to all undergraduate students at the university. The policies that follow apply specifically to the College of Arts & Media.

ACADEMIC POLICIES COMMITTEE

The CAM Academic Policies Committee is the appellate committee

for all student-related academic petitions, issues and appeals. The committee is responsible for the evaluation and interpretation of the approved academic policies of the college. Questions about interpretation of policies may be directed to the associate dean. Procedures and petition guidelines are available at www.cudenver.edu/cam/advising/forms or from the Office of Advising and Student Services.

DEAN'S LIST

Following each semester, the college honors students who have earned a place on the CAM Dean's List. This honor is transcribed following each semester the student earns placement on the Dean's List.

To earn a place on the list, a student must:

1. Be registered for at least 9 CAM semester hours (for fall and spring semesters; 6 CAM semester hours in summer), not including internship, independent study or extended studies
2. Achieve a 3.75 GPA in all CU hours taken during the semester

GRADUATING WITH ACADEMIC HONORS

A student can be awarded honors based upon cumulative GPA at the time of graduation. To be eligible for honors, a student must have completed a minimum of 45 semester hours at the University of Colorado (on any CU campus). A cumulative CU GPA of 3.65-3.749 will receive *cum laude*, 3.75-3.849 receive *magna cum laude* and 3.85 and above *summa cum laude* honors designations on degrees.

ACADEMIC PROBATION AND SCHOLASTIC SUSPENSION

Students in the college are expected to maintain appropriate progress in their degree program, as defined by being in "good academic standing." Good academic standing requires minimally a cumulative GPA of 2.0 on all University of Colorado course work. Grades earned in another college or school within the University of Colorado system are used in determining the student's scholastic standing and progress toward the degree. Grades earned outside the CU system are not used in calculating the GPA at the University of Colorado.

Academic Probation

Academic probation is a warning to students that they are not progressing toward completion of their degree in a satisfactory manner. Students are placed on academic probation when their cumulative CU GPA falls below a 2.0 at the end of any academic term. Students are informed in writing of academic probation. Academic probation requires that the student achieve a minimum 2.25 semester GPA each subsequent term until their cumulative CU GPA is at least a 2.0. Once a student has raised the cumulative CU GPA to at least a 2.0, he or she will be removed from academic probation and be considered in good academic standing. There is no restriction on the length of time students can remain on probation status; however, students must achieve a minimum 2.0 cumulative CU GPA to meet graduation requirements.

Academic Suspension

Students on academic probation who do not meet the 2.25 minimum semester GPA in the subsequent semester(s) will be suspended from the college. Students are informed in writing of academic suspension. Students placed on academic suspension are not allowed to register for courses at the university (see the following paragraphs for details). Should a student be placed on suspension while registered for the next semester, he or she will be dropped from courses by the college. A student's suspension status is permanently indicated on the official University of Colorado transcript.

First Suspension

Students who fail to meet the conditions of academic probation are placed on academic suspension for one calendar year. Students must petition the Academic Policies Committee for re-admission and meet

and document at least one of the following criteria:

1. Attend another regionally accredited college/university and raise their cumulative GPA (CU GPA + GPA from the other institution) to a minimum of 2.0. Students must reapply to the university and petition the Academic Policies Committee for reacceptance.
2. After one year, reapply to the university and petition the Academic Policies Committee demonstrating how they will achieve and maintain good academic standing (including a semester GPA of at least 2.25 and a cumulative GPA of at least a 2.0).

Students granted re-admission, whose CU GPA is below a 2.0, will be readmitted on probation. These students must meet the condition of academic probation each and every semester until their cumulative CU GPA is at least a 2.0.

Second Suspension

Students who are reaccepted after first suspension and fail to meet the conditions of academic probation for a second time are placed on second suspension for an indefinite period of time. Students on second suspension may be readmitted to the college only by petition to the CAM Academic Policies Committee. Students will not be considered for readmission unless they have demonstrated significant improvement in academic performance at the college/university level.

INDEPENDENT STUDY

The College of Arts & Media has very specific policies concerning eligibility and registration for independent studies. Students should consult the CAM advisor or their faculty advisor for specific eligibility criteria and registration procedures. The amount of credit to be given for an independent study project shall be determined at the time of registration. The college and academic programs have specific policies on the use of independent study credits that may apply to the bachelor's degree. A maximum of 12 semester hours of independent study may apply toward the bachelor's degree and cannot be used to replace a required course. Please see www.cudenver.edu/cam/advising under "Forms" for additional information and appropriate paperwork. Independent study must be added by the add/drop date as noted on the academic calendar.

INTERNSHIPS

As internships are an important educational and professional experience, students are encouraged to explore the possibility of an internship. A maximum of 3 hours of internship credit per semester and 9 hours overall is allowed. Internship credit may not be awarded retroactively nor after the student begins internship hours. Students should consult with an academic advisor as to the placement of internship credit within their degree plan.

The college requires that students have the following to qualify for an internship:

- completed 60 semester hours
- attained junior standing in their program
- have a minimum of a 2.75 cumulative CU GPA

Certain academic programs may have additional eligibility requirements for an internship. Students seeking an internship should consult with their academic advisor, the Career Center and their faculty mentor. Additional information is available at www.cudenver.edu/cam/advising/. Internships must be added by the add/drop date as noted on the academic calendar. Occasionally opportunities arise mid-semester; students must petition the associate dean for approval to add an internship after the add/drop deadline.

INCOMPLETE GRADE POLICIES

The College of Arts & Media has very strict guidelines on granting incomplete grades. They include but are not limited to the following:

- reason for incomplete must be a verified, compelling and

extraordinary circumstance beyond student's control which made completion of the course impossible

- the majority of course requirements (75 percent) must have been completed with a passing grade to be eligible for incomplete ("C"/2.0 for major/minor courses and select courses in the core; "D-"/0.7 for most core and general elective courses)
- CAM course completion agreement must be signed by both the instructor and student, with final approval by the associate dean
- all course work must be completed within one calendar year of the original course: NO EXCEPTIONS
- requests for a retroactive change from a letter grade to an incomplete will not be considered

The student is responsible for requesting an incomplete grade and submitting all of the appropriate paperwork and obtaining approvals. Please visit www.cudenver.edu/cam/advising for additional information and appropriate paperwork.

LEAVE OF ABSENCE/RETURNING STUDENTS

Students who have not attended the university for more than one calendar year should refer to the "Re-admission Requirements for Former Students" within the Information for Undergraduate Students chapter of this catalog. Due to the dynamic nature of the CAM program, students who have not attended in more than five years must meet all of the above criteria and begin their programs based on the current curriculum. For additional information about your specific situation, please consult a CAM advisor.

CURRICULAR CHANGES AND COURSE SUBSTITUTIONS

Students are required to complete the core and major requirements as outlined when they declared their degree, major and emphasis and were accepted into the program. If the program revises curriculum, students have the option of remaining with their original program. Occasionally, there are times when courses in the original program may no longer be taught or may not be available for a set duration. In this case, the department will approve course substitutions.

Course substitutions in the major must be approved by the designated faculty member in the specific program area, the department chair and possibly by the associate dean. Course substitutions in the core must be approved by the Academic Policies Committee through the petition process (see www.cudenver.edu/cam/advising for additional information).

Students who switch majors (e.g., BS in music to BA in theatre, film and television) are required to complete the curriculum in place when they declare their new degree or major. Students who switch degrees within the same major (e.g., BFA in fine arts to BA in fine arts) will be required to complete the curriculum that is in place when they declare their new degree. Students who switch emphases within a degree and major use the same curriculum that was in place when they were accepted into the major.

GRADUATION APPLICATIONS

Students expecting to graduate are required to fill out the online Intent to Graduate application (www.cudenver.edu/Registrar) by the published deadlines. Late applications will not be accepted, and the student will need to apply for the following semester.

Applications will be accepted from the first day of registration for the semester in which the student plans to graduate through the drop/add deadline of the semester. Applications are due by 5 p.m. on the drop/add deadline of the semester in which the student is applying to graduate as noted in the academic calendar (www.cudenver.edu/registrar). Students are required to meet with the CAM advisor the semester before they intend to graduate to review graduation procedures and updated degree plan for review by the department and college.

Students who have not attended the university in more than one calendar year must reapply in addition to applying for graduation. Reacceptance to the university must be processed by the application for graduation deadline. It is the student's responsibility to ensure that they

reapply with enough time for the application process to be finalized by the aforementioned deadline.

GRADUATION REQUIREMENTS

Students must complete all core and major requirements in addition to degree and department requirements. This section lists the general requirements for graduation and the core requirements in addition to information about applying to graduate. Please refer to the specific department and emphasis sections for additional requirements.

- minimum of 120 semester hours passed
- fulfillment of major degree requirements
- fulfillment of both intellectual competencies and knowledge areas in the core (general education)
- for BA and BFA degrees: A minimum of 45 semester hours of upper-division course work (3000/4000 course level)
- a cumulative GPA of 2.0 in all CU course work
- a minimum of “C” (2.0) in all course work in the major
- a minimum of 30 semester hours of resident credit

CORE REQUIREMENTS (GENERAL EDUCATION)

UCDHSC requires all undergraduate students to complete a battery of courses from the core curriculum. Students admitted to the College of Arts & Media after fall 2006 must adhere to these requirements. See the CAM Core Curriculum Requirements chart in this chapter.

General Requirements

- Minimum of 120 semester hours passed.
- Fulfillment of major degree requirements.
- Fulfillment of both intellectual competencies and knowledge areas in the core.
- For BA and BFA degrees: A minimum of 45 semester hours of upper-division course work (3000/4000 level).
- A cumulative GPA of 2.0 in all CU course work.
- A minimum of “C” (2.0) in all course work in the major.
- A minimum of 30 semester hours of resident credit.

More information about the core curriculum is available in the Information for Undergraduate Students chapter of this catalog.

MAJOR REQUIREMENTS

In addition to completing the college core requirements, students must declare a major by the time they have accumulated 60 credit hours and fulfill all requirements of the major department. Departments require that all course work in the major be completed with a grade of “C” (2.0) or above. The department is responsible for determining when a student has successfully completed the major requirements and for certifying the completion to the dean of the college.

DEPARTMENT OF THEATRE, FILM AND VIDEO PRODUCTION

Chair: Daniel Koetting
Office: Arts Building, 177
Telephone: 303-556-2279
Fax: 303-556-2335

Faculty

Professor: Mark Alan Heckler, MFA, Catholic University
Associate Professors: Laura Cuetara, MFA, Boston University; Kent Homchick, MFA, Carnegie-Mellon University; Dan Koetting, MFA, Yale University; Kathryn Maes, ADVS, Central School of Speech and Drama, England

Assistant Professors: David Liban, MA, Brooklyn College; Hans Rosenwinkle, MFA, American Film Institute; Craig Volk, MFA, Yale School of Drama

Senior Instructors: Carol Bloom, MH, UCDHSC; Nate Thompson, MFA, North Carolina School of the Arts
Instructors: Geoffery Chadwick, MFA, University of Southern California; Mollie Mook, MFA, University of Iowa; Janetta Turner, MFA, New York University

Director of Colorado Film School and Film Program: Frederic Lahey, MFA, Columbia University Film School

Department Overview

The Department of Theatre, Film and Video Production prepares students for careers in the theatre as well as in the motion picture, television and video industries, within the context of a strategically designed liberal arts education. The department offers courses in the disciplines of Theatre (THTR) and Film/Video (FILM) through an innovative curriculum built on a shared foundation of an integrative course sequence.

Students also have the opportunity to work directly with faculty, guest artists and fellow students in the creation of live and recorded performance works through participation in the department’s production program of plays, films, television and video projects and through corequisite laboratory experiences. Denver area theatre productions, artist residencies, film screenings, lectures, concerts, exhibits and other cultural resources of the metropolitan area are regularly utilized throughout each student’s course of study.

Students wishing to earn degrees in theatre, film and television may choose from three four-year program options:

1. Bachelor of Fine Arts in Theatre, Film and Television with Emphases in:

Design
 Direction and Production Development
 Performance
 Writing/Directing*

The BFA is a good choice for students with specific interests in theatre, film and television who prefer intensive and structured study in their major area, who are seeking professional employment in the field or who are considering graduate school in the field.

Entering theatre, film and television students, regardless of emphasis, begin their studies in a foundation sequence focused on the allied components of live and recorded performance. Balancing a foundation of theory with experiential learning, this course work weaves together strands of acting, directing, dramatic and cinematic literature, camera equipment and techniques, and production design.

** This emphasis has a stronger concentration on film and television.*

2. Bachelor of Fine Arts in Theatre, Film and Television: 2+2 Program with Emphases in:

Cinematography
 Postproduction (editing and special effects)
 Writing and Directing (for film and television)

The Colorado Film School is a unique partnership between UCDHSC and the Community College of Aurora (CCA), allowing students to begin their studies at CCA and then transfer to UCDHSC to complete their studies. This program is nicknamed the “2+2” program, denoting the typical number of years students spend at each institution. Students interested in postproduction or cinematography must begin their studies at CCA. See the section titled “2+2 programs” for additional information.

3. Bachelor of Arts in Theatre, Film and Television

The BA is a good choice for students interested in multiple aspects of

CAM Core Curriculum Requirements

Intellectual Competencies

Must earn a grade of “C” (2.0) or higher.

English Writing (6 total semester hours)

ENGL 1020. Core Composition I	3
ENGL 2030. Core Composition II	3

Mathematics (3 total semester hours)

Choose one:

MATH 1010. Math for the Liberal Arts	3
MATH 1070. Algebra for Social Science and Business*	3
MATH 1080. Polynomial Calculus	3
MATH 1110. College Algebra*	3
MATH 1120. College Trigonometry	3
MATH 1130. Precalculus	4
MATH 1401. Calculus I*	4
MATH 2411. Calculus II	4
MATH 2421. Calculus III	4
MATH 2830. Introductory Statistics	3

Consult your advisor and SMART for placement and special registration information.

Foreign Language (0-10 semester hours)

Second semester proficiency, demonstrated by one of the following:

- second semester college-level course with minimum grade of “C-” (1.7)
- satisfy proficiency test
- completion of a second year (Level II) high school course with a minimum grade of “C-” (1.7)

BS students in music, except vocal students, are exempt from this requirement.

Knowledge Areas

Must have a passing grade. May not use independent study, cooperative education, internships, etc. to satisfy.

Biological and Physical Sciences (7 total semester hours)

Choose two courses. One must be a 4-semester-hour course with a laboratory. The nonlaboratory course can be selected from the MATH list.

ANTH 1303. Introduction to Biological Anthropology	4
BIOL 1550. Basic Biology I/Laboratory	3/1
BIOL 1560. Basic Biology II/Laboratory	3/1
BIOL 2051/2071. General Biology I	4
BIOL 2061/2081. General Biology II	4
CHEM 1474. Core Chemistry	4
CHEM 2031/2038. General Chemistry I/Laboratory	3/1
CHEM 2061/2068. General Chemistry II/Laboratory	3/1
ENVS 1042. Introduction to Environmental Science	4
GEOG 1202. Introduction to Physical Geography	3
GEOL 1072. Physical Geology: Surface Processes	4
GEOL 1082. Physical Geology: Internal Processes	4
PHYS 1000. Introduction to Physics	4
PHYS 1052. General Astronomy I	4
PHYS 2010/2030. General Physics I/Laboratory	4/1
PHYS 2020/2040. General Physics II/Laboratory	4/1
PSY 2220. Biological Basis of Behavior	3

Music students must also take PHYS 3620. Physics of Sound/Music

Behavioral Sciences (3 total semester hours)

Choose one:

ANTH 1302. Introduction to Archaeology	4
ANTH 2102. Cultural and Human Experience	3
CMMU 1011. Fundamentals of Communication	3
CMMU 1021. Fundamentals of Mass Communication	3
PSY 1000. Introduction to Psychology I	3
PSY 1005. Introduction to Psychology II	3

Social Sciences: (3 semester hours)

Choose one:

ECON 2012. Principles of Economics: Macroeconomics	3
ECON 2022. Principles of Economics: Microeconomics	3
ENVS 1342. Introduction to Environment and Society	3
ETST 2000. Introduction to Ethnic Studies	3

GEOG 1102. World Regional Geography	3
GEOG 1602. Introduction to Urban Studies	3
GEOG 2202. Natural Hazards	3
HBSC 2001. Introduction to Community and Population Health Science	3
P SC 1001. Introduction to Political Science: Quest for Freedom and Justice	3
P SC 1101. American Political System	3
SOC 1001. Introduction to Sociology	3
SOC 2462. Introduction to Social Psychology	3

Humanities (6 total semester hours)

Choose two:

CNST 1000. China and the Chinese	3
ENGL 1601. Telling Tales: Narrative Art in Literature/Film	3
ENGL 2600. Great Works in British and American Literature	3
ETST 2155. African American History	3
FR 1000. Introduction to Cultures of the French Speaking World	3
GER 1000. Germany and the Germans	3
HIST 1361. U.S. History to 1876	3
HIST 1362. U.S. History since 1876	3
HIST 1381. Getting Here: Paths to the Present I	3
HIST 1382. Getting Here: Paths to the Present II	3
PHIL 1012. Introduction to Philosophy: Relationship of the Individual to the World	3
PHIL 1020. Introduction to Ethics and Society: the Person and the Community	3
PHIL 2441. Logic and Language	3
RLST 1610. Introduction to Religious Studies	3
RLST 2660. World Religions	3
SPAN 1000. Introduction to Cultures of the Spanish Speaking	3

Arts (3 total semester hours)

Select one 3-semester-hour art course in a department outside of your major; consult advisor for more information.

Music students must also take MUS 2470. Music Applications on the Computer (must be completed with a “C”/2.0 or better).

BFA in Fine Arts students must also take FA 3600. Art History Survey III: Non-Western Art (must be completed with a “C”/2.0 or better).

Cultural Diversity (3 total semester hours)

Choose one:

ANTH 3142. Cultural Diversity in Modern World	3
CMMU 3271. Communication and Diversity	3
ECON 3100. Economics of Race and Gender	3
ENGR 3400. Technology and Culture	3
ETST 3704. Culture, Racism and Alienation	3
ETST 3794. Ethnic Diversity in American Literature	3
HIST 3345. Immigration and Ethnicity in U.S. History	3
MGMT 4100. Managing Cultural Diversity	3
PHIL 3500. Ideology and Culture: Racism/Sexism	3
P SC 3034. Political Movement, Race and Gender	3
P SC 3035. Race, Gender, Law and Public Policy	3
PSY 4485. Psychology of Cultural Diversity	3
RLST 4000. Religion and Cultural Diversity	3
SOC 3020. Race and Ethnicity in the U.S.	3
THTR 3611. Drama of Diversity	3

Music students must also take PMUS 3110. Social and Political Implications of American Music (completed with a “C”/2.0 or better).

International Perspectives (3 total semester hours)

A semester abroad may in a country where the language is not the student’s native language may fulfill this requirement. Preapproval is required.

Choose one:

ENGR 3600. International Dimensions of Culture and Technology	3
HIST 3899. Encounters in World History	3
P SC 3022. Introduction to Comparative Politics	3
P SC 3042. Introduction to International Relations	3

theatre, film and television as well as for students who are transferring with advanced standing who prefer to have fewer required credits in their major area. While the BA degree has no specific emphasis area, students may design their course of study in focused groupings, such as design, film or performance. Students can also elect to choose more general curriculum by structuring their major area electives from a variety of areas of the discipline.

Degree Requirements

Several significant changes are planned for the theatre, film and television curricula for the 2007-2008 academic year, so it could not be listed in this catalog. Please consult the Department of Theatre, Film and Video Production's Web site (www.cudenver.edu/cam/tfvp) for current curriculum information and requirements.

Students may only declare the bachelor of fine arts (BFA) by obtaining permission from the department chair. Declaring the BFA may also require passing a rising junior portfolio review.

DEPARTMENT OF MUSIC AND ENTERTAINMENT INDUSTRY STUDIES

Chair: Richard Sanders
Office: Arts Building, 288
Telephone: 303-556-2279
Fax: 303-556-2335

Faculty

Professors: Zoe Erisman, MFA, University of Hawaii; Richard Sanders, MSEE, University of Colorado

Associate Professors: William Clark, MM, Northwestern University; Frank J. Jermance, MBA, University of Miami; Stan Soocher, JD, New York Law School; Gregory Walker, DMA, University of Colorado

Assistant Professors: Judith Coe, DMA, University of Colorado; John Fishell, MM, James Madison University; Leslie Gaston, MS, UCDHSC; Storm Gloor, MBA, West Texas A&M University; Sam McGuire, MS, UCDHSC

Senior Instructors: E.J. Choe, ABD, Indiana University; Doug Krause, MA University of Denver; Paul Musso, MM, University of Denver

Instructors: Lorne Bregitzer, MS, UCDHSC; Peter Ellingson, MM, Arizona State University; Erin Hackel, PhD, University of Colorado; Karin Hauger, PhD, Virginia Tech; Shawn McNary, MS, UCDHSC; Andrew Morell; Tom Van Schoick, MM, University of Northern Colorado; Pamela Weng, MA, UCDHSC

Undergraduate Program

BACHELOR OF SCIENCE IN MUSIC

The music program at the University of Colorado at Denver and Health Sciences Center's downtown Denver campus is intended for students seeking preparation for professional careers in music related to commercial performance, recording, music business and the entertainment industries. The four-year music program is accredited by the National Association of Schools of Music. There are four emphasis areas available to students: recording arts, music business, performance and music industry studies.

The specialized curricula offered by the program lead graduates to local, regional and national positions in audio research, record and production companies, arts administration and audio engineering as well as graduate studies at leading universities and conservatories. In addition, many graduates establish careers as owners of booking agencies, publishing companies, management firms and recording studios.

Please note: Acceptance into the UCDHSC Department of Music is on a competitive basis with specific entrance evaluation requirements. Admission to the music major is competitive for both freshmen and transfer students.

All applicants will be placed in an "enrollment pool" and admission decisions will be based upon several factors, which include an indexed composite score of GPA, Music Aptitude Exam scores and an audition, (if applicable). Application materials must be received by the deadline—no late applications will be considered.

Prospective students should refer to the MEIS Web site for current entrance requirements, deadlines and procedures: www.cudenver.edu/cam/meis.

All music applicants, except those entering the music industry studies program, must pass an entrance audition on their primary instrument before being accepted into the College of Arts & Media and the music department. Call 303-556-2279 for information on scheduling an audition.

Students entering the music industry studies program must submit an audition deferment form (available at [http://cam.cudenver.edu/advising/forms/Audition Deferment.pdf](http://cam.cudenver.edu/advising/forms/Audition%20Deferment.pdf)).

All students in the music department are required to abide by the policies and procedures outlined in the *MEIS Student Handbook* (available at www.cudenver.edu/cam/meis).

The first three emphasis areas are performance-based degrees, requiring an entrance audition on a primary instrument. These students will be expected to demonstrate a high level of musicianship as part of their curricular requirements. All three have an identical 51-credit foundation requirement in musicianship (see "Degree Requirements") and a separate 22-credit emphasis area.

RECORDING ARTS

This program studies contemporary analog and digital technology as it is used in studio recording, sound reinforcement and electronic music. While mastering the high tech, students also study the artistic applications of technology to recording, reinforcement, composition and performance.

Due to the immense popularity of the recording arts program and the unequal facility space, the recording arts emphasis is a competitive emphasis. Students will be required to apply to the department (known as "applying to the tech focus") to be eligible to take the intermediate- and advanced-level recording courses. This application includes completion of a series of music courses, transcript review, exam, cumulative GPA and possibly an interview or portfolio submission.

MUSIC BUSINESS

This program prepares musicians for careers in such fields as artist management, music publishing, concert promotion, record production, venue management, label promotion, distribution, entertainment law and the development of skills relative to the rapidly expanding telecommunications industry.

PERFORMANCE

Students gain performance skills in classical, jazz, commercial and experimental music styles. The program includes specialized courses in small performance ensembles, applied study, contemporary improv and analysis, culminating in the presentation of a junior and senior recital. Students will be required to pass a sophomore proficiency around the end of the sophomore year to progress into the advanced performance and musicianship courses.

MUSIC INDUSTRY STUDIES

- This non-performance-based degree requires a placement audition and passing a basic musician proficiency.
- This program is designed for students who may or may not be practicing musicians, but who intend to work behind the scenes after graduation, whether on the tech side, the business side or both.
- Music industry studies does require credits in musicianship and performance as part of the curriculum.

Primary Differences Between Recording Arts/Music Business and MIS/Tech or MIS/Business Focus

RECORDING ARTS/MUSIC BUSINESS:

- Recording arts and music business are performance-based degrees, meaning they require an entrance audition and a focused level of musicianship and performance as part of the curriculum.
- Recording arts and music business focuses are designed for students who intend to be practicing musicians after graduation, with a very strong knowledge of the tech or business side of the industry.
- Recording arts and music business students are required to complete more musicianship and performance-area credits than MIS/tech or MIS/business students. They will not be required to complete as many tech- or business-based electives as MIS/tech or MIS/business students.

Students are encouraged to consult a faculty member or CAM advisor to talk about the differences in curriculum to determine which major is best suited to them.

MUSIC INDUSTRY STUDIES/TECH AND MIS/BUSINESS

- MIS/tech and MIS/business focuses are non-performance degrees and therefore do not require an entrance audition, but a placement audition will be required.
- MIS/tech and MIS/business focuses are designed for students who may or may not be musicians when they enter, but who don't intend to be practicing musicians after graduation. Rather, they intend to focus solely on the tech or business side. These students are more interested in working behind the scenes.
- MIS/tech and MIS/business students will not be required to complete as many musicianship and performance-area credits as recording arts or music business students. They will be required to complete more tech- or business-based electives than recording arts or music business students.

- All MIS students, regardless of emphasis or previous musical experience, will be required to complete the musicianship and performance requirements. For students with no musical experience, these requirements will begin at the introductory level.
- For students interested in pursuing MIS/tech focus, this emphasis is competitive*, due to the immense popularity of the MIS/tech program and the unequal facility space. Students will be required to apply to the department (known as “applying to the tech emphasis”) to be eligible to take the intermediate and advanced level recording courses. This application includes completion of a series of music courses, an essay, exam, cumulative GPA and possibly an interview or portfolio submission.

COMPETITIVE EMPHASIS

Recording arts and/or MIS/tech students entering the College of Arts & Media as of the 2005-06 academic year will be required to complete or be completing the following courses before applying to the tech focus:

- PMUS 1100. Theory I
- PMUS 1100. Ear Training and Sight Singing I
- PMUS 1023. Piano 1 and 2 (Piano placement is available)
- PMUS 3830/3831 History and Literature of Music I or II
- MUS 2700. Music Business I
- MUS 2470. Music Applications on the Computer
- MUS 2540. Audio Production I
- MUS 2560. Audio Production II
- MUS 2719. Music Business II

These courses also satisfy the requirements for the music industry studies minor. Students who have completed the above named courses, but who are denied acceptance to the recording arts or MIS/tech emphasis, will automatically be awarded the MIS minor.

**Please note that satisfactory completion of the above named courses will not automatically guarantee a student's acceptance into the recording arts or MIS/tech focus.*

Students interested in the tech focus will need to submit an application form, and this application will include the above named courses, unofficial transcripts from all previous institutions attended, as well as an exam, cumulative GPA and possibly an interview or portfolio submission. Complete information on applying to the tech focus is available online: www.cudenver.edu/cam/MEIS/techapplication.

Graduate Program

MASTER OF SCIENCE IN RECORDING ARTS (MSRA)

Program Overview

Recording arts is a field that deals with all aspects of recorded music and sound including mixing, mastering, sequencing, calibration and reinforcement. Our program refines students' skills in sound recording, aesthetics, multitrack recording, digital signal processing, automated mixing, synchronization, stereo imaging and monitoring.

In addition, our program recognizes and includes:

Study in the rapidly growing field of audio forensics, which is audio for the legal field. The program includes study in tape authentication, audio enhancement, voice prints, analysis and witness testimony.

The need for pedagogy degrees. Pedagogy is synonymous with teaching, and this program includes a survey of available resources for audio education. We offer an interdisciplinary approach by including physics, acoustics, engineering, music, broadcast, medicine, psychology, multimedia, theatre and film/video. The program emphasizes design and development of new methods and materials.

UCDHSC's master of science in recording arts (MSRA) has the only pedagogy track in the nation, as well as the only college-level course in audio forensics. This graduate degree is designed to:

- prepare students for careers in audio application for the fields of mass communications, education, arts and the entertainment industries
 - help professionals advance their careers
 - help prepare the music educators of the future
- Students may choose between a thesis (research) or nonthesis (portfolio) option.

Graduate courses constituting the core of this study will advance the artistic, pedagogical, technical and problem-solving abilities of the enrolled students. Elective courses will allow each student to develop an additional skills and knowledge in related areas including film, broadcasting, education, music business and the performing arts.

We encourage students from allied disciplines (music, physics, engineering, etc.) to apply. Students are not required to have their bachelor's in recording arts—the student's bachelor's degree can be from any discipline. They can qualify for the MSRA by having the equivalent level preparation (e.g. work experience). Candidates without sufficient experience/training in recording arts may be required to take preparatory courses at the undergraduate level.

1. Graduate Admissions Application—Parts I and II

Students may request an application packet by calling 303-556-2279.

Please be sure to provide your mailing address.

Students are required to complete the Application for Graduate Admissions form. This form is available on line at www.cudenver.edu/Admissions/Graduate+Admissions/.

Program of Study—on the application, the code for all master of science in recording arts candidates is GR-RAMS. The degree is MS.

International students must complete additional paperwork in addition to the components below. International student applications must be received six months prior to the term for which the student is applying. Contact the Office of International Education for specific application forms, www.internationaladmissions.cudenver.edu.

2. In-State Tuition Classification Application

Students who feel they may qualify for Colorado in-state tuition (i.e.: residency) should fill out the In-State Tuition form. *The Office of Admissions will make the determination of residency.* For information on residency criteria contact the Office of Admissions, 303-556-2704.

3. Entrance Examinations(s)

Official GRE scores (www.gre.com)—All applicants to the MSRA degree program must submit scores from the GRE. The “General Test” offered by Educational Testing Service will assist in evaluating applicants to the degree program. It evaluates verbal, quantitative and analytical writing skills for the candidates. This examination is offered internationally by Educational Testing Service on a continuous schedule. The minimum required score for entrance in the program is the 50th percentile, although each student’s score will be evaluated as part of complete application process. This examination is not intended to exclude any applicant from the degree program, but rather to assist in academic advising.

Scores must be received by the application deadline; therefore, students should plan accordingly when scheduling their testing dates. Late GRE scores are not accepted, and these applications will not be reviewed.

Test of English as a Foreign Language (TOEFL) (www.etsorg/toefl)—This examination is required for international students for whom English is not their primary language. These students are required to have a minimum TOEFL score of 500 (173 electronic).

4. Transcripts

The most recent *official* academic transcripts must be sent from the registrar of all previous institutions. Official transcripts should be mailed to:

MSRA Graduate Admissions Committee
Campus Box 162, P.O. Box 173364
Denver, CO 80217-3364

5. Letters of Recommendation

Three (3) letters of recommendation are required from responsible persons who can attest to your academic and professional accomplishment. The names those who are providing your letters of recommended should be included in your Part II of the application.

Letters of recommendation must be accompanied by the letter of recommendation form, available on the MSRA Web site (<http://thunder1.cudenver.edu/musictech/masterdegree/>).

Incomplete letters of recommendation will not be considered, and the application will not be reviewed.

6. Application Essay

This essay should summarize the educational and professional history of the applicant relative to a career in the audio/music industry, and should include:

- complete name and contact information
- educational background
- career objective
- anticipated dates of attendance

The essay must be typed, double-spaced and in English; the preferred length is three to five pages.

7. Resume

Students are required to submit a one- to two-page typed resume,

including educational background, work experience and relevant skills. Students are welcome to include any published works, exhibitions, performances, awards or other relevant achievements. The resume should be chronological, beginning with your educational background and progressing to your employment history. Please refrain from functional resumes or those that simply summarize qualities or competencies. This professional vita complements the essay you will author by providing a chronology of all your educational and work experiences and of scholarly/creative work.

8. Portfolio

All applicants will submit a portfolio of recordings that represent their best accomplishments in audio production. Presentation, breadth of experience, technical and artistic quality will be evaluated.

The required submission format is Compact Disc (CD) or Digital Video Disc (DVD), with an annotated discography (index) to the portfolio material and a clear and accurate labeling of all material. Discography *must* include the applicant’s function on each track (e.g. artist/performer, engineer, producer, arranger, etc.).

A DVD portfolio may be submitted if the student’s primary experience is in visual media (film, TV, etc.). DVD portfolios must also contain an annotated discography.

Helpful tips for a good portfolio are available on the MSRA Web site. Portfolio submissions that do not follow these guidelines will not be evaluated, and the application will not be processed.

9. Application Fee

- \$50 nonrefundable for domestic (within the USA) applicants
- \$75 nonrefundable for international applicants

The application fee must be paid with a check, money order or by credit card. Cash will not be accepted. The fee must be paid in U.S. dollars.

Applications that do not include all of the requirements listed above or that include partial components are considered incomplete and will not be reviewed.

Curriculum

The master of science in recording arts (MSRA) comprises 34 semester hours of credit: 15 hours are required courses, 15 hours are electives and 4 hours are thesis/portfolio. Courses must be completed with a “B” (3.0) or higher to count toward degree progress.

Required Courses	<i>Semester Hours</i>
MSRA 5000. Introduction to Graduate Studies	3
MSRA 5590. Graduate Audio Production	4
MSRA 6510. Audio Studies Pedagogy	4
MSRA 5580. Graduate Audio Seminar	4
MSRA 6950/6951. MSRA Thesis/Portfolio	4
Total	19
Electives	
MSRA 5500. Topics in Professional Audio	4
MSRA 5505. Audio Sweetening	4
MSRA 5575. Graduate Surround Sound	4
MSRA 5730. Music Production	3
MSRA 6530. Audio Forensics	4
MSRA 6550. Sound Design	4
Total	15
Total MSRA credits	34

Students may take courses not listed here, per approval of the faculty or academic advisor. Below is the suggested semester-by-semester sequencing of courses and semester hours.

<i>Fall</i>	
MSRA 5000. Introduction to Graduate Studies	3
MSRA 5590. Graduate Audio Production	4
Topics course	1
Two MSRA electives	8
Total	16

<i>Spring</i>	<i>Semester Hours</i>
MSRA 5580. Graduate Audio Seminar	3
MSRA 6510. Audio Studies Pedagogy	4
MSRA elective	4
Topics courses	3
Total	14
 <i>Summer</i>	
MSRA 6950/6951. MSRA Thesis/Portfolio	4
Total	4
Total MSRA semester hours	34

The above progression is merely suggested and shows the quickest possible schedule for graduation (three semesters). Students may elect to enroll for less than the suggested semester hour total, and/or enroll in additional semesters as needed. Students can apply for graduation in any semester (fall, spring or summer) provided they have completed the required course work. All course work must be completed with a satisfactory grade of “B” (3.0) or higher. Students can register for thesis/portfolio, unless approved by the faculty advisor.

Please refer to the MSRA Web site for additional information:
<http://thunder1.cudenver.edu/musictech/masterdegree>.

Undergraduate Degree Requirements

Please refer to the *MEIS Student Handbook* at www.cudenver.edu/meis for additional guidelines and information.

CURRICULUM FOR THE BS IN MUSIC: PERFORMANCE, MUSIC MANAGEMENT AND RECORDING ARTS EMPHASES

Students complete the 51 semester hours of music foundation and then select one of the 22-semester hours emphasis areas. Students must pass a musical audition as part of application process and pass varying levels of performance proficiency. All courses within the major must be completed with a “C” (2.0) or better.

Music Foundation Courses

PMUS 1100. Theory I	3
PMUS 1110. Ear Training/Sight Singing I	1
PMUS 1200. Theory II	3
PMUS 1210. Ear Training/Sight Singing II	1
PMUS 2100. Theory III	3
PMUS 2110. Ear Training/Sight Singing III	1
PMUS 2200. Contemporary Styles	3
PMUS 3830. History and Literature of Music I	3
PMUS 3831. History and Literature of Music II	3
PMUS _____. UD Music History Elective*	3
MUS 2540. Audio Production I	3
MUS 2700. Music Business I	3
MUS 2710. Music Business II	3
PMUS 1023. Piano Class: Level I	1
PMUS 1023. Piano Class: Level II	1
PMUS 1023. Piano Class: Level III	1
PMUS 1023. Piano Class: Level IV	1
PMUS 1 _____. Applied Music	2
PMUS 1 _____. Applied Music	2
PMUS 1 _____. Applied Music	2
PMUS 1 _____. Applied Music	2
PMUS 2000. Ensemble	1
PMUS 2000. Ensemble	1
PMUS 2000. Ensemble	1
PMUS 2000. Ensemble	1
PMUS 2/4000. Ensemble	1
PMUS 2/4000. Ensemble	1
PMUS 1500. General Recital	0
PMUS 1500. General Recital	0
PMUS 1500. General Recital	0

<i>Course Title</i>	<i>Semester Hours</i>
PMUS 1500. General Recital	0
Total	51

* UD = upper-division (3000- or 4000-level course)

Performance Emphasis Courses

PMUS 3300. Advanced Sightreading and Improvisation	2
MUS 4060. Analysis	2
PMUS 3 _____. Applied Music	3
PMUS 3 _____. Applied Music	3
PMUS 3 _____. Applied Music	3
PMUS 3 _____. Applied Music	3
PMUS 4000. Ensemble	1
PMUS 4000. Ensemble	1
PMUS 1500. General Recital	0
PMUS 1500. General Recital	0
PMUS 1500. General Recital	0
PMUS 1500. General Recital	0
PMUS 4200. Senior Recital	2
MUS/PMUS. Music Electives	2
Total	22

Music Business Emphasis Courses

MGMT 1000. Introduction to Business	3
MUS 4720. Music Management	3
MUS 3745. CAM Records Label Operations	3
MUS _____. UD Music Business Elective	3
MUS 4740. Music Business Analysis	3
MUS 2560. Audio Production II	4
MUS 4501. Music Business Senior Seminar	3
Total	22

Recording Emphasis Courses

Students must be accepted into the recording arts emphasis before being able to take any of the upper-division courses in this area. Please consult CAM advisor for more details.

MUS 2560. Audio Production II	4
MUS 3540. Maintenance and Calibration	3
MUS 4550. Audio Production III	4
MUS 4505. Audio Sweetening or MUS 4575. Surround Sound	4
MUS _____. Recording Arts Elective	1
MUS 4580. Junior Project	3
MUS 4580. Senior Project	3
Total	22

CURRICULUM FOR THE BS IN MUSIC: MUSIC INDUSTRY STUDIES (MIS) EMPHASIS

Students complete the 14 semester hours of music performance courses, 20 semester hours of musicianship courses, 13 semester hours of MIS core courses and 26 semester hours of their music business or music technology courses. While no audition is required as part of the application process, students are required to complete the performance and musicianship courses. All major courses must be passed with a “C” (2.0) or better.

Music Performance, Musicianship and MIS Core Courses

PMUS 1023. Piano Class: Level I	1
PMUS 1023. Piano Class: Level II	1
PMUS _____. Piano III or Guitar I or Voice I	1
PMUS _____. Piano IV or Guitar II or Voice II	1
PMUS 1310. Introduction Sightreading and Improvisation	2
PMUS 2000. Ensemble	1
PMUS 2000. Ensemble	1
PMUS 1400. Small Group Applied Music	2

Course Title	Semester Hours
PMUS 1500. General Recital	0
PMUS 1800. Applied Music	2
PMUS 1500. General Recital	0
_____. Electives in Performance	2
PMUS 1100. Music Theory I	3
PMUS 1110. Ear Training/Sight Singing I	1
PMUS 1200. Music Theory II	3
PMUS 1210. Ear Training/Sight Singing II	1
MUS 2300. Songwriting I	3
PMUS 2200. Contemporary Styles	
—or—	
MUS 2200. Commercial Electronic Music Composition	
—or—	
MUS 3310. Songwriting II	3
PMUS 3830. History and Lit of Music I	3
PMUS 3831. History and Lit of Music II	3
MUS 2700. Music Business I	3
MUS 2710. Music Business II	3
MUS 2540. Audio Production I	3
MUS 2460. Audio Production II	4
Total	47

Students select either music business or music technology and complete all listed courses and elective credits.

Music Business Focus Courses

MUS 3720. Law and the Music Industry	3
MUS 3745. CAM Records Label Operations	3
MUS 4720. Music Management	3
MUS 4740. Music Business Analysis	3
MUS 4501. Music Business Senior Seminar	3
_____. Music Business Electives	11
Total	26

Music Technology Focus Courses

Students must be accepted into the MIS/tech focus before being able to take any of the upper-division courses in this area. Please consult CAM advisor for more details.

MUS 3540. Maintenance and Calibration	3
MUS 4550. Audio Production III	4
MUS 4505. Audio Sweetening or MUS 4575. Surround Sound	4
MUS 4580. Junior Project	3
MUS 4580. Senior Project	3
_____. Music Technology Electives	9
Total	26

CURRICULUM FOR MUSIC MINORS

To declare a CAM minor, please see the College of Arts & Media's Office of Advising and Student Services in Arts Building 177.

All courses must be taken at UCDHSC unless approved by an MEIS faculty member. All other courses must be taken at UCDHSC. Students pursuing a BS in music may not declare a minor in music. Consult a CAM advisor for details. All minor courses must be passed with a "C" (2.0) or better.

General Musicianship Minor

Students must successfully audition before declaring a general musicianship minor.

PMUS 1100. Theory I	3
PMUS 1110. Ear Training/Sight Singing I	1
PMUS 1200. Theory II	3
PMUS 1210. Ear Training/Sight Singing II	1
PMUS 3830. History and Literature of Music I	3

Course Title	Semester Hours
PMUS 3831. History and Literature of Music II	3
PMUS _____. Applied Music	2
PMUS _____. Applied Music	2
PMUS 1500. General Recital	0
PMUS 1500. General Recital	0
PMUS 2000. Ensemble	1
PMUS 2000. Ensemble	1
PMUS 1023. Piano Class	1
PMUS 1023. Piano Class	1
P/MUS _____. Music Elective	1
Total	23

Music Industry Studies Minor

PMUS 1100. Theory I	3
PMUS 1110. Ear Training/Sight Singing I	1
PMUS 1023. Piano Class Level I or III	1
PMUS 1023. Piano Class Level II or IV	1
PMUS 3830/1. History and Literature of Music I or II	3
MUS 2700. Music Business I	3
MUS 2450. Audio Production I	3
MUS 2470. Music Applications on the Computer	3
MUS _____. Music Business or Tech Elective	3-4*
Total	21-22

* Must be MUS 2560. Audio Production II (4 semester hours) if student plans to apply for the MIS/tech or recording arts emphasis as a music major.

DEPARTMENT OF VISUAL ARTS

Chair: Joann Brennan

Office: CU-Denver Building, 815

Telephone: 303-556-2279

Faculty

Professor: Joann Brennan, MFA Massachusetts College of Art

Associate Professors: Moyo Okediji, PhD, University of Wisconsin; Quintin Gonzalez, MFA, Yale University

Assistant Professors: Mary Connelley, MFA, Indiana University; Brian DeLevie, MFA, University of Houston; Carol Golemboski, MFA, Virginia Commonwealth University; Rian Kerrane, MFA, University of New Orleans

Senior Instructors: Michael Bronman, MA, UCDHSC; Vivian George, MFA, Yale University; Elizabeth Braden, MA; Janine Sytsma, MA, University of Denver; Michelle Carpenter, MFA, University of Colorado; Paul Conner, AAS, Colorado Institute of Art; Howard Cook, BFA, Auburn University; Ron Judish, MFA, University of Colorado; Rayna Tedford, MA, University of Colorado

Department Overview

The Department of Visual Arts offers professional instruction in six interrelated areas of study: art history, drawing/painting, photography, sculpture, multimedia studies and an emphasis in 3-D graphics and animation. The department provides an educational environment where artists and art historians of promise and motivation can explore the horizons of their own talents in the midst of intense critical dialogue. This dialogue is generated by their peers; by distinguished visiting artists, scholars and critics; and by a faculty comprising artists and art historians of acknowledged accomplishment.

The primary educational experience for the student is centered on the knowledge and skills gained from rigorous and structured courses offered by the various areas of the visual arts department, as well as the rich academic offerings throughout the university. Each student is routinely exposed to many aesthetic or academic positions through

encounters with faculty members and visitors. The visual arts department's efforts are devoted not only to the refinement of visual skills, but to the articulation and cultivation of the mind. Students must bring creative force and imagination to their own development, for these qualities cannot be taught—they can only be stimulated and appreciated.

Education in the visual arts encompasses a comprehensive knowledge of and direct experience with the various media of drawing, painting, photography, sculpture, multimedia and other forms. Supporting this enterprise is the development of an understanding of art theory, a knowledge of the methods and materials of art making and examination of the diverse approach to examining the art object in history. Central to the practice of art history are critical writing and analysis.

Upon completion of all required undergraduate credits specific to a student's field of study in the visual arts, each student will undergo a portfolio review and assessment interview. At the conclusion of the review, the student will be advised of the practicality of pursuing the chosen area of concentration.

Graduating seniors receiving the BFA degree are required to participate in the BFA faculty juried thesis exhibition during their last semester of study. Graduating seniors receiving the BA degree are required to participate in the BA faculty juried thesis oral presentations during their last semester of study. These exhibitions are scheduled in the fall and spring terms only.

Degree Requirements

CURRICULUM FOR THE BA IN FINE ARTS WITH AN EMPHASIS IN ART HISTORY

All students pursuing a BA in fine arts with an emphasis in art history must complete the 12 semester hours of visual arts foundation courses, the 18 semester hours of required art history emphasis courses and 15 semester hours of art history topic courses (one course from each of the five lists).

General Requirements

- All major courses within the major must be completed with a "C" (2.0) or better.
- All upper-division F A courses must be taken at UCDHSC unless approved by faculty.
- 27 semester hours of all F A credits (at any level) must be taken at UCDHSC.
- 18 semester hours of total F A courses must be upper division.

Visual Arts Foundation Courses

<i>Course Title</i>	<i>Semester Hours</i>
F A 1100. Drawing Foundations	3
F A 1150. Introduction to Photography	3
F A 1400. 2-D Design	3
F A 2420. Applications II	3
Total	12

Art History Required Emphasis Courses

F A 2600. Art History Survey I	3
F A 2610. Art History Survey II	3
F A 3600. Art History Survey III	3
F A 4790. Methods in Art History	3
F A 4951 BA Thesis	3
_____. Non-Western Cultural Experience*	3
Total	18

* See CAM advisor for additional details.

Upper-Division Art History Topics Courses

Complete one 3-hour course in each of the five areas for a total

of 15 semester hours. May not be used to satisfy any other major or core requirement.

Art Historical Surveys: Western Art

<i>Course Title</i>	<i>Semester Hours</i>
F A 4620. American Art	3
F A 4650. 19th Century Art	3
F A 4660. 20th Century Art	3
F A 4680. Art in the Middle Ages	3
F A 4670. Greek and Roman Art	3
F A 4710. Baroque and Rococo Art	3
F A 4690. Renaissance Art	3
F A 4990. Contemporary Art: 1945 to Present	3

Art and Diversity

F A 4610. Pre-Columbian Art	3
F A 4720. Art of Native America	3
F A 4740. African Visual, Verbal and Musical Metaphors	3
F A 4780. Art of Islam	3
F A 4985. Chicano/a Art	3
F A 4786. Art of Asia	3
F A 4787. Oceanic Art	3

Art Theory

F A 3110. Imaging and Identity	3
F A 3120. Visual Culture Studies	3
F A 3130. Postmodern Art	3
F A 3140. Postcolonial Art and Theory	3
F A 3645. Aesthetics	3
F A 3150. Feminism and Art	3
F A 3630. History of Photography	3
F A 3632. Black Cinema	3
F A 3640. Topics in Art History	3
F A 4650. Art Criticism	3

Art and Technology

F A 4625. Studio Creative Process	3
F A 4350. Topics in Multimedia Technology	3

Art Marketing/Display

F A 4525. Museum Studies	3
F A 4526. Appraisal and Auction Studies	3
F A 4527. The Business of Art	3

CURRICULUM FOR THE BA IN FINE ARTS: DRAWING, PAINTING, PHOTOGRAPHY AND SCULPTURE EMPHASES

All students pursuing a BA in studio fine arts must complete the 27 semester hours of visual arts foundation courses and then select an emphasis area, consisting of 21 semester hours. Students interested in pursuing a double emphasis (e.g., emphasis in drawing and painting) are encouraged to consult a CAM advisor to discuss required courses.

General Requirements

- All major courses within the major must be completed with a "C" (2.0) or better.
- All upper-division F A courses must be taken at UCDHSC unless approved by faculty.
- 27 semester hours of all F A credits (at any level) must be taken at UCDHSC.
- 18 semester hours of total F A courses must be upper division.

Required Visual Arts Foundation and Required Courses

To be completed by all BA-seeking students:

<i>Course Title</i>	<i>Semester Hours</i>
FA 1100. Drawing Foundations	3
FA 1400. 2-D Design	3
FA 1410. Color Theory	3
FA 1500. 3-D Design	3
FA 2010. Freshman Art Seminar	3
FA 2600. Art History Survey I	3
FA 2610. Art History Survey II	3
FA 4990. Contemporary Art History	3
FA 4800. Senior Art Seminar	3
Total	27

Drawing Emphasis Courses

FA 2000. Basic Life Drawing	3
FA 3000. Intermediate Drawing	3
FA 3020. Intermediate Life Drawing	3
FA 4000. Advanced Drawing	3
FA _____. UD Art History Elective	3
FA _____. Fine Art Elective	6
Total	21

Painting Emphasis Courses

FA 2200. Basic Painting	3
FA 2210. Painting II	3
FA 3200. Intermediate Painting I	3
FA 3210. Intermediate Painting II	3
FA 4200. Advanced Painting I	3
FA _____. UD Art History Elective	3
FA _____. Fine Art Elective	3
Total	21

Photography Emphasis Courses

FA 1150. Introduction to Photography	3
FA 2155. Introduction to Digital Photography	3
FA 3155. Digital Book Making/Narrative	3
FA 3160. Color and Lighting Dynamics	3
FA 3165. Concepts and Processes	3
FA 3170. Photo: Constructing the Fine Print	3
FA 3630. History of Photography	3
Total	21

Sculpture Emphasis Courses

FA 2500. Bronze Casting and Metal Sculpture	3
FA 3500. Modeling and Casting the Figure	3
FA 3510. Installation and Sight Specific Sculpture	3
FA 4500. Kinetic Sculpture	3
FA _____. Fine Art Elective	6
Total	18

CURRICULUM FOR THE BFA IN FINE ARTS: 3-D GRAPHICS AND ANIMATION, DRAWING, MULTIMEDIA, PAINTING, PHOTOGRAPHY AND SCULPTURE EMPHASES

All students pursuing a BFA in fine arts must complete the 34 semester hours of visual arts foundation courses and then select an emphasis area, consisting of 39 semester hours. Students interested in pursuing a double emphasis (e.g., emphasis in drawing and painting) are encouraged to consult a CAM advisor to discuss required courses.

General Requirements

- All major courses within the major must be completed with a “C” (2.0) or better, including FA 3600 within the core requirements.
- All upper-division FA courses must be taken at UCDHSC unless approved by faculty.
- 27 semester hours of all FA credits (at any level) must be taken

at UCDHSC.

- 25 semester hours of total FA courses must be upper division.

Required Visual Arts Courses

To be completed by all BFA-seeking students:

<i>Course Title</i>	<i>Semester Hours</i>
FA 1100. Drawing Foundations	3
FA 1400. 2-D Design	3
FA 1410. Color Theory	3
FA 1500. 3-D Design	3
FA 2010. Freshman Art Seminar	3
FA 2600. Art History Survey I	3
FA 2610. Art History Survey II	3
FA 4990. Contemporary Art History	3
FA 4800. Senior Art Seminar	3
FA 4950. BFA Thesis (pass/fail)	1
FA _____. Fine Arts Electives*	6
Total	34

* may include studio, lecture, internship or art history

3-D Graphics/Animation Emphasis

The following 12 courses are offered through extended studies and have a higher tuition rate. For the 2006-2007 academic year, each 3-credit course costs \$4,050. Please contact CAMadvising@cudenver.edu for the current course cost.

Students must meet with the program faculty prior to declaring their majors. Please contact Paul Conner (Paul.Conner@cudenver.edu) or Howard Cook (Howard.Cook@cudenver.edu) prior to applying to UCDHSC.

FA 1420. Introduction to 3D Graphic Processes and Techniques	3
FA 1425. Digital 3-D Preproduction	3
FA 3421. Digital 3-D Surface Modeling	3
FA 3423. Digital Texture Mapping	3
FA 3425. 3-D Digital Lighting	3
FA 3427. Digital 3-D Organic Modeling	3
FA 3429. Digital Animation and Applied Effects	3
FA 3431. Digital Animation and Applied Effects II	3
FA 3433. Digital Objects/Character Articulation	3
FA 3436. Digital Animation: Particles	3
FA 3437. Digital Animation: Dynamics	3
FA 3439. Digital 3-D Postproduction	3

The following course is taught at the standard tuition rate:

FA 4632. History of New Media	3
Total	39

Drawing Emphasis Courses

FA 2000. Basic Life Drawing	3
FA 3000. Intermediate Drawing	3
FA 3020. Intermediate Life Drawing	3
FA 4000. Advanced Drawing	3
FA 4020. Advanced Life Drawing	3
FA _____. Drawing/Painting Topics Course	3
FA _____. UD Art History Elective	3
FA _____. Studio Art Elective	18
Total	39

Multimedia Emphasis Courses

Multimedia emphasis students are encouraged to take FA 2400 concurrently with FA 2410, and FA 2420 concurrently with FA 2430. Students who take them separately will need to complete FA 2400 before taking FA 2410 or FA 2420 before taking FA 2430. The two levels of multimedia applications and methods and concepts do not

build. Therefore, students may take the series out of order as long as they follow the above grouping and sequencing.

<i>Course Title</i>	<i>Semester Hours</i>
F A 2400. Multimedia Applications I.....	3
F A 2410. Methods and Concepts I.....	3
F A 2420. Multimedia Applications II.....	3
F A 2430. Methods and Concepts II.....	3
F A 3430. Digital Design.....	3
F A 3435. Design for Human Experience.....	3
F A 3939. Internship*.....	3
F A 4940. Multimedia Thesis Preparation.....	3
F A 4632. History of New Media.....	3
F A 3000-level electives from the following:.....	6
F A 3440. Visible Stories	
F A 3445. Video Explorations	
F A 3448. Investigations of Interaction and New Media	
F A 3455. Issues of Interaction	
F A 3460. Digital Visualization	
F A 3465. Image Concept and Theory	
F A 3470. 3-D Time-based Motion and Static Imagery	
F A 3475. Advanced 3-D Imagery and Media Integration	
F A 4000-level elective from following:.....	6
F A 4350. Topics in Multimedia (subject matter varies each semester)	
F A 4420. Transgressive and Subversive Messages	
F A 4425. Information and Interaction Multimedia Design	
F A 4430. Design and Culture	
F A 4435. Word as Image, Image as Word	
F A 4440. Truth and Perception in Electronic Media	
F A 4445. Interdisciplinary Explorations	
F A 4450. Electronic Media Installation	—
Total.....	39

* Currently an internship is required. However, students must qualify for an internship. (See the career center for details.) Students who do not qualify may be given an alternative requirement, per department chair approval.

Painting Emphasis Courses

F A 2200. Basic Painting.....	3
F A 2210. Painting II.....	3
F A 3200. Intermediate Painting I.....	3
F A 3210. Intermediate Painting II.....	3
F A 4200. Advanced Painting I.....	3
F A 4210. Advanced Painting II.....	3
F A _____. Drawing/Painting Topics Course.....	3
F A _____. UD Art History Elective.....	3
F A _____. Studio Art Elective.....	15
Total.....	39

Photography Emphasis Courses

Students must complete the first seven courses listed in the “Required Visual Arts” section and F A 1150 and F A 2155 before going onto the UD Photo courses. F A 3155-3170 maybe completed in any order after having completed F A 2155 and must be completed prior to beginning the advanced photography sequence (F A 4195 and F A 4196). See additional prerequisites for F A 3165.

F A 1150. Introduction to Photography.....	3
F A 2155. Introduction to Digital Photography.....	3
F A 3155. Digital Book Making/Narra.....	3
F A 3160. Color and Lighting Dynamics.....	3
F A 3165. Concepts and Processes.....	3
F A 3170. Photo: Constructing the Fine Print.....	3
<i>Note:</i> must be completed before F A 3165	
F A 4195. Advanced Photography I.....	3
F A 4196. Advanced Photography II.....	3

<i>Course Title</i>	<i>Semester Hours</i>
F A 3630. History of Photography.....	3
F A _____. Studio Art Elective.....	12
Total.....	39

Sculpture Emphasis Courses

F A 2500. Bronze Casting and Metal Sculpture.....	3
F A 2510. Wood and Metal Sculpture.....	3
F A 3500. Modeling and Casting the Figure.....	3
F A 3510. Installation and Sight Specific Sculpture.....	3
F A 4500. Kinetic Sculpture.....	3
F A 4510. Sculpture III.....	3
F A 3520. Contemporary Sculpture.....	3
F A _____. UD Art History Elective.....	3
F A _____. Studio Art Elective.....	15
Total.....	39

CURRICULUM FOR FINE ART MINORS

To declare a CAM minor, please see the College of Arts & Media’s Office of Advising and Student Services in Arts Building, 177.

Student may transfer up to 6 credits of non-UCDHSC courses toward a minor. All other courses must be taken at UCDHSC. Students pursuing a BA or BFA in fine arts may use up to 6 credits to fulfill major and minor requirements; the remaining credits must be taken in addition to the major requirements. Consult a CAM advisor for details.

Art History Minor

F A 2600. Art History Survey I.....	3
F A 2610. Art History Survey II.....	3
F A _____. Studio Art Elective.....	3
F A _____. UD Art History Elective.....	9
Total.....	18

Multimedia Minor

F A 2410. Applications I.....	3
F A 2420. Applications II.....	3
F A 3430. Digital Design.....	3
F A 4632 History of New Media.....	3
F A _____. Multimedia Electives.....	9
Total.....	21

Studio Art Minor

Select two courses from following:.....	6
F A 1100. Drawing Foundations	
F A 1400. 2-D Design	
F A 1410. Color Theory	
F A 1500. 3-D Design	
F A _____. Studio Art Electives.....	6
F A _____. UD Studio Art Elective.....	3
F A _____. Art History Elective.....	3
Total.....	18

Studio Photography Minor

F A 1150. Introduction to Photography.....	3
F A 2155. Introduction to Digital Imaging.....	3
F A 3630. History of Photography.....	3
F A photo electives from the following:.....	9
F A 3155. Digital Book Making	
F A 3170. Constructing the Fine Print	
F A 3160. Color and Lighting Dynamics	
F A 3165. Concepts and Processes	
F A 3175. Creative Commercial Applications	—
Total.....	18

At A Glance: The Business School

Students*

2,415
Undergraduate: 1,382
Graduate: 1,033

Degrees Awarded 2006*

Total: 899
Undergraduate: 336
Graduate: 563

Faculty*

Full-time: 67
Lecturers: 31

Student-Faculty Ratio*

19:1

Undergraduate Degree Program Areas of Emphases

Accounting
Accounting and Information Systems
Financial Management
Financial Management and Information Systems
Human Resource Management
Information Systems
Information Systems and Accounting
Information Systems and Marketing
Information Systems and Management
International Business
Marketing
Management

Graduate Degree Programs

MBA—professional, accelerated 11-month, health administration
MS—accounting, finance, health administration, information systems, international business, management and organization, marketing
PhD—computer science and information systems

Executive Programs

MBA
MBA—health administration

Accreditation

Association for the Advancement of Collegiate Schools of Business – International (AACSB International)



Commission on Accreditation of Healthcare Management Education (CAHME)

Research Centers

Bard Center for Entrepreneurship Development
Center for Health Administration
Center for Information Technology Innovation

Student Organizations

African American Business Student Alliance (AABSA)
Aggressive Alliance of Competitive Marketers (AACM)
American College of Healthcare Executives (ACHE)
Beta Alpha Psi—national honorary scholastic fraternity in accounting
Beta Gamma Sigma—national honorary scholastic fraternity in business
Financial Management Association International (FMAI)
Health Administration Student Organization (HASO)
Information Systems Association (ISA)
International Business Student Network
MBA Student Organization (MBASO)
Medical Group Management Association
Minority Business Student Organization
Phi Chi Theta—national professional business and economics fraternity
Society for Human Resources Management
UCDHSC Marketing Club

Alumni‡

18,292
Undergraduate: 43%
Graduate: 57%

Sample Companies Hiring Alumni

Coors
Ernst & Young
Federal Reserve Bank of Kansas City
IBM
Janus Capital Group
Johns Manville
Lockheed Martin
PriceWaterhouseCoopers
Qwest Communication
Wells Fargo

Average starting salary for those working full-time in related field†:

Graduate Business Students = \$62,069
Undergraduate Business Students = \$44,667

Advisory Boards representing more than 160 organizations/companies:

Bard Center Advisory Council
Health Administration Executive Advisory Council
Center for Information Technology and Innovation (CITI) Advisory Council
Board of Advisors for the Business School

Bragging Rights

Entrepreneurship program among top 50 regional programs in U.S. (*Entrepreneur* magazine)
Executive MBA in health administration one of top MBA physician programs (*Modern Physician* magazine and *U.S. News & World Report*)
AACSB accreditation places us among top 15 percent of business schools internationally
150 partnerships with business community

*Fall 2006 end-of-term enrollment data ‡Fiscal Year 2005-2006 data †2005 Survey of 2003-2004 graduates one year after graduation

The Business School

Dean
Sueann Ambron

**Dean of Faculty and
Executive Associate Dean**
Jean-Claude Bosch

**Associate Dean for
Academic Programs**
Clifford E. Young

Contact

Dean's Office
CU-Denver Building
1250 14th Street, 2nd Floor
303-556-5802
Fax: 303-556-5914
www.cudenver.edu/business

Mailing Address
The Business School
Campus Box 165
P.O. Box 173364
Denver, CO 80217-3364

Admissions/Advising
Undergraduate: 303-556-5800
Graduate: 303-556-5900

Application Deadlines

Undergraduate
Fall—August 1
Spring—December 1
Summer—May 1

Graduate
Fall—June 1
Spring—November 1
Summer—April 1

Executive MBA
Fall—June 1

11-Month MBA
Fall—June 15

Located in the heart of the Rocky Mountain business community, the Business School at the University of Colorado at Denver and Health Sciences Center prepares students with the knowledge and skills necessary to become effective, responsible business professionals. We're able to achieve a standard of excellence by bringing together nationally recognized faculty and highly motivated, mature students in an intellectually challenging academic environment. UCDHSC's Business School is a research institution. Because our faculty are nationally recognized for scholarly research as well as for their teaching skills, our students have the opportunity to be on the leading edge of business management theory and practice. Our class schedules and curriculum offer flexibility to meet your needs whether you plan to attend full or part time, day or evening. Whether you're an experienced working professional seeking an advanced degree or preparing for a new career in the business world, you'll gain the knowledge and perspective necessary to succeed in today's challenging business environment.

Educational Goals

The Business School is committed to superb teaching, connecting theory to practice that focuses on:

- current and relevant knowledge and skills necessary for success in the highly competitive global business environment
- experience in cooperative and team-based work skills
- integrated professional and functional expertise
- sensitivity to cultural and ethnic diversity

Our graduate programs serve both traditional and nontraditional students who have extensive work experience. The MBA serves the needs of students who desire a general business education. The professionally oriented MS degrees serve the needs of students who desire greater specialization, particularly students who have already obtained an undergraduate business degree. Large numbers of our graduate students will be drawn from national and international locales.

Our undergraduate program, which serves both traditional and nontraditional students, leads to a baccalaureate degree in business with a substantial liberal arts component. The program is closely linked, through articulation

agreements, to lower-division programs offered by Colorado's four-year and community colleges.

Key elements of our academic programs are the provision of top-quality career advising and placement services, as well as flexible schedules and programs to meet a wide range of student needs. We are committed to assisting our students' efforts to pursue rewarding careers.

Faculty

Our nationally recognized faculty is vigorous and enthusiastic about its teaching and research. Faculty members hold degrees from the nation's leading business schools, including Berkeley, Harvard, Stanford, University of Chicago, University of Pennsylvania, UCLA and Yale. Many of them also bring years of valuable experience in private industry. Their interdisciplinary expertise, academic achievements, scholarly research and business experience provide students with a dynamic learning environment.

Scholarships and Financial Aid

Many programs for financial aid are administered by the Office of Financial Aid. Call 303-556-2886 for detailed information.

Thanks to the generous support of the Colorado business community and others, the Business School has a significant number of

scholarships to offer its students. Scholarships are awarded on the basis of merit and/or financial need. The amount of the award and the number of awards available vary.

Thirty different scholarships are available to eligible Business School students, with multiple awards from most scholarships. Go to www.cudenver.edu/business for more details.

Undergraduate scholarships include the Board of Advisors, the Business School Undergraduate Excellence, the Carolyn Lee Henderson, the Robert E. Moore Memorial, the Business School Sustaining Student, the Dean's Community Scholarships, the Scholarship for International Study and the Dean's Scholarship for Continuing Undergraduate Business Students.

The MBA Outstanding Scholar Award, the MBA Opportunity Scholarship and the MBA Faculty's Scholarship are given to qualifying MBA students.

Accounting scholarships for both graduate and undergraduate accounting students include the Deloitte & Touche and Accounting Program Scholarship, as well as the PricewaterhouseCoopers Scholarship for undergraduate junior accounting majors only.

MS finance scholarships are the MS Finance Fellows, open to graduate students in the finance program and the Carolyn Lee Henderson Scholarship, designated for an undergraduate or graduate woman in the finance program.

MS health administration scholarships include the Abbott Fellows, AUPHA/McGaw, UCDHSC MS Health Administration, Eugenie D. Sontag, Leland R. Kaiser, Medical Group Management and the MS Health Administration Alumni Scholarships.

MS information systems students may apply for the Dean's Scholarship in Information Systems.

The *MS international business* Merit Scholarship is open to students in the UCDHSC MS international business program.

MS management or human resources management students may apply for the Excellence in Management or the Excellence in Human Resource Management Scholarship.

MS marketing students may apply for the MS Marketing Sustaining Student, MS in Marketing Fellows and Robert E. Moore Memorial Scholarships (also open to undergraduate marketing students).

Finally, four scholarships are available to students who take courses in entrepreneurial studies at the Richard H. and Pamela S. Bard Center for Entrepreneurship Development. These are the Coulter Foundation Scholarships in Entrepreneurial Studies and Business, and the Dean's Pursuit of Excellence, Mehalchin and Trueblood Scholarships.

Further information about these scholarships, including eligibility criteria and application forms, may be obtained by visiting the Business School Web site at www.cudenver.edu/business (click on scholarships) or by calling 303-556-5900.

Study Abroad

Transfer credit from study abroad programs requires prior written approval from the undergraduate or graduate program's director. Students must meet with a business staff advisor to determine course acceptability prior to the semester in which they intend to study abroad. Information on the various programs is available at the Office of International Education.

Institute for International Business

The Institute for International Business (IIB) was created in 1988 by the Board of Regents of the University of Colorado to serve as a center for the advanced study and teaching of international business. In 1993, the institute was designated a Center for International Business Education and Research by the U.S. Department of Education, one of only 25 such centers of excellence in the U.S. Through the CIBER and other funding sources, the institute strives to help the faculties of the Business School and other university departments to internationalize curriculum, programs, certificates or other student-oriented endeavors. The IIB works in other

ways to support faculty in their teaching, research and development activities. In addition, the institute designs and facilitates customized international programs and training for business, cooperates with other organizations to offer seminars and conferences and publishes a quarterly newsletter to familiarize the Denver and regional communities with international business issues. Such initiatives help faculty, students and the business community to acquire the skills and expertise needed to be successful in our increasingly global economy. The institute also conducts and promotes research on the global economic aspects of competitiveness. Call 303-556-4738 for information.

Internships

The general requirements for credit internships are as follows:

- Undergraduate students must be admitted to the Business School, be in good standing with at least a 3.2 cumulative GPA and have completed at least 15 semester hours of the business core at the downtown Denver campus and be of senior standing.
- Graduate students must be admitted to the Business School, be in good standing with at least a 3.0 GPA and have completed 15 semester hours of graduate work at the downtown Denver campus.

Interested students should contact the Career Center (www.careers.cudenver.edu) for further details about the program.

GENERAL ACADEMIC POLICIES

Academic policies that apply to all students on the UCDHSC downtown Denver campus are described in the "Registration and Records" and "University Policies" chapters of this catalog. The policies outlined on the following pages are relevant for both undergraduate and graduate students in the Business School. Individual policies appropriate only to undergraduate or graduate students are described under separate headings.

Each student is responsible for knowing and complying with the academic policies and regulations established for the school. The school cannot assume responsibility for problems resulting from a student's failure to follow the policies stated in this catalog. Similarly, students are responsible for all deadlines, rules and regulations stated in the online schedule planner.

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, falsification of official records and similar acts or any 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 the student's own. It is recommended that students consult with the instructors as to the proper preparation of reports, papers, etc., to avoid this and similar offenses. Also, actions that disrupt the administrative process, such as misrepresentation of credentials or academic status, other forms of deception or verbal abuse of university staff are grounds for suspension or probation. All reported acts of dishonesty must be referred to the Business School's Internal Affairs Committee.

Admission to Business Classes

Enrollment in business classes is limited to students who have been admitted to business degree programs and to other students as described in the separate undergraduate and graduate policy sections. The course registration criteria are designed to meet a number of objectives:

- to assure access to business courses for students seeking a business degree
- to serve students in other colleges who have business-related education objectives or requirements

- to serve nondegree students who have specific career or education goals

Refer to the online schedule planner, at www.cudenver.edu/registrar, each term for course availability and course prerequisites.

Attendance Regulations

Students are required to attend classes on a regular basis. Absences must be arranged with the instructor and must conform with university and instructor policies on attendance.

Prerequisites

Students are expected to know and fulfill all prerequisites when registering. See course listings for relevant prerequisites. The Business School reserves the right to administratively drop students who enroll without the correct prerequisites. This action may result in the loss of tuition.

Course Numbering

The course numbering system used at the downtown Denver campus of UCDHSC identifies the class standing required for enrollment. Students are expected to take 1000-level courses in their freshman year, 2000-level courses in their sophomore year, 3000-level courses in their junior year and 4000-level courses in their senior year. Courses at the 5000 and 6000 level are restricted to master's-level business students, and courses at the 7000 level are restricted to PhD students.

Adding Courses

Students may add courses to their original schedule through the census date (first 12 days of the fall or spring semester, first eight days of summer session). Instructor approval may be required to add a course after the first week of classes.

Dropping Courses

Students may drop a course through the census date and it will not appear on the transcript. After census, a student who wishes to drop must obtain written approval from both the instructor and academic dean or designate. The course and a grade of *W* will appear on the transcript. In order to drop beyond the 10th week, it will also be necessary to document circumstances beyond a student's control. Any student who is failing a class will not be allowed to drop, and an *F* will be recorded on the transcript.

Withdrawal

See the Registration and Records chapter of this catalog for university-wide withdrawal policies. Note that the Business School normally requires instructors' signatures on withdrawal forms before the academic dean's approval is granted.

Administrative Drop

The school reserves the right to administratively drop students who are incorrectly enrolled in business courses. Instructors also may recommend that students who fail to meet expected course attendance or course prerequisites be dropped from the course. Generally, students who are administratively dropped will not receive tuition refunds.

Note that students who never attend class are not automatically dropped from the course. The student is responsible for payment and for the grade in each course.

Appeal Procedure

Students should contact a staff advisor in the Business School's programs office for appeal and petition procedures pertaining to rules and regulations of the school.

General Grading Policies

Plus/Minus Grading. Faculty have the option to use plus/minus grading. *Incomplete Grades.* The only incomplete grade given in the school is *IF*. An *IF* grade is assigned only when documented circumstances clearly beyond the student's control prevent completion of course requirements (exams, papers, etc.). Students must sign a contract outlining how they will make up the missing work with the instructor giving the *IF*. Students may not register for the course a second time. All *IF* grades must be made up within the contract period (which may not exceed one year), or the *IF* will automatically be changed to the grade of *F*.

Also, *IF* grades must be completed and recorded at the Office of the Registrar no later than four weeks prior to graduation. The student is responsible for contacting the instructor concerning the removal of incomplete grades.

Grade Changes. Grades as reported by instructors are final. Grade changes will be considered only in cases of documented clerical errors or when a student is making up an incomplete grade (*IF*). All changes must be made within one year after the course has been taken, unless highly unusual circumstances can be documented and the change has been approved by the school. Normally, grade changes will not be considered under any circumstances after three years.

Pass-Fail or No Credit (Audit). With the exception of internships and travel study courses, the Business School does not permit election of pass-fail grading for any business course required for the degree. Students are not allowed to audit business courses.

ACADEMIC PROGRAMS

A carefully designed curriculum to prepare students for success in business administration is available for the student seeking either an undergraduate or graduate degree. The school offers courses leading to the bachelor of science (business administration), master of business administration (MBA), the master of science (MS) and doctor of philosophy (PhD) degrees.

It is possible to pursue two degrees simultaneously, such as an MBA and an MS, or two MS degrees, through our dual degree programs. In addition to the programs in the Business School itself, we partner with other University of Colorado departments to offer dual programs in MS finance/economics and the MBA in combination with graduate programs in architecture, economics, urban planning and the MD. We also have a joint MBA/MS in international management degree through Thunderbird in Glendale, Arizona.

UNDERGRADUATE DEGREE PROGRAMS

Associate Dean: Clifford E. Young

Program Director: James R. Morris

Director Advising and Admissions: Nancy A. Reed

The undergraduate curriculum leading to the bachelor of science (business administration) degree is intended to help the student achieve the following general objectives:

- an understanding of the activities that constitute a business enterprise and the principles underlying administration of those activities
- the ability to think logically and analytically about the kind of complex problems encountered by management
- facility in the arts of communication
- a comprehension of human relationships involved in an organization
- awareness of the social and ethical responsibilities of those in administrative positions
- skill in the art of learning that will help the student continue self-education after leaving the campus

Undergraduate Admissions

Telephone: 303-556-5800

Fax: 303-556-5904

ADMISSION OF FRESHMAN STUDENTS

Freshman applicants must have completed the college preparatory curriculum in high school, graduated in the top 25 percent of their high school class and achieved a score of at least 26 on the ACT or 1100 on the SAT. See the Information for Undergraduate Students chapter of this catalog for further information on freshman admission.

ADMISSION OF TRANSFER STUDENTS

Applicants who have completed work at other collegiate institutions should review the information on transfer students in the "Information for Undergraduate Students" chapter of this catalog. In addition to university policies, the Business School evaluates course work to determine its appropriateness for the degree of bachelor of science (business administration). Students who have completed more than 24 semester hours of transferable course work are evaluated for admission on the basis of their college GPA without regard to their high school performance.

To be considered for admission to the Business School, a transfer student must have a minimum cumulative GPA of 2.0 on a 4.0 scale for all college course work attempted. Transfer applicants seeking priority admission must have a minimum 3.0 GPA for all work applicable to the bachelor of science (business administration) degree and a 2.0 GPA in business courses. Students with less than an overall 3.0 GPA will be considered if they have a 2.6 in the last 24 semester hours of applicable course work, a 2.0 GPA in business courses and at least a 2.0 overall GPA in courses applying to the degree.

Transfer applicants who do not meet either of the priority admission standards are pooled and ranked on the basis of their GPA earned in the *last* 24 hours, if the GPA in the last 24 hours is at least 2.6. Pooled applicants are offered admission as space is available. For information about specific policies on transfer of credit, consult the undergraduate business program coordinator.

INTRA-UNIVERSITY TRANSFER

Students who want to transfer to the Business School from another college or school of the University of Colorado at Denver and Health Sciences Center must formally apply to the Business School. Transfer deadlines are August 1 for fall semester, December 1 for spring semester and May 1 for the summer session.

Students will be evaluated only on course work that applies to the business degree program. Generally, this will exclude course work of a technical or vocational nature and courses in activity PE and remedial subjects. Students who have completed at least 24 applicable semester hours will be evaluated on their college work; students with fewer than 24 transferable hours will be evaluated on the basis of both high school and college work.

Students will be considered for admission on either their overall GPA in applicable course work from CU and all previous institutions or on their last 24 hours. Applicants with less than a 2.0 GPA in business courses (from CU or other institutions) and overall CU GPA of less than 2.0 will be denied admission even though they meet the minimum requirements for consideration.

Students will receive priority consideration for admission to the Business School if they have an overall GPA of 3.0 or an overall GPA of 3.0 on their last 24 hours. All other applicants meeting the minimum requirements as stated above will be pooled and ranked on the basis of their GPA in the last 24 hours, if the GPA in the last 24 hours is at least 2.6. Pooled applicants will be offered admission as space is available.

To apply for an intra-university transfer, students must submit an Intra-University Transfer form and the UCDHSC downtown Denver campus transcripts to the business program coordinator. Transfer forms are available at the Office of Admissions or the Business School office; transcript

request forms are available at the Office of the Registrar. The transcript must include the student's most recent semester at the university. Students with previous course work from other institutions are also required to submit a copy of their transfer credit evaluations (advanced standings).

FORMER STUDENTS

A CU student from another campus, or a downtown Denver campus student who has not registered for three consecutive semesters (summers included), is considered a former student and must reapply for admission. Former downtown Denver campus business degree students will be automatically re-admitted to the school for up to three years from the semester they last attended if they are in good standing (not on probation or suspension) in the school. Students who have not attended for more than three years, or who have completed the equivalent of 12 or more semester hours at another institution of higher education, must meet the admission and degree requirements applicable at the time they reapply.

OLD WORK POLICY

For students newly admitted to the Business School and former business students re-admitted to the school after an absence of three semesters, applicable credits up to five years old will be counted toward business degree requirements. Courses more than five years old will be evaluated individually for their current relevance to the degree program. Students may be required to update their knowledge by taking additional courses when past courses are outdated; in such cases, credit will be given for both courses. Generally, business courses more than 10 years old will not apply toward degree credit.

SECOND UNDERGRADUATE DEGREE

Students may apply to the Business School to earn a second undergraduate degree, provided the first undergraduate degree is in a field other than business. Persons who have already earned an undergraduate degree in business may not apply for a second undergraduate degree in business. Applications are available through the Office of Admissions.

If a student has an academic record that justifies consideration for a graduate program, that student is encouraged to apply for one of the Business School's master's degree programs. Call 303-556-5900 for information or refer to the graduate business section of the catalog.

Students who are accepted for the second undergraduate degree will be required to pursue courses in the sequence normally required for a business degree. For example, if a student registered for a second degree has not had the required mathematics or general education courses, these must be taken before the student will be eligible to register for business courses. Further, the basic business courses (core courses) must be taken before a student begins to pursue the major field.

MINOR IN BUSINESS ADMINISTRATION

Students in other undergraduate schools and colleges at the downtown Denver campus wishing to take a minor in business administration must have a 2.0 GPA to enter as a business minor and must have a 2.0 GPA overall plus a 2.0 GPA in business courses at the time of graduation to receive a minor in business. Prerequisites to the business minor are ISMG 2050, MATH 1070, MATH 1110 or a higher-level math course, DSCI 2010* or a statistics class approved by the Business School and ECON 2022. Required courses for a business minor are MGMT 1000, ACCT 2200, BLAW 3000, MKTG 3000, FNCE 3000 and MGMT 3000. Twelve of these 18 hours must be taken while in residence at the downtown Denver campus. If the student has already taken the equivalent of one or more of these courses, other higher-level business courses may be substituted with Business School approval. Up to 6 hours of the 18 required business courses may be taken at another institution. Transfer credit will be granted on the same basis that transfer credit is granted for courses taken by business majors.

**Note:* Students enrolling for DSCI 2010 must have completed MATH 1070 and MATH 1080 or equivalent courses.

DOUBLE DEGREE PROGRAMS

Numerous career opportunities exist for persons trained in both a specialized field and management. For this reason, students may be interested in combined programs of study leading to completion of degree requirements concurrently in two fields. For additional information, contact an undergraduate business staff advisor at 303-556-5800.

Undergraduate Advising and Academic Planning

ADMISSIONS ADVISING

Persons not yet admitted to the Business School can receive advising on course selection, admission requirements and other matters from an undergraduate staff advisor. To make an appointment, call 303-556-5800.

ADMITTED STUDENTS

Upon admission to the school, students execute a degree plan that identifies the courses required to graduate. This plan contains all the information needed to select courses and monitor progress toward completion of requirements for the bachelor of science (business administration). Business students are expected to assume responsibility for their own advising. This includes scheduling courses each term, being familiar with all the policies and procedures of the college and otherwise managing their own academic careers. Staff advisors are available to answer questions about unusual situations.

Career advising is available from business faculty and from the Career Center, 303-556-2250.

Undergraduate Core Curriculum— University of Colorado at Denver and Health Sciences Center

The faculty of the Business School, College of Engineering and Applied Science and the College of Liberal Arts and Sciences have established a core curriculum for undergraduate students. All undergraduate students are required to complete the undergraduate core curriculum independent of their college or major.

The undergraduate core curriculum for the downtown Denver campus is outlined in the following table, and the core requirements for business students are specified in the section labeled “Business Program Requirements.”

The undergraduate core curriculum seeks to provide all baccalaureate students with basic intellectual competencies in English and mathematics. It also requires all students to develop basic knowledge in the areas of biological and physical sciences, behavioral sciences, social sciences, humanities and arts. Furthermore, the core curriculum promotes an awareness of cultural diversity and international perspective. The majority of the core curriculum is designed to be completed during a student’s freshman and sophomore years in order to provide the foundation for specific training in a student’s major discipline.

Graduation Requirements

The bachelor of science (business administration) degree requires the following:

Total Credits. A total of 120 semester hours.

A minimal level of proficiency must be demonstrated in one foreign language or in regional expertise. Students may satisfy the proficiency requirement by taking courses as described below.

Area of Emphasis. Completion of at least 9–15 semester hours of approved courses in the area of emphasis.

Residence. At least 30 semester hours of business courses (including the business area of emphasis) must be completed after a student’s admission

Undergraduate Core Curriculum for BS in Business

	<i>Semester Hours</i>
INTELLECTUAL COMPETENCIES	
English	6
Mathematics	3
KNOWLEDGE AREAS	
Biological and Physical Sciences	6-7
Humanities	3
Arts	3
Behavioral Sciences	3
Social Sciences	3
CULTURAL DIVERSITY	3
INTERNATIONAL PERSPECTIVES	3
Total	34

to the Business School. The 30 hours for residence must include MGMT 4500 and 27 hours in other 4000-level business courses (including area of emphasis courses).

GPA Requirement. To graduate, a student must maintain a minimum cumulative scholastic GPA of 2.0 for all courses attempted at the university acceptable toward the BS (business administration) degree, 2.0 for all business courses and 2.0 for courses in the student’s area of emphasis.

Undergraduate Honors. Upon recommendation of the faculty, students who demonstrate superior scholarship are given special recognition at graduation. Students must achieve an overall University of Colorado GPA of 3.3 and a GPA of 3.5 in all business courses taken at the University of Colorado to be considered for *cum laude*. Those who achieve an overall University of Colorado GPA of 3.5 and a GPA of 3.7 in all business courses taken at the University of Colorado will be considered for *magna cum laude*. Those who achieve a 3.7 overall GPA and a 3.85 GPA in all business courses will be considered for *summa cum laude*.

Filing for Graduation. A senior audit is completed on all students who have completed 90 or more semester hours. Students must file an undergraduate candidacy form and diploma card and request a graduation evaluation prior to registering for their final semester. Failure to do so will delay graduation. Also, students desiring to change their area of emphasis after filing for graduation must have the change approved by the graduation coordinator prior to registering for their final semester. Changes after that time will delay graduation.

Business Program Requirements

Satisfaction of all the following:

<i>Program Requirements</i>	<i>Semester Hours</i>
School proficiencies or other courses	0–10
UCDHSC downtown Denver campus core	34
Business School specific graduation requirements	12
Business core	33
International studies	3
Experiential Learning	3
Area of emphasis and other courses	21
Other business and nonbusiness courses	4
Total	120

Detailed descriptions of degree course plans that satisfy program requirements follow:

BUSINESS SCHOOL REQUIRED SEMESTER HOURS PROFICIENCY

The Business School’s foreign language requirement or regional expertise for the 2007–2008 academic year requires that students demonstrate a minimum level of proficiency in one foreign language.

This requirement is met through completion of one of the following:

- a second-year (Level II) high school course with a minimum grade of C (2.0)*
- a second-semester-level college course (1020) with a minimum grade of C (2.0)
- satisfactory proficiency testing, including taking and passing a proficiency exam

***High school courses will not apply toward degree credit; however, they will waive the specific requirement from having to be done at the college level.**

Student's choosing the regional expertise requirement with one year of high school foreign language or one semester of college level work can satisfy the requirement by completing a minimum of 6 semester hours of course work from an approved list that relates to the politics, arts, history, culture or economy of any region of the world other than North America.

Courses used in the expertise area must meet the Business School guidelines. These courses can be chosen from the list specified by the Business School. Students should contact their business advisor to outline their program, 303-556-5800.

Students who must meet all the proficiency requirements through course work at UCDHSC may find it necessary to complete more than 120 semester hours to earn the BS in business administration. The proficiency requirement must be completed during the first three terms in attendance at the downtown Denver campus.

UNDERGRADUATE CORE REQUIREMENTS FOR BS IN BUSINESS

Intellectual Competencies

ENGLISH	<i>Semester Hours</i>
ENGL 1020. Core Composition I	3
ENGL 2030. Core Composition II	3
Total	6
MATH	
MATH 1070. Algebra for Social Sciences and Business	3
—or—	
MATH 1110. College Algebra	3
Total	3

Knowledge Areas

BIOLOGICAL AND PHYSICAL SCIENCES

Choose two, one course with a laboratory is required:

ANTH 1303. Introduction to Biological Anthropology	4
BIOL 1550. Basic Biology I	4
BIOL 1560. Basic Biology II	4
BIOL 2051/2071. General Biology I/Laboratory	3/1
BIOL 2061/2081. General Biology II/Laboratory	3/1
CHEM 1474. Core Chemistry: Chemistry for the Consumer	4
CHEM 2031/2038. General Chemistry I/Laboratory	3/1
CHEM 2061/2068. General Chemistry II/Laboratory	3/1
ENVS 1042. Introduction to Environmental Sciences	4
GEOG 1202. Introduction to Physical Geography	3
GEOL 1072. Physical Geology I	4
GEOL 1082. Physical Geology II	4
PHYS 1000. Introduction to Physics	4
PHYS 1052. General Astronomy I	4
PHYS 2010/2030. College Physics I/Laboratory	4/1
PHYS 2020/2040. College Physics II/Laboratory	4/1
PSY 2220. Biological Basis of Behavior	3
Total	7-8

HUMANITIES

Choose one:	<i>Semester Hours</i>
CNST 1000. China and the Chinese	3
ENGL 1601. Telling Tales: Narrative Art in Literature and Film	3
ENGL 2600. Great Works in British and American Literature	3
ETST 2155. African American History	3
FR 1000. Intro to Cultures of the French-Speaking World	3
GER 1000. Germany and the Germans	3
HIST 1361. U.S. History to 1876	3
HIST 1362. U.S. History since 1876	3
HIST 1381. Paths to the Present I	3
HIST 1382. Paths to the Present II	3
PHIL 1012. Intro to Philosophy: Relationship of the Individual to the World	3
PHIL 1020. Introduction to Ethics and Society: Person and Community	3
PHIL 2441. Logic and Language	3
RLST 1610. Introduction to Religious Studies	3
RLST 2660. World Religions	3
SPAN 1000. Introduction to Cultures of the Spanish Speaking	3
Total	3

ARTS

Choose one:	
F A 1001. Introduction to Art	3
PMUS 1001. Music Appreciation	3
THTR 1001. Introduction to Theatre	3
Total	3

BEHAVIORAL SCIENCES

Choose one:	
ANTH 1302. Introduction to Archaeology	4
ANTH 2102. Culture and the Human Experience	3
CMMU 1011. Fundamentals of Communication	3
CMMU 1021. Fundamentals of Mass Communication	3
PSY 1000. Introduction to Psychology I	3
PSY 1005. Introduction to Psychology II	3
Total	3

SOCIAL SCIENCES

ECON 2012. Principles of Economics-Macro	3
Total	3

Cultural Diversity

Choose one:	
ANTH 3142. Cultural Diversity in the Modern World	3
CMMU 3271. Communication and Diversity	3
ECON 3100. Economics of Race and Gender	3
ENGR 3400. Technology and Culture	3
ETST 3704. Culture, Racism and Alienation	3
ETST 3794. Ethnic Diversity in American Literature	3
HIST 3345. Immigration and Ethnicity in U.S. History	3
MGMT 4100. Managing Cultural Diversity	3
PHIL 3500. Ideology and Culture: Racism and Sexism	3
P SC 3034. Race, Gender, Law and Public Policy	3
P SC 3035. Political Movement: Race and Gender	3
PSY 4485. Psychology of Cultural Diversity	3
SOC 3020. Race and Ethnicity in the U.S.	3
RLST 4000. Religion and Cultural Diversity	3
THTR 3611. Drama of Diversity	3
Total	3

International Perspectives

	<i>Semester Hours</i>
Choose one:	
ENGR 3600. International Dimensions of Culture and Technology ...	3
HIST 3899. Encounters in World History.....	3
P SC 3022. Introduction to Comparative Politics	3
P SC 3042. Introduction to International Relations	3
Total	3
TOTAL CORE	34-35

BUSINESS SCHOOL SPECIFIC GRADUATION REQUIREMENTS

CMMU 2050. Business and Professional Speaking	3
ECON 2022. Principles of Economics: Microeconomics	3
ENGL 3170. Business Writing.....	3
A. MATH 1080. Polynomial Calculus	3
<i>Note: The required sequence MATH 1070 or MATH 1110 and MATH 1080 may be satisfied by a 6-hour calculus sequence.</i>	
B. OTHER. MATH 1070 or MATH 1110, ECON 2012, P SY 1000, may be taken as part of the campus core.	
C. The Business School strongly encourages students to take ENGL 2030 before completing ENGL 3170. However, if other courses in their respective areas are taken to satisfy campus core requirements, then these required courses must still be completed to meet graduation requirements.	

BUSINESS CORE

Students should complete the business core in the order listed below:

DSCI 2010. Business Statistics	3
ACCT 2200. Financial Accounting and Financial Statement Analysis ...	3
ACCT 2220. Managerial Accounting and Professional Issues	3
ISMG 2050. Introduction to Business Problem Solving	3
ISMG 3000. Principles of Information Systems: Theory and Practice..	3
BLAW 3000. Legal, Ethical and Social Environments of Business I ...	3
MGMT 3000. Managing Individuals and Teams	3
FNCE 3000. Principles of Finance	3
MKTG 3000. Principles of Marketing	3
DSCI 3000. Operations Management	3
MGMT 4500. Business Policy and Strategic Management.....	3
Total	33

A grade *C* or better must be earned in each of the business core courses in order to (a) enroll in a course for which it is a prerequisite and (b) graduate.

INTERNATIONAL STUDIES

International Business

	<i>Semester Hours</i>
Choose one:	
FNCE 4370. International Financial Management	3
MGMT 4400. Introduction to International Business	3
MKTG 4200. International Marketing	3
MKTG 4580. International Transportation	3
Total	3

Other courses in international business may be offered periodically that satisfy the international studies requirement.

AREA OF EMPHASIS

Business majors must complete the prescribed courses in an area of emphasis comprising a minimum of 15 semester hours taken at the UCDHSC. Business students are advised to select an area of emphasis prior to completing the business core, and are required to declare a major area of emphasis by the time they have accumulated 60 to 75 semester hours. The courses in the area of emphasis are completed in the junior and senior years after completing the business core. A minimum

GPA of 2.0 is required for courses in the area of emphasis.

The areas of emphasis include accounting, financial management, human resources management, information systems, international business, management or marketing. The specific requirements for these areas of emphasis are described in subsequent sections.

EXPERIENTIAL LEARNING

Business students must earn 3 semester hours of credit in an approved experiential learning course. Experiences that may qualify for experiential credit include internships, project-based courses, business courses taken at a foreign university, study abroad programs, service learning that serves the community and student projects for which the student petitions for approval.

Experiential learning is a graduation requirement for students entering the Business School in the 2007–2008 academic year with fewer than 15 semester hours of prior credit. Students admitted prior to fall 2007 are not required to meet the experiential learning requirement.

Students may petition to waive the experiential learning requirement based on hardship or substantial professional work experience.

OTHER COURSES

Students may choose other courses freely, subject to the following general rules:

- only nonremedial (college-level, as determined by the Business School) courses will count toward the BS degree
- all students receiving the BS degree in business must take at least 48 upper-division semester hours, of which 42 semester hours must be upper-division business credit (excluding the economics core courses)
- at most, 60 semester hours in business (excluding the economics core courses) may be counted toward the 120 semester hours required for the BS degree in business
- students must complete 30 hours of actual business course work, including the area of emphasis, after acceptance to the Business School
- at least 50 percent of the business credits applied to the degree must be taken at the downtown Denver campus

Guidelines for Elective Credits. Elective credits should be selected carefully because not all classes are acceptable. Generally, to be acceptable, electives must be taught by regular University of Colorado faculty, must have a form of assessment, such as a term paper and/or examinations, and must be regular classroom-type classes. Course coverage must be college level, not 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.

Specifically, the school *will* accept:

- a maximum of 6 hours of the theory of physical education, theory of recreation and/or theory of dance
- a maximum of 6 hours of approved independent study, internships, experimental studies, choir, band and/or music lessons, art lessons
- a maximum of 12 hours of advanced ROTC, providing the student is enrolled in the program and completes the total program

The school will *not* accept: activity physical education classes, recreation, workshops, orientations, dance, teaching methods, practicums and courses reviewing basic skills in computers, English composition, mathematics and chemistry.

ACADEMIC POLICIES FOR SELECTING COURSES

Registration

For registration, go online to www.cudenver.edu/admissions/registrar.

Maximum Units per Term

The normal scholastic load of an undergraduate business student is 15 semester hours, with a maximum of 18 hours allowed during the fall/spring semesters and 12 hours allowed during the summer session. Hours carried concurrently in the Division of Continuing Education, CU-Boulder, or the downtown Denver campus Extended Studies Programs, whether in classes or through correspondence, are included in the student's term load.

Repeating Courses

A failed course (grade of *F*) may be repeated; however, the *F* will be included in the GPA and will appear on the transcript. Students must earn at least a *C* grade in required Business Core courses. Core business courses must be repeated if the student earns less than a *C* grade.

Courses from Other Institutions

Business students must have the written approval of the business program director to register for courses (excluding MSCD pooled courses) offered by other institutions, including other CU campuses. Credit will not be given for courses taken without approval. Grades of *C* or better must be earned to receive business degree credit. Generally, only nonbusiness electives or lower-division, nonbusiness requirements are acceptable for transfer from other institutions once a student has been admitted to the Business School. Students who, after admission to the college, take more than 12 semester hours from another institution, must reapply for admission to the college as transfer students and must meet the current admission requirements.

Metropolitan State College of Denver Courses

Business students may select their nonbusiness required and elective courses from those offered by MSCD. Grades of *C* or better must be earned to receive business degree credit; however, the grade is not computed in the CU GPA and is treated like other transfer credits. MSCD business courses may not be taken for downtown Denver campus business degree credit.

Graduate-Level Courses

With prior written approval of the business program coordinator, students may take a maximum of 6 semester hours of graduate-level nonbusiness elective credits. Students must earn grades of *B* or better in graduate courses to apply the credits toward business degree requirements.

Pass/Fail

Only internships, independent studies and nonbusiness elective courses may be taken pass/fail. Required business and nonbusiness courses (including the campus core) may *not* be taken pass/fail. A maximum of 6 hours pass/fail credit may be applied toward the business degree. Courses taken in excess of the maximum will not be applied toward degree credit. Pass/fail determination must be made within the posted deadlines (at census dates) and may not be rescinded (unless approved by the undergraduate committee).

Correspondence Courses

Only 6 semester hours of credit taken through correspondence study (from regionally accredited institutions) will be applied toward the business degree. Business courses may not be taken by correspondence. All correspondence courses must be evaluated by the business program coordinator to determine their acceptability toward degree requirements, and the program coordinator's written approval is required *prior* to the student's registering for courses. Students may contact the Division of Continuing Education, CU-Boulder, for correspondence course offerings and registration procedures.

Independent Study

Junior or senior business students desiring to work beyond regular course coverage may take variable credit courses (1–3 semester hours) as nonbusiness electives under the direction of an instructor who approves the project, but the student must have the appropriate approval before registering. A maximum of 3 semester hours of independent study course work may be taken in any one semester; a maximum of 6 semester hours may be applied toward degree requirements.

An independent study request form must be signed by the student, the instructor, the program director and the director of advising and admissions.

ACADEMIC POLICIES FOR SUSPENSION AND PROBATION

To be in good standing, students must maintain an overall CU GPA of 2.0 (*C*=2.0) or better for *all course work attempted* and a 2.0 GPA or better for *all business courses attempted*. PE activity courses, remedial course work, MSCD courses and repeated courses not approved by a business advisor are not included in this average.

When semester grades become available, students falling below the 2.0 GPA will be notified of (1) probationary status or (2) suspension. Students are responsible for being aware of their academic status at all times; late grades and/or late grade notification does not waive this responsibility. School rules governing probation and suspension are as follows:

1. Any student whose overall GPA or business course GPA is less than 2.0 will be placed on probation immediately. A student may be removed from probation when the overall GPA and business GPA have been raised to 2.0.
2. A student may remain on probation as long as he/she maintains normal degree progress each semester as determined by the school *and* each term, while on probation, obtains an overall term GPA of 2.5 and term business course GPA of 2.5, with no grade below a *C*. Failure to meet probationary provisions will result in suspension. Probationary status may continue only until the student has completed a maximum of 12 semester hours or four terms, whichever comes first; summer is considered a term. The student will be suspended if the GPA deficiency is not cleared within this time.
3. Suspended students may not attend any campus of the University of Colorado or any division of the university (including continuing education or extended studies credit classes).
4. Students on suspension may petition for re-admission to the school after waiting a minimum of one year from the term in which they were suspended. Generally, petitions are granted only in unusual circumstances. Any suspended student re-admitted to the school will be under contract and placed on a continued probation status until the GPA deficiency has been cleared. Such students will be automatically suspended if, at any time, their overall GPA or business GPA again falls below 2.0.
5. Students earning all failing grades for a semester will have a dean's stop placed on their record and will not be permitted to register without a business advisor's approval.
6. Combined degree students are required to maintain the same standards of performance as Business School students in order to be continued in a combined program.

AREAS OF EMPHASES

Business students must choose an area of emphasis and complete the requirements for the area. The area of emphasis provides specialization beyond the general background that is provided by the undergraduate core and the business core, both of which are required to be fulfilled prior to completing the area of emphasis courses. This section provides information about each area of emphasis and specifies the courses that are required.

Accounting

Program Director: Bruce R. Neumann

Telephone: 303-556-5884

E-mail: Bruce.Neumann@cudenver.edu

Accounting courses are offered in several fields of professional accountancy at the intermediate, advanced and graduate levels. They provide preparation for practice in one or more of the following fields:

- Auditing
- Financial Accounting
- Financial Management
- Management Control Systems
- Managerial Accounting
- Tax Accounting
- Teaching and Research

In all of these fields a thorough knowledge of the social, legal, economic and political environment is needed. A high degree of analytical ability and communication skill is indispensable. A grade of *C* must be earned in all accounting courses to qualify for graduation.

Courses in English composition, speech, ethics and logic are desirable. Courses in statistics and information systems, beyond the required business core courses, are highly recommended.

<i>Required Courses</i>	<i>Semester Hours</i>
ACCT 3054. Accounting Systems and Data Processing	3
ACCT 3220. Intermediate Financial Accounting I	3
ACCT 3230. Intermediate Financial Accounting II	3
ACCT 3320. Intermediate Cost Accounting	3
ACCT 4410. Income Tax Accounting	3
ACCT 4620. Auditing	3
ACCT free elective (4000 level)	3
Total	21

Students planning to pursue accounting as a career may take more than the above required hours. Many students complete a total of 30 hours of accounting, often taking two accounting courses each semester in their junior and senior years. Students should work closely with the accounting faculty and business advisors in planning their accounting programs.

The accounting program offers several 4000/6000-level courses. Students with credit for a 4000-level course cannot receive credit for the corresponding 6000-level course. Graduate students should take 6000-level courses.

Accounting students often specialize in a particular topical area of accounting.

Graduate study in accounting is receiving increasing emphasis by professional organizations and employers. Students meeting admission requirements should consider continuing their education at the graduate level. Qualified undergraduates may petition for permission to take one or two graduate accounting courses as electives (e.g. ACCT 6800. Special Topics). Examples of these specializations include:

FINANCIAL ACCOUNTING

<i>Recommended Electives</i>	<i>Semester Hours</i>
ACCT 4240. Advanced Financial Accounting	3
ACCT 4800. Accounting for Government and Nonprofit Organizations.	3

MANAGERIAL ACCOUNTING

<i>Recommended Electives</i>	<i>Semester Hours</i>
ACCT 4330. Managerial Accounting Problems and Cases	3
ACCT 4800. Accounting for Government and Nonprofit Organizations.	3

ACCOUNTING AND INFORMATION SYSTEMS (ACIS)

Within the accounting curriculum students can choose to add courses in information systems to complement their individual interests as well as prior education and work experiences.

Required Courses

ACCT 3054. Accounting Systems and Data Processing	3
ACCT 3220. Intermediate Financial Accounting I	3
ACCT 3230. Intermediate Financial Accounting II	3
ACCT 3320. Intermediate Cost Accounting	3
ACCT 4410. Income Tax Accounting	3
ACCT 4620. Auditing	3
ACCT/ISMG 4780. Accounting IS Processes and Control	3

ISMG Electives

Choose two:

ISMG 4500. Database Management and Applications	3
ISMG 4600. System Analysis and Design	3
ISMG 4900. Project Management and Practice	3
Total	27

Financial Management

Program Director: James R. Morris

Telephone: 303-556-4370

E-mail: James.Morris@cudenver.edu

The financial management emphasis provides students with the skills needed to succeed in careers in financial management. The business community has affirmed that students need skills in both the accounting and finance areas. The financial management specialty incorporates knowledge of corporate financial management, financial institutions and markets, investments, financial accounting and managerial accounting, accounting information systems and information technology. Career opportunities include corporate financial management, finance/accounting positions with financial institutions and accounting positions that are not CPA-track. The specialization provides a solid finance and accounting background for other business positions as well.

Required Courses *Semester Hours*

<i>Accounting</i>	<i>Semester Hours</i>
ACCT 3054. Accounting Systems and Data Processing	3
ACCT 3220. Intermediate Financial Accounting I	3
ACCT 3320. Intermediate Cost Accounting	3
FNCE 3500. Management of Business Capital	3
FNCE 4330. Investment and Portfolio Management	3
FNCE 4350. Financial Markets and Institutions	3
FNCE 4500. Corporate Financial Decisions	3

Accounting Elective

Choose one:

ACCT 4950. Special Topic: Financial Statement Analysis	3
ACCT 4950. Special Topic: International Accounting	3
ACCT 3230. Intermediate Financial Accounting II	3
ACCT 4330. Managerial Accounting Problems and Cases	3
ACCT 4410. Income Tax Accounting	3
Total	24

In addition, financial management students must complete FNCE 4370. International Finance to fulfill the international studies requirement.

* Students should note that all finance and accounting courses are not offered every semester. Students should take the ACCT 2200 and ACCT 2220 courses as soon as possible to avoid future problems in their schedules, since these are prerequisites for all courses in the specialization.

FINANCIAL MANAGEMENT AND INFORMATION SYSTEMS

The new financial management and information systems emphasis provides students with skills that they need to succeed in careers that bridge the fields of finance and information systems.

The business community has affirmed that students need skills in accounting, finance and information systems. The financial management and information systems specialty incorporates knowledge of financial management and markets, accounting and information systems and

technology. This specialization provides the manager with knowledge of financial information systems, databases, risk management and accounting systems.

Job opportunities include accounting positions that are not CPA-track, finance/accounting positions with nonfinancial and financial institutions and in the business systems areas in the field of business finance. The specialization provides a solid accounting/finance and information systems background for other finance specialist and business analyst positions as well.

<i>Required Courses</i>	<i>Semester Hours</i>
<i>Finance</i>	
FNCE 3500. Capital Management	3
FNCE 4350. Financial Markets and Institutions	3
FNCE 4330. Investment and Portfolio Management	3
FNCE 4500. Corporate Financial Decisions	3
<i>Accounting</i>	
ACCT 3054. Accounting Systems and Data Processing	3
ACCT 3220. Intermediate Financial Accounting I	3
ACCT 3320. Intermediate Cost Accounting	3
ACCT/ISMG 4780. Accounting IS Processes and Control	3
<i>ISMG</i>	
ISMG 4500. Database Management and Applications	3
ISMG 4600. System Analysis and Design	3
ISMG 4900. Project Management and Practice	3
Total	33

In addition, financial management students must complete FNCE 4370. International Finance to fulfill the international studies requirement.

Human Resources Management

Program Director: James R. Morris
Telephone: 303-556-4370
E-mail: James.Morris@cudenver.edu

Human resources management offers opportunities for students to develop professional competence in the areas of personnel administration and development. Students acquire an understanding of and skills in developing and implementing human resources systems, including recruitment, selection, evaluation, training, motivation and compensation.

<i>Required Course</i>	<i>Semester Hours</i>
MGMT 3010. Managing People for Competitive Advantage	3
<i>Electives</i>	
Choose two:	
MGMT 4420. Human Resources Management: Staffing	3
MGMT 4430. Human Resources Management: Training	3
MGMT 4440. Human Resources Management: Performance	3
MGMT 4450. Human Resources Management: Compensation	3
<i>Management Electives</i>	
Choose three:	
Any MGMT Course	3
BLAW 4120. Legal and Ethical Environments of Business II	3
ENTP 3000. Principles of Entrepreneurship	3
MKTG 3050. Applied Marketing Management	3
Total	21

Information Systems

Program Director: James R. Morris
Telephone: 303-556-4370
E-mail: James.Morris@cudenver.edu

Information technologies have the power to create and restructure industries, empower individuals and firms and dramatically reduce costs. They are the lifeblood of the modern enterprise, making up the

single largest portion of capital spending among U.S. corporations. Today's managers and other business professionals simply cannot perform effectively without a solid understanding of the role of information systems (IS) in business, competition and national and global economy.

The IS area of emphasis focuses on effective use of IT in business. It is designed to produce graduates equipped with logical and analytical thinking in all areas of business and with strong basis for continued career growth in a variety of fast-growing professions. Students who choose this emphasis will develop the technical skills, business know-how and administrative insights required for (1) acquisition, deployment and management of IT resources and services and (2) development, operation and evolution of IS infrastructure for use in accounting, finance, marketing, management and other business processes. The academic content of this program, therefore, includes IT/IS management, development, implementation and use in all business areas.

CAREERS

IS careers are dominated in the list of fastest growing occupations by the U.S. Bureau of Labor Statistics. It includes a broad array of careers, from the highly technical information systems specialists to those who bridge the gap between the people who develop IS and the people who use them. In addition, careers in other business areas, such as finance, accounting and marketing, increasingly require candidates with advanced IS skills. The greatest demand in the IS field will be for professionals who have technical knowledge and business know-how and who have a solid understanding of the role of IS in businesses and organizations. Graduates from this program may pursue a variety of careers in business, consulting and government. These careers range from generalists, such as consultants, technology analysts, business analysts and project/account managers, to specialists such as systems analysts, designers and integrators, database and network administrators as well as technology managers. At higher levels within the firm, the job titles would include director of MIS, vice president of IT, chief information officer, chief knowledge officer and chief technology officer.

CURRICULUM

The courses emphasize both team and individual work, allowing students to gain critical thinking skills, knowledge and experience to analyze, design, program, implement and use information.

<i>Required Emphasis Courses</i>	<i>Semester Hours</i>
ISMG 2200. Introduction to Business Programming	3
ISMG 4500. Database Management and Applications	3
ISMG 4600. Systems Analysis and Design	3
ISMG 4700. Networks and Telecommunication	3
ISMG 4800. eBusiness Systems Development	3
ISMG 4900. Project Management and Practice	3
Total	18

These courses are offered both online and on campus.

Note: These courses are in addition to the information systems courses required as part of the business core (i.e., ISMG 2050 and ISMG 3000).

Students who choose the IS emphasis do not have to take the following courses as part of the business core: BLAW 4120 and MGMT 4370; however, appropriate upper-division business courses will be required.

ELECTIVES

Within the IS curriculum, students must add an additional two upper-division business courses to form a minor area of emphasis in either marketing, management, accounting or financial management to complement individual interests as well as prior education and work experiences.

<i>Management Required</i>	
MGMT 3010. Managing People for Competitive Advantage	3

Management Electives

Choose one:

MGMT 4420, 4430, 4450. Human Resource Management— Staffing, Training, Compensation	3
ISMG/MGMT 4770. Human Resource Information Systems	3
Total	3

Marketing Electives

Choose two:

MKTG 3050. Applied Marketing Management	3
MKTG 3100. Marketing Research	3
MKTG 3200. Buyer Behavior	3
ISMG/MKTG 4760. Customer Relationship Management	3
Total	6

Financial Management Electives

Choose two:

FNCE 4330. Investment and Portfolio Management	3
FNCE 4350. Financial Markets and Institutions	3
FNCE 4500. Corporate Financial Decisions	3
ISMG/FNCE 4750. Business Intelligence and Financial Modeling	3
Total	6

Accounting Electives

Choose two:

ACCT 3220. Intermediate Financial Accounting I	3
ACCT 3230. Intermediate Financial Accounting II	3
ACCT 3320. Intermediate Cost Accounting	3
ISMG/ACCT 4780. Accounting IS Processes and Control	3
Total	6

Secondary Area of Emphasis

Given the increasing influence of IS in all functional areas, it also serves as an excellent second concentration for students whose primary concentration is in another field such as accounting, finance, marketing or management.

International Business**Program Director:** James R. Morris**Telephone:** 303-556-4370**E-mail:** James.Morris@cudenver.edu

Increasingly, businesses are reorienting their thinking, planning and operations to capitalize on opportunities that exist in the world marketplace. Every phase of business is affected by this reorientation. For individuals with the appropriate skills, training and interest, international business provides excellent career opportunities.

The international business curriculum is designed to enhance and build on thorough training in basic business skills and to provide students with additional skills and knowledge appropriate to international business.

<i>Required Foundation Courses</i>	<i>Semester Hours</i>
MKTG 3050. Applied Marketing Management	3
MGMT 4370. Organizational Design	3

<i>Required Emphasis Courses</i>	
FNCE 4370. International Financial Management	3
MKTG 4200. International Marketing	3
MKTG 4580. International Transportation	3
MGMT 4400. Introduction to International Business	3
Total	18

A second area of emphasis in business is highly recommended. In addition, serious consideration should be given to advanced study of a foreign language and to either a minor or a certificate in international affairs, offered by the College of Liberal Arts and Sciences.

Management**Program Director:** James R. Morris**Telephone:** 303-556-4370**E-mail:** James.Morris@cudenver.edu

The management curriculum provides the foundation for careers in supervision and general management in a wide variety of organizations. It develops skills in management practice through an understanding of general management principles, individual and group behavior, organizational change and design and human resources management.

Required Foundation Course

MKTG 3050. Applied Marketing Management	3
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Required Emphasis Courses

MGMT 3010. Managing People for Competitive Advantage	3
MGMT 4350. Conflict and Change in Organizations	3
MGMT 4370. Organizational Design	3

Choose two:

Any upper-division MGMT course	3
BLAW 4120. Legal and Ethical Environments of Business II	3
ENTP 3000. Principles of Entrepreneurship	3

*These 6 hours must be in addition to MGMT courses that were used to satisfy the international business or diversity requirements.

Total	21
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MANAGEMENT/INFORMATION SYSTEMS (MGIS)

Within the management curriculum students can choose to add additional courses in information systems to complement their individual interests as well as prior education and work experiences.

<i>Required Information System courses</i>	<i>Semester Hours</i>
ISMG 4500. Database Management and Applications	3
ISMG 4600. System Analysis and Design	3
ISMG 4900. Project Management and Practice	3
Total	9

Marketing**Program Director:** James R. Morris**Telephone:** 303-556-4370**E-mail:** James.Morris@cudenver.edu

Marketing is concerned with directing the activities of the organization toward the satisfaction of customer wants and needs. This involves understanding customers, identifying those wants and needs that the organization can best serve, guiding the development of specific products or services, planning and implementing ways to take products or services to the market, securing the customer's order and finally, monitoring customer response in order to guide future activities.

In most organizations, marketing is a major functional area that provides a wide variety of career opportunities in such fields as personal selling and sales management, advertising and sales promotion, public relations, marketing research, physical distribution, product management, market management, marketing information systems and retail management. Increasingly, career opportunities exist in service businesses and nonprofit organizations.

Required Foundation Courses

BLAW 4120. Legal and Ethical Environments of Business II	3
MGMT 4370. Organizational Design	3

Required Emphasis Courses

MKTG 3050. Applied Marketing Management	3
MKTG 3100. Marketing Research	3
MKTG required courses (3)	9

Electives

Choose three:

MKTG 3200. Buyer Behavior.....	3
MKTG 4000. Advertising.....	3
MKTG 4200. International Marketing	3
MKTG 4500. Advertising Management and Public Relations	3
MKTG 4580. International Transportation	3
MKTG 4600. Business Marketing	3
MKTG 4700. Personal Selling and Sales Management.....	3
MKTG 4950. Special Topics	3
Total	21

In addition to the three required courses beyond the core, students may select marketing electives, business electives and nonbusiness electives that support their particular career orientations. The marketing faculty advisor can assist the student in choosing an appropriate set of electives to fit career objectives.

Marketing courses that were used to satisfy the international business requirement cannot be applied to the marketing area of emphasis.

MARKETING/INFORMATION SYSTEMS (MKIS)

Within the marketing curriculum students can choose to add courses in information systems to complement their individual interests as well as prior education and work experiences.

Required information system courses

ISMG 4500. Database Management and Applications	3
ISMG 4600. System Analysis and Design	3
ISMG 4900. Project Management and Practice	3

Required Emphasis Courses

MKTG 3050. Applied Marketing Management.....	3
MKTG 3100. Marketing Research	3
ISMG/MKTG 4760. Customer Relationship Management	3

Choose two:

MKTG 3200. Buyer Behavior.....	3
MKTG 4000. Advertising.....	3
MKTG 4700. Personal Selling and Sales Management	3
MKTG 4720. Internet Marketing	3
MKTG 4950. Special Topics	3
Total	24

Marketing courses that were used to satisfy the international business requirement cannot be applied to the marketing area of emphasis.

GRADUATE BUSINESS PROGRAMS (MBA/MS/PhD)**Associate Dean:** Clifford E. Young**Assistant Dean:** Linda J. Olson**Telephone:** 303-556-5900**Fax:** 303-556-5904**E-mail:** grad.business@cudenver.edu

The Business School offers programs leading to a doctor of philosophy, the master of business administration and the master of science in specific fields of business and health administration. In addition, the master of business administration for executives (executive MBA) is offered as a multicampus program of the University of Colorado business schools, and the executive program in health administration (executive MBA/HA) is offered through the executive health network.

The PhD, MBA, the executive MBA and the MS degree in business are accredited by AACSB International, the Association to Advance Collegiate Schools of Business. The health administration MBA and MS degrees are also accredited by the Commission on Accreditation of Healthcare Management Education (CAHME).

Requirements for Admission to the MBA and MS Programs**ADMISSIONS ADVISING**

Persons contemplating graduate study are encouraged to learn about admission and program requirements by scheduling an appointment with a graduate advisor or attending one of the regularly scheduled prospective student information meetings. Call 303-556-5900.

Admission to the graduate programs in business is granted only to students showing high promise of success in graduate business study. Admission is based on the following indicators of the candidate's likelihood to succeed in the program.

ACADEMIC RECORD

The bachelor's degree must be earned from a regionally accredited university. The total academic record is considered, including the GPA, the course of study and the quality of the program.

REQUIRED TESTING

The GMAT is required for admission consideration for any applicant who does not have a post-baccalaureate degree. The GMAT is administered at numerous centers throughout the world. For information and to make application for the test, write to: GMAT, Educational Testing Service, CN 6103, Princeton, NJ 08541; or phone 1-800-GMATNOW; or visit www.mba.com. The code numbers for UCDHSC's graduate business programs are as follows:

MBA: MPB-OG-78

MS: MPB-OG-75

PhD: MPB-OG-29

WORK EXPERIENCE

A record of appropriate employment at increasing levels of responsibility is considered a positive indicator of the likelihood of successful completion of graduate work. A resume must be submitted with the application materials.

BACKGROUND REQUIREMENTS

Students applying for graduate programs in business do not need to have taken their undergraduate degrees in business. The MBA program is specifically designed so that the required courses cover the material needed for completion of the degree. There are no prerequisites needed to start the MBA program. Applicants for the MS degree, however, may be required to take background or common body of knowledge courses, depending on the individual's academic background. Students with nonbusiness backgrounds have completed the program successfully. For more detailed information, phone a graduate academic advisor, 303-556-5900.

It is expected that students have an adequate level of personal computer proficiency in a word processing and spreadsheet software, as well as a good working knowledge of basic algebra and proper English.

THE ADMISSION PROCESS

Mailing address for applications:

Graduate Admissions

The Business School

University of Colorado at Denver and Health Sciences Center

Campus Box 165, P.O. Box 173364

Denver, CO 80217-3364

Students seeking admission to the 11-month MBA, MBA with an emphasis in health administration, MS in health administration or executive programs should consult with the relevant catalog sections for additional application criteria or requirements.

Domestic Application Requirements

- Complete parts I and II of the application for graduate admission and the four essay questions.
- Have required GMAT scores sent directly to the graduate business admissions office from the Educational Testing Service. The code for UCDHSC's graduate business programs re as follows:
MBA: MPB-OG-78
MS: MPB-OG-75
PhD: MPB-OG-29
- Have two official transcripts (not student copies) mailed directly from each school, college and university ever attended past high school. Transcripts must be sent even if credit course work completed was not part of a degree program or was taken after an undergraduate degree was earned.
- Resumé
- Enclose a check for \$50 for the MBA, MS or PhD programs, or \$80 for the dual MBA/MS or dual MS/MS, made payable to the University of Colorado. Personal interviews are not required, except for the 11-month MBA and the MBA and MS in health administration.

Deadlines. To be considered for admission, applicants for graduate programs must submit all materials prior to the following dates:

- April 1 for summer session admission
- June 1 for fall semester admission
- November 1 for spring semester admission

The 11-month MBA option only admits students each fall.

Early applications are encouraged because, if admitted, the student receives priority for registration time assignment. Applications received after published deadlines with complete supporting documentation, scores, fees and transcripts will be considered, but do not receive priority handling.

International Application Requirements

See the International Education chapter in this catalog.

Academic Policies for Graduate Students

ADVISING

As soon as possible after being admitted, students should schedule an appointment with a graduate advisor to discuss general degree requirements, plus determine if any background course work may be required and/or what common body of knowledge courses might be waived for the MS degrees.

DEGREE PLAN

All students are encouraged to meet with a graduate advisor during their first semester to review their degree plan. Students are encouraged to meet with a graduate advisor throughout their program to ensure the correct sequencing of courses. An advising hold will be placed on students beginning an MBA, the MS in accounting and an MS in health administration. Students must petition before receiving degree credit for any course changes.

COURSE LOAD

The normal course load for full-time graduate students is 9–15 semester hours. However, because many students also are pursuing a career, it is possible to attend classes on a part-time basis by enrolling for 3–6 semester hours. For financial aid purposes, 6 semester hours of graduate study is considered full time. Graduate courses are scheduled primarily in the evening or online to accommodate work schedules.

TRANSFER OF CREDIT

Upon approval of the program director, a maximum of 12 semester hours of graduate business course work may be transferred to the MBA

and 9 semester hours for the MS degrees (9 semester hours for each the MBA and MS degree if under a dual program) from another AACSB-accredited graduate school of business, if they have been completed within the last five years with a grade of at least *B* (not *B-*). No transfer courses will be accepted if they have been used to satisfy degree requirements of a previously awarded degree. Graduate business courses taken at other University of Colorado campuses are considered transfer hours and are included in the transfer limit. Transfer of quarter hours of graduate business credit may satisfy a course requirement, but may not satisfy the total number of hours requirement. One quarter hour equals .667 semester hours.

TIME LIMITS

Master's students are required to complete all degree requirements within five years and one semester (seven years and one semester to earn dual MBA/MS or MS/MS degrees, or a PhD). Courses completed outside of these time limits will not be accepted toward the degree without petition. Time-limit extensions are given only for external situations that restrict a student's ability to complete the program in a timely manner. If you do not take graduate business courses for more than three semesters, you will need to reapply for admission.

FORMER STUDENTS

Any downtown Denver campus student who has not been enrolled in his or her admitted program of study for three consecutive semesters (summers included) is considered a former student and must reapply for admission to the program by submitting part I of the application for graduate admission, in-state tuition classification form, along with the applicable fee. Re-admitted students must conform to degree requirements in effect during the term in which they are re-admitted. If the new requirements differ significantly from the former degree plan, a petition may be submitted requesting exceptions.

GRADUATION

Students must complete the online intent-to-graduate form on the registrar's Web site (www.cudenver.edu/registrar) when they register for their last semester. Contact the graduate advising office to confirm receipt at gradadvising@cudenver.edu.

GRADE POINT AVERAGE REQUIREMENTS

A minimum cumulative GPA of 3.0 must be achieved and maintained for courses taken toward a graduate business degree. All downtown Denver campus graduate business courses are computed in the graduate business GPA. Transfer hours and grades from other institutions, including University of Colorado courses taken at the Boulder, Health Sciences and Colorado Springs campuses are not computed in the business GPA, although degree credit may be awarded through a petition process.

PROBATION AND SUSPENSION

If after completing 9 semester hours a student's cumulative graduate business GPA falls below 3.0, the student will be placed on academic probation and given three semesters (one calendar year) or 9 semester hours of graduate business course work (whichever occurs first) in which to achieve the required 3.0 cumulative average. Failure to achieve the required GPA within the allotted time period will result in suspension for one year. Suspended students who showed improvement while on probation or students with unusual circumstances who are unable to meet the time limits will have 30 days from the date of suspension activation to petition for a prolonged probationary period. Suspended students may not attend any campus of the University of Colorado including continuing education/extended studies. Suspended students may seek to be re-admitted after 12 months (three semesters) from the term in which the suspension occurred. A petition form plus a new graduate application part I and in-state tuition classification form must be submitted along with the appropriate fee. Generally petitions of this nature prove successful only on rare occasions.

PASSING GRADES

Any grade below a *C* (2.0) is a failing grade for graduate students. Graduate students must repeat a *required* course for which they have received a grade below a *C*. Both the original grade and the grade for the repeated course count in the computation of the business GPA.

REPEATING GRADUATE BUSINESS COURSES

A failed course (any grade below a *C*) must be repeated if it is a required course. Both the original and the repeated grade will be included in the GPA and will appear on the transcript. A course in which a grade of *C* or better is obtained may not be repeated without written approval from the assistant dean. Graduate business courses repeated without approval may not be used in the graduate business GPA calculation.

DROP/WITHDRAWAL

Classes dropped prior to census date will not appear on the transcript. Thereafter, to drop with a grade of *W*, a student must be earning a grade of *C* or better; otherwise, an *F* will appear on the transcript. Students will not be permitted to drop a course or withdraw from all courses after the 10th week of the semester, unless circumstances outside the student's control are documented. The petition to drop or withdraw must be approved by the assistant dean and the course instructor(s).

Registration for Graduate Business Courses

Students admitted to graduate degree programs have priority for graduate business courses. Nondegree students and graduate students from other University of Colorado schools or colleges may be permitted to attend on a space-available basis by meeting the qualifications and submitting a nondegree application form (available online at www.cudenver.edu/business).

Some graduate-level (6000-level) courses may be offered simultaneously with undergraduate 4000-level courses. However most 6000-level courses are reserved exclusively for graduate students.

MASTER OF BUSINESS ADMINISTRATION (MBA)

Program Director: Elizabeth Cooperman

Telephone: 303-556-5948

E-mail: Elizabeth.Cooperman@cudenver.edu

Faculty

Professors: Herman Aguinis, PhD, State University of New York-Albany; Marcelle Arak, PhD, Massachusetts Institute of Technology; Heidi Boerstler, PhD/JD, Yale University/University of Denver; Jean-Claude Bosch, PhD, University of Washington; Peter Bryant, PhD, Stanford University; Wayne Cascio, PhD, University of Rochester; Lawrence Cunningham, DBA, University of Tennessee; E. Woodrow Eckard, PhD, University of California-Los Angeles; Richard Foster, PhD, University of Chicago; James Gerlach, PhD, Purdue University; Jahangir Karimi, PhD, University of Arizona; Susan Keaveney, PhD, University of Colorado; Gary Kochenberger, PhD, University of Colorado; C. Marlena Fiol, PhD, University of Illinois-Urbana-Champaign; James Morris, PhD, University of California-Berkeley; Dennis Murray, PhD, University of Massachusetts-Amherst; Bruce Neumann, PhD, University of Illinois; Edward O'Connor, PhD, University of Akron; John Ruhnka, JD/LLM, Yale School of Law/Cambridge University; Marlene Smith, PhD, University of Florida; Dean Taylor, PhD, University of Chicago; Clifford Young, PhD, University of Utah.

Associate Professors: Ajeyo Banerjee, PhD, University of Massachusetts-Amherst; Kenneth Bettenhausen, PhD, University of Illinois-Urbana-Champaign; Kang Rae Cho, PhD, University of Washington; Gary

Colbert, PhD, University of Oregon; Elizabeth Cooperman, PhD, University of Georgia; Carol Dee, PhD, Louisiana State University; Blair Gifford, PhD, University of Chicago; Deborah Kellogg, PhD, University of Southern California; Sarah Koovor-Misra, PhD, University of Southern California; Michael Mannino, PhD, University of Arizona; L. Ann Martin, PhD, University of Minnesota; Michael Roberts, PhD, Georgia State University; Manuel Serapio, PhD, University of Illinois; Steven Walczak, PhD, University of Florida.

Assistant Professors: Adebayo Agbejule (visiting), PhD, University of Vassa, Finland; Vinit Desai, PhD, University of California at Berkeley; David Forlani, PhD, University of Minnesota; Dawn Gregg, PhD, Arizona State University; Vick Lane, PhD, University of Washington; Robert Nieschwietz, PhD, Arizona State University; Madhavan Parthasarathy, PhD, University of Nebraska; Ronald Ramirez, PhD, University of California-Irvine; Judy Scott, PhD, University of California-Irvine; Zhiping Walter, PhD, University of Rochester; Darryl Woolley, PhD, University of Utah.

Senior Instructors: John Byrd, PhD, University of Oregon; Elizabeth Connor, MS, Colorado State University; Chen Ji, MS, University of Colorado; Michael Harper, PhD, Rensselaer Polytechnic Institute; Robert Hockenbury, MS, University of Houston; Barbara Pelter, PhD, University of California-Davis; Marianne Plunkert, MA, Ohio State University; Mary Lee Stansifer, PhD, Northwestern University; Eric Thompson, MS, University of Colorado; John Turner, PhD, St. Louis University.

Instructors: Errol Biggs, PhD, Pennsylvania State University; John Daley, PhD, University of Washington; Cindy Fischer, MA, University of Colorado; Linda Fried, JD/LLM, University of Miami; Fredrick Hampel, MS, Kansas State University; Chen Ji, MS, University of Colorado; Barry McConnell, MBA, University of Colorado; Peter Miller, MA, Farleigh Dickenson University; Jeffrey Nystrom, MS, University of Colorado; Charles Rice, MA, University of Denver; Ira Selkowitz, JD, University of Denver; Mary Lee Stansifer, PhD, University of Florida; Cindy Sutfin, MS, University of Colorado; Nicole Vowles, PhD, Victoria University of Wellington, New Zealand.

The master of business administration (MBA) program provides a general background in management and administration. This background enables the student to have the breadth of exposure and depth of knowledge required for an advanced-level management career. The program is devoted to developing the concepts, analytical tools and communication skills required for competent and responsible administration of an enterprise viewed in its entirety, within its social, political and economic environment.

The professional MBA program allows the scheduling of classes with maximum flexibility so students can progress through the program at their own pace, by taking as little as one class per semester or as many as five classes per semester, at times that are convenient to their work schedule. The program can be completed in as little as 16 months or as long as five years plus one semester.

Online courses add additional flexibility. Students may complete all degree requirements online, or combine online and campus courses to broaden your choice of electives or to fit a business travel schedule or personal learning style. Choice of online electives is limited.

The MBA program is also available in different configurations: 11-month (full time, see relevant section), health administration and the executive MBA (see relevant section). All MBAs have the same curriculum requirements; they differ only in their focus, the flexibility of course scheduling and the time required to complete the program. The 11-month and executive MBAs are lockstep programs (no open electives, no specialized tracks), where all the students complete all program requirements together. No course transfers, waivers or substitutions are permitted.

<i>Core Requirements</i>	<i>Semester Hours</i>
BUSN 6520. Managing Individuals and Teams	3
BUSN 6530. Data Analysis for Managers	3
BUSN 6540. Legal and Ethical Environment of Business	3

Semester Hours

BUSN 6550. Analyzing and Interpreting Accounting Information . . .	3
BUSN 6560. Marketing Management	3
BUSN 6610. Information Systems Management and Strategy	3
BUSN 6620. Applied Economics for Managers	3
BUSN 6630. Management of Operations	3
BUSN 6640. Financial Management	3
BUSN 6710. Strategic Management	3

Electives

International business elective (1)	3
Free electives (5)	15
Total	48

Notes and Restrictions

Core Substitution. Students with extensive and comparable course work in a particular core subject area may petition to substitute a higher-level graduate core course on the basis of prior undergraduate or graduate course work taken at a regionally accredited college or university for the corresponding core class. This does not waive the 48-hour requirement. If a core course is substituted, another graduate-level course in the same functional area must be used as a substitute so that the student completes a total of 48 semester hours.

International Elective. One 3-hour course with an international focus must be completed. Contact a graduate advisor or refer to a current MBA degree plan for a complete list of options.

Electives. The professional MBA curriculum allows for 15 semester hours of elective credit, which can be chosen from graduate-level courses offered by the Business School, except BUSN courses numbered below 6800. Additional graduate-level course work completed at the downtown Denver campus outside the Business School may be applied to the MBA degree, but only with prior written approval of the MBA program director.

Note: Electives for the 11-month and executive MBA programs are preselected for all students.

MBA Specialized Tracks

Graduate students will have an opportunity to take specialized tracks within the professional MBA program by completing a prespecified program of elective courses. The following 15 tracks are available:

- Business-to-Business Marketing
- Business-to-Consumer Marketing
- Business Strategy
- Change Management
- Corporate Financial Management
- Decision Sciences
- Enterprise Technology Management
- Entrepreneurship
- Finance
- Financial Analysis
- Human Resources Management
- Information Systems
- International Business
- Investment Management
- Managing for Sustainability
- Marketing
- Services Management
- Sports and Entertainment Management

For additional information about the professional MBA program, contact a graduate advisor at 303-556-5900.

Master of Business Administration – 11-Month MBA

Program Director: Gary Colbert

Administrative Director: Debbie Capaldi

E-mail: 11-monthMBA@cudenver.edu

Telephone: 303-556-5911

Web site: www.cudenver.edu/business/11month

The 11-month MBA is an accelerated full-time program that brings academically superior students together with select research and teaching faculty. The program enables students to focus their energies in a concentrated, total-immersion program of study earning a nationally accredited, 48-semester-hour MBA degree in just under a year.

The 11-month MBA consists of five eight-week terms, three courses per term, plus a two-week international business course abroad. In addition to a minimum of 18 hours of class time each week, the 11-month MBA students spend an average of 30 hours a week on homework. Students should expect a minimum time commitment of 48 hours per week to successfully complete this program.

ADMISSION AND APPLICATION PROCESS

The admissions committee considers each candidate's entire record of achievement demonstrated through academic transcripts, GMAT scores, essays, letters of recommendation, personal interviews (optional at the candidate's discretion), work experience and extracurricular and community activities.

PREVIOUS EDUCATION

Applicants' complete academic records, including GPAs and previous course work are considered. Undergraduate degrees do not have to be in business, but they must be from regionally accredited colleges or universities.

TESTING

The GMAT is a requirement for application to the 11-month MBA program and cannot be substituted with other standardized examinations. If you take the GMAT more than once, we will evaluate your application using the highest GMAT score. The GMAT score for students admitted into the 11-month MBA program has averaged around 600. Students must score a minimum 500 to be considered for admission to the 11-month MBA program. The GMAT Web site is www.mba.com.

The 11-month MBA also requires a highly developed proficiency in written and oral English. International applicants whose first language is not English must take the TOEFL or IELTS exam and earn a minimum score of 575/232 TOEFL or 7 IELTS to be considered for admission to the 11-month MBA program. Information on taking the TOEFL or IELTS can be obtained by visiting www.ets.org and www.ielts.org.

The professional MBA and MS programs have no minimum GMAT requirement. An applicant may request to substitute another graduate assessment for the GMAT. Applicants may request a waiver of the GMAT, if they have already successfully completed a graduate program.

WORK EXPERIENCE

Students in the 11-month MBA program have an average of six years of work experience. However, experience ranges from the recently graduated to more than 30 years in business. Professional experience strengthens the application, since it adds relevance and depth to the learning process and enables candidates to contribute to and benefit from the knowledge of fellow classmates in the accelerated timeframe of the program.

APPLICATIONS

The following are required for consideration of admission to the program.

- completed application for graduate admission, parts I and II, submitted by published deadlines and fee (domestic or international as appropriate)
- two (2) letters of recommendation from professional or academic acquaintances who are familiar with the applicant's academic/professional competence
- GMAT scores taken in the last five years sent directly to the graduate admissions office from the Educational Testing Service. When registering for the GMAT, use code MPB-OG-65
- two (2) official transcripts from each school, college or university previously attended past high school, sent directly to the graduate admissions office. A minimum baccalaureate degree is required
- include answers to the four essay questions demonstrating commitment to an accelerated MBA program
- a resumé outlining work experience
- for international students, a minimum official score of 575/232 TOEFL or 7 IELTS is required to apply

The priority date for domestic applications is June 15 (May 1 for international students). Applications (for domestic students) and current fee information are available at www.cudenver.edu/business/11month.

All of the required admission materials should be sent to:

University of Colorado at Denver and Health Sciences Center
 The Business School
 Graduate Admissions
 Campus Box 165, P.O. Box 173364
 Denver, CO 80127-3364

For further information, brochures and application materials, contact the 11-month MBA program at 303-556-5911 or 11-monthMBA@cudenver.edu.

The 11-month MBA uses a rolling admission system. The committee reviews applications when they are complete in all respects, including transcripts, GMAT scores and letters of recommendation. Candidates are encouraged to submit their application as early in the process as possible. Completed applications are reviewed until early August; applications received after July 15 will be reviewed on a space-available basis. International applicants should have their completed applications in by May 1, to leave them sufficient time for visa and travel arrangements if they are admitted.

A personal interview may also be required for admission to the 11-month MBA.

11-MONTH MBA SCHOLARSHIPS/LOANS

General financial assistance is available for qualified students. Students should apply directly to the downtown Denver campus Office of Financial Aid. Call 303-556-2886 for information and forms. In addition, 11-month MBA merit-based scholarships are available only to students in the 11-month MBA. Other Business School scholarships are also available to all MBA students.

DEGREE REQUIREMENTS

Students in the 11-month MBA complete 10 MBA core courses, one international business course (conducted abroad) and five special topics courses. All courses require that students work in teams. Due to the program's cohort structure, individual elective options are not available to 11-month MBA students. **No courses may be waived, substituted or transferred into the program.** If a student finds it necessary to leave the accelerated program, credits already earned may be transferred to the professional MBA program on campus.

<i>MBA Core Courses</i>	<i>Semester Hours</i>
BUSN 6520. Managing Individuals and Teams	3
BUSN 6530. Data Analysis for Managers	3
BUSN 6540. Legal and Ethical Environment of Business	3
BUSN 6550. Analyzing and Interpreting Accounting Information ..	3
BUSN 6560. Marketing Management	3

Semester Hours

BUSN 6610. Information Systems Management and Strategy	3
BUSN 6620. Applied Economics for Managers	3
BUSN 6630. Management of Operations	3
BUSN 6640. Financial Management	3
BUSN 6710. Strategic Management	3
Total	30

INTERNATIONAL COURSE ABROAD

The international course, which involves travel abroad, is completed as an all-day, two-week intensive course.

SPECIAL TOPICS COURSES

The special topics courses, revised each year, are selected to create a broad understanding of the most current business issues. These requirements are subject to change.

Master of Business Administration—Health Administration

Program Director: Errol L. Biggs

Telephone: 303-556-5845

E-mail: errol.biggs@cudenver.edu

Faculty

Professors: Heidi Boerstler, PhD/JD, Yale University/University of Denver; Peter Bryant, PhD, Stanford University; C. Marlena Fiol, PhD, University of Illinois-Urbana-Champaign; Richard Foster, PhD, University of Chicago; Bruce Neumann, PhD, University of Illinois; Edward O'Connor, PhD, University of Akron
Associate Professors: Blair Gifford, PhD, University of Chicago; Deborah Kellogg, PhD, University of Southern California
Instructors: Errol Biggs, PhD, Pennsylvania State University

ADMISSION PROCESS

Requirements for Admission

Selection of students is a multistep process. When making application to the program for the MBA-HA, candidates should send their applications to:

Graduate Admissions
 Graduate School of Business Administration
 University of Colorado at Denver and Health Sciences Center
 Campus Box 165, P.O. Box 173364
 Denver, CO 80217-3364

Application Requirements

- complete the application for graduate admission, parts I and II, and submit by published deadlines
- send two (2) letters of recommendation from professional or academic acquaintances who are familiar with the applicant's academic/professional competence
- end required GMAT scores directly to the graduate office from the Educational Testing Service. When registering for the GMAT, use code MPB-OG-78. GRE scores will also be considered.
- pay the appropriate application fee
- send two (2) official transcripts directly from each school, college or university previously attended past high school. A minimum baccalaureate degree is required.
- include answers to the four essay questions
- document any experience in the field of health services administration (preferred but not required)
- complete a personal interview with the health administration committee

Admission to the MBA-HA degree program is on a competitive basis. Therefore, these admission criteria represent minimum entrance qualifications expected of all students.

For further information, brochures and application materials, contact the Business School's Graduate Program in Health Administration, University of Colorado at Denver and Health Sciences Center, 303-556-5900.

HEALTH ADMINISTRATION SCHOLARSHIPS/LOANS

Financial assistance is available for qualified students. Students should apply directly to the downtown Denver campus Office of Financial Aid. Call 303-556-2886 for information and forms.

In addition, some funds are available only to students in the graduate program in health administration:

- U.S. Department of Health and Human Services Health Administration Traineeships
- Foster G. McGaw Scholarship
- UCDHSC MS and MBA Health Administration Scholarship
- Colorado Health Administration Alumni Association Scholarship

Enrollment in the program also makes students eligible to apply for some nationally competitive scholarships from professional organizations. Call 303-556-5900 for applications or visit www.cudenver.edu/business.

GRADUATE PROGRAM IN HEALTH ADMINISTRATION

The graduate program in health administration is consistently ranked as a top program in the United States and attracts students with a variety of backgrounds and experience levels, which further enriches the classroom experience. The HA program is accredited by the Commission on Accreditation of Healthcare Management Education. The program is the only such program in the Rocky Mountain region and was started in 1968. Full-time faculty with distinguished research records and a select group of practicing managers provide students with the latest thinking on the most important health issues.

DEGREE REQUIREMENTS

The curriculum of the MBA with an emphasis in health administration is a synthesis of management concepts and techniques that are applicable to any economic organization, and tools that can be specifically applied to health services systems. The program emphasizes skills that strengthen basic analytic and decision-making processes used by top-level managers in selecting broad strategies and by junior managers in administering subunits in healthcare organizations.

Students enrolled in the master of business administration with an emphasis in health administration must complete a minimum of 48 semester hours of graduate-level course work to receive their degree. The curriculum is based on a series of structured learning sequences. Most of the courses are available in the evening to enable working students to pursue the degree on a part-time basis. The specific course requirements are as follows (recommended sequence):

YEAR ONE	<i>Semester Hours</i>
BUSN 6521. Managing Individuals and Teams	3
BUSN 6530. Data Analysis for Managers	3
BUSN 6550. Analyzing and Interpreting Accounting Information	3
HLTH 6010. Healthcare Systems	3
BUSN 6541. Legal and Ethical Environment of Business	3
HLTH 6071. Introduction to Health Information Technology	3
BUSN 6621. Applied Economics for Managers	3
HLTH _____. Health Elective	3
Total	24

YEAR TWO	
HLTH 6040. Healthcare Financial Management	3
BUSN 6640. Financial Management	3
BUSN 6560. Marketing Management	3

Semester Hours

HLTH _____. International Elective (Health)	3
BUSN 6631. Management of Operations (Health Section)	3
BUSN 6711. Strategic Management	3
HLTH 6911. Health Field Studies	3
HLTH _____. Health Elective	3
Total	24

Notes and Restrictions

Students admitted into the MBA with an emphasis in health administration must meet with a graduate advisor before they register for their first semester. Call 303-556-5900 to schedule an appointment.

Administrative Residency. An administrative residency is optional but recommended for students with limited healthcare experience. The program faculty provide assistance to students in securing the residency, as well as regular consultation during the residency period. The program has been very successful in placing graduates in administrative residencies.

Length of program. A maximum of five years and one semester is allowed to complete the health administration program.

Specialized Tracks in the MBA with an Emphasis in Health Administration

Each track carries its own specific course requirements. To provide a variety of perspectives and experiences within a specific area of health administration, each track includes courses that span various departments within the Business School, other schools at the downtown Denver campus and other University of Colorado campuses.

- International Health Management and Policy Track
- Financial Management Track
- Health Information Technology Management Track

MASTER OF SCIENCE PROGRAMS

Master of science degrees (MS) are offered in the fields of accounting, finance, health administration, information systems, international business, management and marketing.

The MS degree affords the opportunity for specialization and depth of training within a particular field. The specialization and expertise developed within the MS program prepares the student for more specialized staff positions in industry, the nonprofit sector and government.

The course requirements for the MS degree in each of the fields are divided into two components—common body of knowledge (CBK) and graduate core requirements. The common background requires business courses to develop general breadth and competence in the fields of business administration. These requirements differ among degree programs. Some common background requirements may be waived if evidence of equivalent undergraduate or graduate-level course work is shown and the course work is no more than 10 years old. An undergraduate degree in business administration earned from an AACSB or regionally accredited university will meet most of the CBK requirements. The graduate core requires at least 30 semester hours of graduate-level courses. BUSN courses lower than 6800 may not be used as free electives in the MS programs. Contact a graduate staff advisor for any exceptions.

No comprehensive exams are required.

Master of Science in Accounting

Program Director: Bruce R. Neumann
Telephone: 303-556-5884
E-mail: Bruce.Neumann@cudenver.edu

Faculty

Professors: Dennis Murray, PhD, University of Massachusetts-Amherst;
 Bruce Neumann, PhD, University of Illinois

Associate Professors: Gary Colbert, PhD, University of Oregon; Carol Dee, PhD, Louisiana State University; L. Ann Martin, PhD, University of Minnesota; Michael Roberts, PhD, Georgia State University
Assistant Professors: Robert Nieschwietz, PhD, Arizona State University; Darryl Woolley, PhD, University of Utah
Senior Instructors: Elizabeth Connor, MS, Colorado State University; Robert Hockenbury, MS, University of Houston
Instructors: Cindy Fischer, MA, University of Colorado

The master of science in accounting is a flexible program that provides the student with a thorough understanding of auditing, financial and managerial accounting. The combination of required and elective courses allows the student to design a course of study, leading to a successful career in either public accounting, governmental or nonprofit accounting, managerial accounting or taxation.

The MS in accounting requires completion of the following:

A. COMMON BODY OF KNOWLEDGE (CBK)

Choose three BUSN courses numbered below 6800; the following are recommended:

	<i>Semester Hours</i>
BUSN 6540. Legal and Ethical Environment of Business I	3
BUSN 6620. Applied Economics for Managers	3
BUSN 6640. Financial Management	3
Total	9

Waivers of CBK courses are possible. The entire CBK may be waived if the student has completed an undergraduate business degree from an AACSB-accredited college or university within the last 10 years. Specific courses may be waived based on a case-by-case evaluation of undergraduate or graduate course work in business completed at a regionally accredited college or university within the last 10 years and a grade of B- or better was received.

B. BACKGROUND ACCOUNTING COURSES*

Required Courses

ACCT 2200. Financial Accounting and Financial Statement Analysis	3
ACCT 2220. Managerial Accounting and Professional Issues	3
ACCT 3054. Accounting Systems and Data Processing	3
ACCT 3220. Intermediate Financial Accounting I	3
ACCT 3230. Intermediate Financial Accounting II	3
ACCT 3320. Intermediate Cost Accounting	3
Total	18

*Waived for students with appropriate background. BUSN 6550. Analyzing and Interpreting Accounting Information may be substituted for ACCT 2200 and ACCT 2220.

Accounting courses may be taken by nondegree or non-matriculated students.

C. MS ACCOUNTING CORE

Required Courses

ACCT 6250. Seminar: Financial Accounting	3
ACCT 6260. Seminar: Managerial Accounting	3

Accounting Electives

Choose three:

ACCT 6280. Professional Judgment and Decision Making	3
ACCT 6290. Management Control Systems	3
ACCT 6340. Financial Statement Analysis	3
ACCT 6350. Current Issues in Professional Accounting	3
ACCT 6370. International Accounting	3
ACCT 6410. Advanced Tax for Individuals	3
ACCT 6420. Advanced Tax for Businesses	3
ACCT 6450. Research Problems in Income Tax Accounting	3

Semester Hours

ACCT 6510. Accounting and Information Systems Processes and Controls	3
ACCT 6620. Advanced Auditing	3
ACCT 6800. Special Topics (in a variety of areas)	3

Free Electives

Free electives may be chosen from any 6000-level business courses (except BUSN courses numbered below 6800). Choose two:

ACCT 6024. Advanced Financial Accounting	3
ACCT 6033. Advanced Managerial Accounting	3
ACCT 6020. Auditing	3
ACCT 6080. Accounting for Government and Nonprofit Organizations	3
ACCT 6015. Accounting for the Public Interest	3
ACCT 6140. Tax Planning for Managers	3
Total	21

Note: Electives may not include ACCT 6030, ACCT 6070, most BUSN courses or courses similar to those taken at the undergraduate level.

D. SECONDARY AREA

(9 semester hours)

Accounting is increasingly diverse and linked to many business decisions. Accountants may eventually work as systems designers, chief financial officers, cost analysts, budget officers or chief executive officers. Students will be better prepared for their careers if they develop competencies in a related field, which may be chosen from a single discipline such as finance, information systems, entrepreneurship, health administration, marketing or management. The accounting faculty *strongly encourage students to gain additional expertise in finance and/or information systems.*

Alternatively, a self-designed secondary area might best achieve a student's individual objectives (must be approved by the program director). A self-designed secondary field must have a common theme or objective if it crosses several disciplines. For example, a secondary area in information systems might include an accounting technology course, a data base management course and a finance technology course. On the other hand, a finance secondary area might include two finance courses and a cost management (accounting) course or a strategic management course. When a BUSN course is a prerequisite for a secondary area, it can be included in the secondary area by petition only. Consult a schedule planner for information about current course offerings and a current catalog for course descriptions.

ACCOUNTING AND INFORMATION SYSTEMS AUDIT AND CONTROL (AISAAC) TRACK

Recently, new regulatory environments have required companies to provide better documentation of their accounting and IT systems to improve the management and disclosure of their business processes for better financial and regulatory controls. Accounting and IT professionals have significant roles in audit and control activities, since they control the systems that monitor and report on finance, planning and operations. The courses within this track cover business-process management and financial controls; the emerging trends and practices in privacy and security; the strategies for integrating governance and compliance; and the IT organization's financial and business intelligence services. These courses will focus on how to leverage the existing IT infrastructure to establish quality in financial and internal audit processes and address the regulatory issues associated with reporting, consolidation and document/content management more effectively and completely.

Accounting Core

ACCT 6250. Seminar in Financial Accounting	3
ACCT 6260. Seminar in Managerial Accounting	3
ACCT 6620. Advanced Auditing Theory	3

AISAAC Common Courses

ISMG 6040. Business Process Management	3
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	<i>Semester Hours</i>
ISMG 6420. Global Enterprise Systems	3
ACCT 6020. Auditing	3
ACCT/ISMG 6510. Accounting and Information Systems Processes and Controls	3
Choose three:	
ACCT 6340. Financial Statement Analysis	3
ACCT 6800. Fraud Examination	3
ISMG 6080. Database Management Systems	3
ISMG 6180. Information Systems Management and Strategy	3
ISMG 6430. Information Systems Security and Privacy	3
Total	30

Master of Science in Finance

Program Director: James R. Morris
Telephone: 303-556-4370
E-mail: James.Morris@cudenver.edu

Faculty

Professors: Marcelle Arak, PhD, Massachusetts Institute of Technology; Jean-Claude Bosch, PhD, University of Washington; E. Woodrow Eckard, PhD, University of California-Los Angeles; Richard Foster, PhD, University of Chicago; James Morris, PhD, University of California-Berkeley; Dean Taylor, PhD, University of Chicago
Associate Professors: Ajeyo Banerjee, PhD, University of Massachusetts-Amherst; Elizabeth Cooperman, PhD, University of Georgia
Senior Instructors: John Bryd, PhD, University of Oregon; Chen Ji, MS, University of Colorado; Barbara Pelter, PhD, University of California-Davis; Marianne Plunkert, MA, Ohio State University; John Turner, PhD, St. Louis University
Instructors: John Daley, PhD, University of Washington; Cindy Sutfin, MS, University of Colorado

The master of science in finance provides the necessary depth and specialized expertise to meet the need of businesses for financial managers and staff specialists.

The program emphasizes a familiarity with the institutions in our financial system, an understanding of financial markets and instruments and the analytical skills and tools necessary to make informed decisions about investment and financing.

The program is suited to students from a wide variety of undergraduate backgrounds and is particularly appropriate to students with strong technical and analytical backgrounds.

The MS in finance offers flexibility with on-campus and online courses. The entire degree can be completed online.

The MS finance degree requirements are met by the following courses and options:

<i>Required Courses</i>	
BUSN 6620. Applied Economics	3
BUSN 6640. Financial Management	3
FNCE 6290. Quantitative Methods for Finance	3
FNCE 6300. Macroeconomics and Financial Markets	3
FNCE 6330. Investment Management Analysis	3
FNCE Electives (4)	12
Free Elective (1)	3
Total	30

Prerequisites: BUSN 6550. Analyzing and Interpreting Accounting Information or the equivalent accounting background. Students are also expected to be knowledgeable in spreadsheet software.

NOTES AND RESTRICTIONS

Finance Electives. Choose four courses in finance from the list of regularly scheduled graduate classes in consultation with an advisor.

Free Elective. Students complete 3 semester hours of graduate business course work (excluding BUSN courses numbered below 6800). Modern finance is heavily mathematical and draws extensively on economics and accounting. Courses in these areas are especially useful. Petitions may be submitted to the program director for special courses that fit a student's individual needs.

No comprehensive examination in finance is required.

Master of Science in Health Administration

Program Director: Errol L. Biggs
Telephone: 303-556-5845
E-mail: errol.biggs@cudenver.edu

Faculty

Professors: Heidi Boerstler, PhD/JD, Yale University/University of Denver; Peter Bryant, PhD, Stanford University; C. Marlena Fiol, PhD, University of Illinois-Urbana-Champaign; Richard Foster, PhD, University of Chicago; Bruce Neumann, PhD, University of Illinois; Edward O'Connor, PhD, University of Akron
Associate Professors: Blair Gifford, PhD, University of Chicago; Deborah Kellogg, PhD, University of Southern California
Instructor: Errol Biggs, PhD, Pennsylvania State University

The goal of the master of science in health administration degree (MSHA) is to prepare men and women who, after appropriate practical experience in responsible managerial positions, are capable of assuming positions as chief executive officers or senior administrators in complex, multiservice healthcare organizations or in organizations' purchasing and health services.

The curriculum is a synthesis of management concepts and techniques that are applicable to any economic organization and tools that can be specifically applied to health and health services systems. The program emphasizes skills that heighten basic analytical and decision-making processes used by top-level managers in selecting broad strategies for the institutions and by junior managers in administering subunits of healthcare organizations. The faculty guide the students in their mastery of theoretical, conceptual and quantitative topics.

The MSHA program has enjoyed continuous accreditation by the Commission on Accreditation of Healthcare Management Education since 1970.

A. COMMON BODY OF KNOWLEDGE (CBK)

<i>Required CBK</i>	<i>Semester Hours</i>
BUSN 6521. Managing Individuals and Teams	3
BUSN 6530. Data Analysis for Managers	3
BUSN 6550. Analyzing and Interpreting Accounting Information ..	3
BUSN 6560. Marketing Management	3
BUSN 6630. Management of Operations	3
BUSN 6640. Financial Management	3
Total	18

Waivers of CBK courses are possible. The entire CBK may be waived if the student has completed an undergraduate business degree from an AACSB-accredited college or university within the last 10 years. Specific courses may be waived based on a case-by-case evaluation of undergraduate or graduate course work in business completed at a regionally accredited college or university within the last 10 years.

B. GRADUATE CORE IN HEALTH ADMINISTRATION

<i>Required Courses</i>	
HLTH 6010. Healthcare Systems	3
HLTH 6040. Healthcare Financial Management	3
HLTH 6911. Health Field Studies	3

BUSN 6541. Legal and Ethical Environment of Business (health section)	3
BUSN 6621. Applied Economics for Managers (health section)	3
BUSN 6711. Strategic Management (health section)	3
HLTH Electives (3)	9
Free Elective (1)	3
Total	30

NOTES AND RESTRICTIONS

Free Elective. The free elective course can be chosen from the areas of accounting, finance, health administration, information systems, international business, management and marketing. A course with the BUSN prefix can be used as a free elective if the course number is 6800 or higher.

Management Residency. A management residency is optional, but recommended for all students, especially those with limited healthcare experience. The faculty of the program provide assistance to students in securing the residency, as well as regular consultation during the residency period. Information on the full range of local, regional and national residencies is available in the program office.

Length of Program. The didactic portion of the degree will take at least two academic years, since most HA courses are offered only once each year and many have prerequisites. Part-time study is facilitated by courses being scheduled for late afternoon and evening hours.

SPECIALIZED TRACKS IN MS HEALTH ADMINISTRATION

Each track carries its own specific course requirements. To provide a variety of perspectives and experiences within a specific area of health administration, each track includes courses that span various departments within the Business School, other schools on the downtown Denver campus and other University of Colorado campuses.

- International Health Management and Policy Track
- Financial Management Track
- Health Information Technology Management Track

INSTITUTE FOR INTERNATIONAL BUSINESS

The international health track is affiliated with the Institute for International Business at UCDHSC. The Institute for International Business is one of a few university programs to have received the prestigious CIBER grant from U.S. Department of Education. The grant is being used by the institute to provide effective internationally oriented education, research and outreach activities. Also, the institute is a participant in an international consortium of universities for faculty and student program and course exchanges. Students in the international health management and policy track will have access to the institute’s exchange networks.

INTERNATIONAL HEALTH TRAVEL/STUDY COURSE

Program Director: Blair Gifford
Telephone: 303-556-6614
E-mail: Global-Health@CUDenver.edu

A unique feature of our international health management and policy track is its emphasis on making sure students gain international experience during their education. The travel study course requirement can be met by taking a University of Colorado health travel/study course, or a student can take a course at a partnering university. An example of a health travel/study was a three-week trip to Thailand and Vietnam to visit numerous cultural- and health-related facilities.

Master of Science in Information Systems

Program Director: Jahangir Karimi
Telephone: 303-556-5881
E-mail: Jahangir.Karimi@cudenver.edu
Web site: http://thunder2.cudenver.edu/newprogram/

Faculty

Professors: James Gerlach, PhD, Purdue University; Jahangir Karimi, PhD, University of Arizona
Associate Professors: Michael Mannino, PhD, University of Arizona; Steven Walczak, PhD, University of Florida
Assistant Professors: Dawn Gregg, PhD, Arizona State University; Ronald Ramirez, PhD, University of California-Irvine; Judy Scott, PhD, University of California-Irvine; Zhiping Walter, PhD, University of Rochester
Senior Instructors: Eric Thompson, MS, University of Colorado
Instructor: Linda Fried, JD/LLM, University of Miami

The master of science in information systems (MSIS) program at the Business School meets industry needs by providing specialized tracks in systems development and implementations and enterprise technology management. The program prepares students for career paths in infrastructure, systems development and management services, enterprise application services, business consulting and development and consumer products and services. Whether students aim to be systems analysts or designers, software engineers, applications programmers, database administrators, Web developers, systems integrators, project managers, LAN administrators or application and technology consultants, the MSIS program provides the necessary knowledge and skills. This entire MS in information systems can be completed online.

The MSIS program offers a wide choice of courses. The course work consists of a common body of knowledge courses plus 30 semester hours, which includes the new MSIS core, a specialized track and a free elective. Candidates for the MS degree are not required to take a comprehensive examination or to complete a thesis in the major field.

A. COMMON BODY OF KNOWLEDGE COURSES (CBK)

Waivers of CBK courses are possible. The entire CBK may be waived if the student has completed an undergraduate business degree from an AACSB-accredited college or university within the last 10 years. Specific courses may be waived based on a case-by-case evaluation of undergraduate or graduate course work in business completed at a regionally accredited college or university within the last 10 years.

Semester Hours

Choose four:	
BUSN 6520. Managing Individuals and Teams	3
BUSN 6530. Data Analysis for Managers	3
BUSN 6540. Legal and Ethical Environment of Business	3
BUSN 6550. Analyzing and Interpreting Accounting Information ..	3
BUSN 6560. Marketing Management	3
BUSN 6620. Applied Economics for Managers	3
BUSN 6630. Management of Operations	3
BUSN 6640. Financial Management	3
BUSN 6710. Strategic Management	3
Total	12

Students with limited business background are highly recommended to take BUSN 6550, BUSN 6560, BUSN 6630 and BUSN 6640.

B. INFORMATION SYSTEMS CORE

This set of courses consists of 12 semester hours designed to provide the fundamental knowledge necessary for a career as an IS professional. Up to 9 semester hours may be transferred from an AACSB international-accredited graduate school and applied to the information systems core

upon approval. Students should take the core courses before taking the electives in each track.

<i>Required Courses</i>	<i>Semester Hours</i>
ISMG 6040. Business Process Management.....	3
ISMG 6060. Analysis, Modeling and Design.....	3
ISMG 6080. Database Management Systems.....	3
ISMG 6120. IT Infrastructure.....	<u>3</u>
Total.....	12

Note: Students who do not have any programming background will be required to complete ISMG 2200. Structured Programming in “C.” ISMG 4950 will no longer be offered.

C. INFORMATION SYSTEMS TRACKS

The IS tracks provide students with a set of related courses necessary to acquire skills and expertise within a specific area in the development, management and use of information technology applications. Students are required to choose one track and complete a minimum of three courses within that track.

SYSTEMS DEVELOPMENT AND IMPLEMENTATION (SDI) TRACK

This track provides specialization in building and managing large systems using client/server, multimedia and distributed object architectures. The courses in this track provide expertise in C#, Java, multimedia, data warehousing, decision support and expert systems technologies, management of large databases and systems integration. In addition, project management skills enable graduates to successfully handle highly complex systems development projects in the business world.

<i>Required Course</i>	
ISMG 6020. Object-oriented Business Programming.....	3
Choose four:	
ISMG 6220. Business Intelligence Systems.....	3
ISMG 6240. Web Site Development Practice and Technologies.....	3
ISMG 6280. Service-oriented Architecture.....	3
ISMG 6450. IT Project Management.....	<u>3</u>
ISMG 6480. Advanced Database Systems.....	<u>3</u>
Total.....	15

ENTERPRISE TECHNOLOGY MANAGEMENT (ETM) TRACK

This track focuses on information technology as the prime driver and enabler of business strategy. It focuses on the strategic, technological, financial and organizational issues involved with the effective management of information technology within an enterprise. The courses in this track cover the emerging technologies and the evolving roles and importance of IT in modern organizations; IT-enabled organizational processes and knowledge management; IT sourcing and alternative methods to develop, acquire and implement information systems; implementing and managing complex IT projects; and security and privacy issues associated with IT.

<i>Required Course</i>	
ISMG 6180. Information Systems Management and Strategy.....	3
Choose four:	
ISMG 6220. Business Intelligence Systems.....	3
ISMG 6420. Global Enterprise Systems.....	3
ISMG 6430. Information Systems Security and Privacy.....	3
ISMG 6450. IT Project Management.....	<u>3</u>
ISMG 6460. Emerging Technologies.....	<u>3</u>
Total.....	15

Note: The ETM track provides an appealing option for students pursuing a dual degree and is also available as a specialized track within the MBA curriculum.

ACCOUNTING AND INFORMATION SYSTEMS AUDIT AND CONTROL (AISAAC) TRACK

Recently, new regulatory environments have required companies to provide better documentation of their accounting and IT systems to improve the management and disclosure of their business processes for better financial and regulatory controls. Accounting and IT professionals have significant roles in audit and control activities, since they control the systems that monitor and report on finance, planning and operations. The courses within this track cover business-process management and financial controls; the emerging trends and practices in privacy and security; the strategies for integrating governance and compliance; and the IT organization’s financial and business intelligence services. These courses will focus on how to leverage the existing IT infrastructure to establish quality in financial and internal audit processes and address the regulatory issues associated with reporting, consolidation and document/content management more effectively and completely.

<i>Prerequisite</i>	<i>Semester Hours</i>
ACCT 6030. Financial Accounting Issues and Cases.....	3

<i>Required Courses</i>	
Complete the following four courses:	
ISMG 6180. Information Systems Management and Strategy.....	3
ISMG 6420. Global Enterprise Systems.....	3
ACCT 6020. Auditing.....	3
ACCT/ISMG 6510. Accounting and Information Systems Processes and Controls.....	<u>3</u>

Choose two:	
ISMG 6430. Information Systems Security and Privacy.....	3
ISMG 6450. IT Project Management.....	3
ACCT 6620. Advanced Auditing Theory.....	3
ACCT 6800. Fraud Examination.....	<u>3</u>
Total.....	18

GEOGRAPHIC INFORMATION SYSTEMS (GIS) OPTION

Offered in conjunction with the College of Engineering and Applied Science, the GIS option expands on system development skills through the understanding of GIS work flows, analysis processes and data models. Course work also addresses how map representations can be abstracted in geo-databases to develop intelligent GIS systems to improve efficiencies, decision making, planning, geographic accountability, science-based plans and communication. A certificate in GIS is awarded by the College of Engineering and Applied Science.

Students must complete all requirements for the MS in information systems with the SDI track, as well as the requirements below.

CE 5381. Introduction to Geographic Information Systems.....	3
Choose three:	
CE 5382. GIS Spatial Data Development.....	3
CE 5383. GIS Analyses—Theory and Practice.....	3
CE 5384. GIS Management and Policies.....	3
CE 5385. GIS Relational Database Systems.....	<u>3</u>
CE 5386. GIS Laboratory.....	<u>3</u>
Total.....	12

- Notes:*
- GIS courses are offered online and can be completed concurrently with the information systems courses.
 - Students will be able to register for the classes on the Web. There are not any special registration requirements.
 - Students need to notify the graduate advising office at the Business School, 303-556-5900, prior to graduation if they are planning to complete the GIS option. Students also need to indicate the completion of the course work when they submit their application for diploma card.

FREE ELECTIVE

Students fulfill an additional 3 semester hours by completing the following:

- a specialty track (SDI, ETM, AISAAC, GIS) course
- an internship

Candidates for the MS degree are not required to take a comprehensive examination or to complete a thesis in the major field.

Master of Science in International Business

Advisor: Manuel G. Serapio, Jr.
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E-mail: Manuel.Serapio@cudenver.edu

Faculty

Professors: Herman Aguinis, PhD, State University of New York-Albany; Wayne Cascio, PhD, University of Rochester; Lawrence Cunningham, DBA, University of Tennessee; John Ruhnka, JD/LLM, Yale School of Law/Cambridge University
Associate Professors: L. Ann Martin, PhD, University of Minnesota; Kang Rae Cho, PhD, University of Washington; Manuel Serapio, PhD, University of Illinois
Senior Instructors: John Byrd, PhD, University of Oregon; John Turner, PhD, St. Louis University
Instructors: Chen Ji, MS, University of Colorado; Mary Lee Stansifer, PhD, Northwestern University

The master of science in international business prepares individuals for the careers in international business or with international organizations.

The MS program in international business requires the completion of the following:

A. COMMON BODY OF KNOWLEDGE (CBK)

<i>Required CBK</i>	<i>Semester Hours</i>
BUSN 6520. Managing Individuals and Teams	3
BUSN 6530. Data Analysis for Managers	3
BUSN 6540. Legal and Ethical Environment of Business	3
BUSN 6550. Analyzing and Interpreting Accounting Information ...	3
BUSN 6560. Marketing Management	3
BUSN 6620. Applied Economics for Managers	3
BUSN 6640. Financial Management.....	3
Total	21

Waivers of CBK courses are possible. Specific courses may be waived based on a case-by-case evaluation of undergraduate or graduate course work in business completed at a regionally accredited college or university within the last 10 years.

B. FOREIGN LANGUAGE COMPETENCY

Prior to graduation, students must demonstrate proficiency in a foreign language (other than English). This is accomplished through completion of three semesters of college-level course work in a single foreign language with a grade of C or better in all three terms or by passing a proficiency exam.

C. GRADUATE CORE IN INTERNATIONAL BUSINESS

<i>Required Courses</i>	
INTB 6000. Introduction to International Business	3
INTB 6020. Cross-Cultural Management	3
INTB 6200. International Business Policy	3
International Electives (4).....	12
Free Elective (1).....	3
Advanced Study Requirements in International Business (2)	6
Total	30

Notes and Restrictions

International Topics Electives. Choose four courses (12 semester hours) from any INTB 6000-level course or higher or any approved international course.

Free Elective. One graduate-level class may be selected from any functional area of business, including international business topics classes, except BUSN courses numbered below 6800. International business majors can petition for transfer of 3 semester hours of relevant nonbusiness graduate courses offered at UCDHSC’s downtown Denver campus.

Advanced Study Requirements. This 6-semester-hour requirement may be fulfilled by a master’s thesis, research internship, international field study/study abroad or advanced courses in international business.

Master of Science in Management and Organization

Program Director: Kenneth L. Bettenhausen
Telephone: 303-556-5816
E-mail: Kenneth.Bettenhausen@cudenver.edu

Faculty

Professors: Herman Aguinis, PhD, State University of New York-Albany; Heidi Boerstler, PhD/JD, Yale University/University of Denver; Wayne Cascio, PhD, University of Rochester; C. Marlena Fiol, PhD, University of Illinois-Urbana-Champaign; Edward O’Connor, PhD, University of Akron; John Ruhnka, JD/LLM, Yale School of Law/Cambridge University
Associate Professors: Kenneth Bettenhausen, PhD, University of Illinois-Urbana-Champaign; Blair Gifford, PhD, University of Chicago; Sarah Koovor-Misra, PhD, University of Southern California
Assistant Professor: Vinit Desai, PhD, University of California at Berkeley
Instructors: Linda Fried, JD/LLM, University of Miami; Barry McConnell, MBA, University of Colorado; Jeffrey Nystrom, MS, University of Colorado; Charles Rice, MA, University of Denver; Ira Selkowitz, JD, University of Denver

The MS management program prepares students for significant managerial responsibilities in the private and public sectors. Core course requirements provide students with advanced understanding of how to manage interpersonal dynamics, effectively design organizations, implement planned change and organizational transformations, and develop human resources.

New areas of emphasis in the MS management program are available. They include: communications management, entrepreneurship and innovation, human resources management, global management, leadership, strategic management and managing for sustainability. These areas of emphasis will help students master the tools and acknowledge to be successful in each focused competency.

The MS management and organization degree requirements are met by the following:

MANAGEMENT MS CORE

<i>Required Management Courses</i>	<i>Semester Hours</i>
BUSN 6520. Managing Individuals and Teams	3
MGMT 6320. Organizational Development	3
MGMT 6360. Designing Effective Organizations	3
MGMT 6380. Managing People for Competitive Advantage	3
Total	12

Management Emphasis (or elective) courses (12-18 semester hours)

A student may choose to complete the program by taking any four MGMT, INTB or ENTP elective courses.

Choose from one of six emphasis areas:

- communications management
- entrepreneurship and innovation

- global management
- human resources management
- leadership
- strategic management

Communications Management Semester Hours

Required Courses

CMMU 5240. Organizational Communication	3
CMMU 5250. Difference Matters and Organizational Communication.....	3
CMMU 5405. Technical Communication: Writing.....	3
Choose one:	
MGMT 6800. Leadership in Difficult Times	3
MGMT 6803. Visionary Leadership	3
MGMT 6804. Bargaining and Negotiation	3
Any approved CMMU 5000-level course (see below)	3
Total	12

Approved CMMU Elective Courses

Choose one:	
CMMU 5101. Advanced Presentational Speaking	3
CMMU 5151. Group Communication.....	3
CMMU 5222. Professional Communication	3
CMMU 5245. Advanced Organizational Communication	3
CMMU 5260. Communication and Conflict.....	3
CMMU 5262. Mediation	3
CMMU 5270. Intercultural Communication.....	3
CMMU 5280. Communication and Change	3
CMMU 5500. Health Communication.....	3
CMMU 5505. Technical Editing.....	3
CMMU 5640. Advanced Public Relations	3
CMMU 5645. Principles of Public Relations.....	3
CMMU 5760. Computer-Mediated Communication	3
CMMU 5830. Visual Principles for Technical Communication.....	3

Enterprise Technology Management

Required Courses

Choose four:	
ISMG 6220. Business Intelligence Systems.....	3
ISMG 6420. Global Enterprise Systems.....	3
ISMG 6430. Information Systems Security and Privacy.....	3
ISMG 6450. IT Project Management	3
ISMG 6460. Emerging Technologies.....	3
Total	12

Entrepreneurship and Innovation

Required Courses

ENTP 6000. Fundamentals of Entrepreneurship	3
ENTP 6020. Business Plan and Seed Financing.....	3
—and—	
6000-level ENTP courses (2)	
—or—	
6000-level ENTP course (1) and 6000-level MGMT course (1)	6
Total	12

Global Management

Required Courses

INTB 6000. Introduction to International Business	3
INTB 6020. Cross-Cultural Management	3
MGMT 6040/INTB 6040. International Human Resources Management.....	3
Any Travel Study Program	
—or—	
6000-level INTB course	3
Total	12

Leadership

<i>Prerequisite</i>	<i>Semester Hours</i>
BUSN 6530. Data Analysis	3

Required Courses

INTB 6000. Introduction to International Business	
—or—	
ENTP 6000. Fundamentals of Entrepreneurship	3
MGMT 6803. Visionary Leadership	3
MGMT 6804. Bargaining and Negotiation	3
MGMT 6800. Leadership in Difficult Times	3
Total	12

Management of Change

Required Courses

Choose four:	
BUSN 6811. IT and New Business Paradigms	3
BUSN 6830. Business and the Natural Environment	3
ENTP 6820 Business Consulting	3
MGMT 6730. HRM Performance Management	3
MGMT 6803. Visionary Leadership	3
MGMT 6804. Bargaining and Negotiation	3
MGMT 68___. Leadership in Difficult Times	3
MGMT 6821. Managing for Sustainability	3
Total	12

Managing Human Resources

Prerequisites

BUSN 6530. Data Analysis for Managers	3
MGMT 6380. Managing People for Competitive Advantage	3
HR emphasis prerequisite courses are in addition to the 30-hour MS core.	

Required Courses

Choose four:	
BUSN 6540. Legal and Ethical Environment of Business	3
MGMT 6040/INTB 6040. International Human Resources Management	3
MGMT 6710. HRM: Staffing	3
MGMT 6720. HRM: Training	3
MGMT 6730. HRM: Performance Management.....	3
MGMT 6740. HRM: Compensation Administration	3
Total	12

Managing for Sustainability

Courses and course numbers in this emphasis were still being finalized when this catalog went to print. See a graduate advisor for details.

Quantitative Decision Methods

Prerequisite (completion of prerequisite is in addition to the 30-hour MS in management and organization)

BUSN 6530. Data Analysis for Managers	3
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Required Courses

Choose four:	
BUSN 6630. Operations Management.....	3
BUSN 6820/DSCI 6820. Project Management.....	3
BUSN 6822/DSCI 6822. Services Operations	3
BUSN 6824/DSCI 6230. Business Forecasting	3
BUSN 6826. Supply Chain Management	3
BUSN 6828/DSCI 6828. Business Applications of Data Mining	3
DSCI 6440. Quality and Productivity.....	3
Total	12

Note: One of two free electives must be a MGMT, ENTP or INTB course.

Sports and Entertainment Management

<i>Required Courses</i>	<i>Semester Hours</i>
Choose four:	
FNCE 6___. Sports and Entertainment Finance	3
MGMT 68___. Sports and Entertainment Management	3
MGMT 68___. Law, Contracts and Negotiation in the Sports and Entertainment Industries	3
MKTG 6___. Sports and Entertainment Marketing	3
MGMT 5939. Internship (in Sports and Entertainment Field)	3
Total	12

Courses and course numbers in this emphasis were still being finalized when this catalog went to print. See a graduate advisor for details.

Strategic Management

Students pursuing a dual MBA/MS in organization and management are not eligible for this emphasis.

Prerequisites

BUSN 6530. Data Analysis for Managers	3
BUSN 6550. Analyzing and Interpreting Accounting Information ..	3

Required Courses

BUSN 6560. Marketing Management	3
BUSN 6640. Financial Management	3
BUSN 6710. Strategic Management	3
MGMT 6803. Visionary Leadership	3
Total	12

Free Electives (6 semester hours)

Free electives can be anything in the Business School (graduate level), except BUSN prefix courses below 6800. Any 6000-level or higher ACCT, FNCE, ENTP, MKTG, MGMT, ISMG, INTB or HLTH course can count as your free elective requirement.

*For the **communications emphasis**, the student is allowed to use an approved CMMU course as the free elective.

Master of Science in Marketing

Program Director: David Forlani
Telephone: 303-556-6616
E-mail: David.Forlani@cudenver.edu

Faculty

Professors: Lawrence Cunningham, DBA, University of Tennessee;
 Susan Keaveney, PhD, University of Colorado; Clifford Young, PhD,
 University of Utah

Assistant Professors: David Forlani, PhD, University of Minnesota;
 Vick Lane, PhD, University of Washington; Madhavan
 Parthasarathy, PhD, University of Nebraska

Senior Instructor: Mary Lee Stansifer, PhD, Northwestern University

Instructors: Peter Miller, MA, Farleigh Dickenson University; Nicole
 Vowles, PhD, Victoria University of Wellington, New Zealand

The master of science in marketing prepares individuals for leadership positions in the field of marketing in either the private or public sector. The degree is particularly appropriate for individuals who work or aspire to work with a marketing intermediary (e.g., a marketing research firm or advertising agency) or to administer an organization's overall marketing function or one of its processes (e.g., new product development or customer service). Prior work experience is helpful but not required.

The degree consists of two components: the common body of knowledge and the specialized courses that constitute the core of the MS in marketing program.

A. COMMON BODY OF KNOWLEDGE (CBK)

Students in the program must satisfy the CBK requirements. These requirements are met by completing the 3-semester-hour required course and one 3-hour elective course:

<i>Required CBK</i>	<i>Semester Hours</i>
BUSN 6550. Analyzing and Interpreting Accounting Information ..	3
<i>Elective CBK</i>	
Choose one:	
BUSN 6520. Managing Individuals and Teams	3
BUSN 6540. Legal and Ethical Environment of Business	3
BUSN 6610. Information Systems Management and Strategy	3
BUSN 6620. Applied Economics for Managers	3
BUSN 6630. Management of Operations	3
BUSN 6640. Financial Management	3
BUSN 6710. Strategic Management	3
Elective course (1)	3
Total	6

Waivers of CBK courses are possible. The entire CBK may be waived if the student has completed an undergraduate business degree from an AACSB-accredited college or university within the last five years.

B. GRADUATE CORE IN MARKETING

The MS in marketing requires 30 semester hours beyond the CBK. Six (6) semester hours are BUSN courses; 21 semester hours are 6000-level marketing courses and the remaining 3 semester hours may be in marketing or a related field as approved by the student's advisor. Students are not required to take a comprehensive examination or complete a thesis.

The 30-semester-hour requirement is met by the following required and elective courses:

Required Courses

BUSN 6530. Data Analysis for Managers	3
BUSN 6560. Marketing Management	3
MKTG 6010. Marketing Strategy, Evaluation and Development	3
MKTG 6050. Marketing Research	3

Choose five:

MKTG 6020. International Marketing	3
MKTG 6030. Sales and Sales Force Management	3
MKTG 6040. Services Marketing	3
MKTG 6060. Buyer Behavior	3
MKTG 6070. Advertising and Promotion Management	3
MKTG 6080. Marketing in Emerging Markets	3
MKTG 6090. Customer Relationship Management	3
MKTG 6091. Strategic Product Marketing	3
MKTG 6092. Internet Marketing	3
MKTG 6800. Special Topics in Marketing	3

Free Electives

Choose one additional graduate course in marketing or from another discipline that fits with your educational objectives.

Free elective (1)	3
Total	30

DUAL DEGREE PROGRAMS

MBA/MS

The Business School also offers MBA/MS dual degree programs for each function of business. The program consists of a minimum of 66 semester hours of graduate work and leads to both an MBA degree and an MS degree, which must be completed within seven years and one semester. Contact a graduate academic advisor for details, 303-556-5900.

MS/MS

Students may concurrently pursue dual MS degrees in any two fields of business. The program consists of a minimum of 51 semester hours of core course work, which must be completed within a period of seven years. In addition, candidates for the dual degree must satisfy all the common body of knowledge and background requirements prescribed for each degree. Waivers may be approved for some of the CBK or background upon transcript evidence of equivalent previous undergraduate or graduate course work. For more information contact a graduate staff advisor, 303-556-5900.

MBA/MIM

This unique combined degree is offered in cooperation with the American Graduate School of International Management (the Thunderbird School) located in Glendale, Arizona, a suburb of Phoenix. Thunderbird has established eight dual programs with universities in the United States. The student applies independently to both schools and, if admitted, earns the MBA from UCDHSC and a master of international management degree from Thunderbird. The student begins the program at UCDHSC and, after completing 36 semester hours (12 courses) required for the MBA, transfers to the Thunderbird campus and takes a minimum of 30 credit hours (10 courses) for the MIM. When all dual degree requirements are finished, the student is awarded a diploma from each respective school. For more information about admission to the MBA on the downtown Denver campus, refer to the appropriate section of this chapter. For specifics about the dual MIM application process, call Thunderbird's associate dean of admissions, Stephen R. Beaver, 1-800-848-9084, or visit www.tbird.edu.

MBA/MD

The MBA/MD is for medical students at the University of Colorado School of Medicine who wish to pursue a career in administrative medicine or who seek additional training in administration or business. The program is designed to be completed in five years, at which time both the MD and MBA degrees would be awarded. Candidates for the MBA/MD complete 36 semester hours of course work in the business school and all requirements for the MD.

MBA/MURP (Urban and Regional Planning)

This dual degree enables students to obtain both the master of urban and regional planning offered by the College of Architecture and Planning and the master of business administration offered by the Business School upon completion of 78 semester hours. The dual degree program is composed of the core curricula in each program plus a set of electives jointly approved by the student's advisors.

MS Finance/MA Economics

Students may concurrently pursue an MA in economics offered by the College of Liberal Arts and Sciences and the MS in finance offered by the Business School. Students must complete 27 semester hours of a combination core, 15 semester hours of combination electives and 3 semester hours of a 5000- or 6000-level economics elective.

PhD CSIS PROGRAM

Program co-directors: Krzysztof Cios and Mike Mannino
Telephone: 303-556-4314 (Cios), 303-556-6615 (Mannino)

The computer science department and the Business School offer a joint doctor of philosophy degree program in computer science and information systems (CSIS). The program targets students who have a master's-level education in either computer science or information

systems and who seek research training that combines CS and IS along with strong industry interaction. The joint PhD program provides training for academic positions, industrial research positions and senior consulting positions. The specific goals of the program complement these general goals:

- create a pool of graduates with CSIS research training who are qualified for academic and nonacademic careers
- meet student demand for advanced training in CSIS with accommodations for full-time and part-time students
- promote interdisciplinary research between the CSE department and the Business School
- enhance technology transfer between CSIS academic units and Front Range technology businesses through joint research, student internships, faculty externships and committee participation

ADMISSION

Prospective students apply to either the computer science and engineering department or the Business School. Applicants who pass the initial screening are reviewed by a joint committee consisting of the two co-directors of the program for the final admittance decision.

Admission criteria include GPA (undergraduate and graduate), standardized test scores (GMAT or GRE), letters of recommendation, prior achievements in academia and industry and the application portfolio essay describing an applicant's motivation and an initial plan for doctoral study. The application portfolio is important to gauge an applicant's motivation for research training.

Due to the program's goals, preference is given to students with a master's degree in either computer science or information systems. Students without a master's degree in either area will need to take additional course work depending on the student's background.

Program Organization

SUPERVISION OF THE PhD PROGRAM

The PhD program is supervised by co-directors from the Business School and the CSE department. The duties of the co-directors include scheduling of doctoral courses, setting program policies subject to approval of the Business School and the CSE faculty, working with advisors and doctoral committee chairs to ensure compliance with the program guidelines, resolving disputes, measuring performance of the program over time and providing the final decision on admittance of students.

ADVISOR

Upon entering the program, each student chooses an advisor who will provide mentoring and guidance in the course of the entire program. The advisor will work with the student to prepare a program of study in the course-work part of the program. The advisor will also work with the student in the preparation of the first- and second-year papers. Requests to change the advisor must be approved by the co-directors of the PhD program.

DOCTORAL COMMITTEE

The advisor and four other members form a doctoral committee. To foster interdisciplinary work, students can have their doctoral research co-supervised by two faculty members from the CSE department and the Business School. There is at least one faculty member from CSE and at least one from the Business School. At least one faculty committee member is from outside of College of Engineering and the Business School.

Program Components

PLAN OF STUDY

A list of course work and other requirements for the degree should be prepared with the advisor and submitted to the program co-directors for approval. The successful completion of all work indicated on the plan of study is an important prerequisite for the conferring of the degree. A plan of study should be submitted for approval by the end of the first semester of the program. The current plan of study should be updated before the beginning of the second year of the program and submitted for re-approval to the co-directors.

FIRST- AND SECOND-YEAR PAPERS

Students prepare research papers during the first several years of the program as preparation for work on the dissertation. For part-time students, the timing might be longer, and a prior approval by the advisor is required. The papers should be high quality to ensure publication in conference proceedings or journals. The advisor serves as a mentor to help the student complete the first and second papers. Each paper is submitted for approval to the advisor. An industry representative may also be used as an evaluator.

COMPREHENSIVE EXAM

After completing the PhD course work, each student will take a written comprehensive exam that requires integration of computer science and information systems knowledge. The program co-directors will solicit questions from faculty, schedule the examination and coordinate with faculty to grade the exam. The exam will be offered one time per year early in the fall semester on one day involving six hours of exam time. An announcement will be made on the program Web site about the details of the exam several weeks before the exam.

DISSERTATION PROPOSAL

As the first phase of the dissertation, each student should prepare a proposal that will be evaluated by the doctoral committee. A proposal should be ready for review at least one semester before the expected completion date of the degree. The proposal is submitted for review and approval by the doctoral committee. An oral presentation of the dissertation proposal before the doctoral committee is required for approval. An approved proposal is then submitted to the co-directors of the program for final approval.

UNIVERSITY-LEVEL INSTRUCTIONAL TRAINING

During the program, each student will obtain training for university-level instruction. This requirement can be fulfilled by working with a faculty member as a teaching assistant, attending university-level teacher training or teaching a university-level class. Students who plan a university career will be encouraged to teach one or more courses and participate in training. When teaching or working as a teaching assistant, a student will be compensated according to standard university salaries.

DISSERTATION COMPLETION

Following completion of the approval of the dissertation proposal, each student prepares and then submits a dissertation. The dissertation is defended before the doctoral committee in a public meeting. Final approval for the dissertation is given by a vote of the dissertation committee after the public defense of the dissertation.

GRADUATION

Upon completion of all degree requirements, including the dissertation defense, the student receives the degree of doctor of philosophy. Students applying through the CSE receive the PhD from the College of Engineering and Applied Sciences, while students applying through the information systems program receive the PhD from the Business School.

EXECUTIVE PROGRAMS

Master of Business Administration for Executives

Program Director: W. Scott Guthrie

Telephone: 303-623-1888 or 1-800-228-5778

The executive MBA program provides executive-level students with a broad, rigorous 22-month academic experience leading to the master of business administration degree. The program is designed for persons who hold managerial positions in the private and public sectors. It builds upon the knowledge and experience of these executives with a sophisticated, challenging curriculum that can be pursued simultaneously without career interruption.

The executive MBA program emphasizes corporate planning; the organization in a complex, international environment; and the applied tools of management. Courses are taught through a variety of methods. Case studies, lectures and computer simulation are combined with research projects and other teaching methods to provide students with tools useful in their present positions and applicable to more advanced responsibilities as they progress in their management careers.

Each new session of the executive MBA program begins the last week of August. Classes meet for a full day, once a week, on alternating Fridays and Saturdays, making it possible for those who live outside the Denver area to participate.

Two courses are taken simultaneously throughout the program. The program is supplemented by an intensive orientation at the beginning and a two-day seminar at the conclusion of the first academic year. A second-year seminar is held at an international business center.

FACULTY AND RESOURCES

The faculty are senior members of regular faculty of the business schools from three of the university's campuses. The executive MBA program is offered jointly by the Graduate Schools of Business Administration in Boulder and Colorado Springs and the Business School in Denver. Faculty are nationally recognized, and all possess both practical managerial experience and a demonstrated ability to work effectively with executive-level students.

ADMISSION REQUIREMENTS

The executive MBA program is designed for men and women who have eight years of business or administrative experience, including at least three years in a managerial position. In the selection process, significant attention will be given to the depth and breadth of the candidate's experience, progression in job responsibility, total work experience and the ability to benefit from this integrative classroom/work environment. The admissions committee will base its decision on the application, former academic record, relevant test scores, the employer's nominating letter, other letters of recommendation and a personal interview.

For application and additional information, write to:

Executive MBA Program
The Business School
University of Colorado at Denver and Health Sciences Center
P.O. Box 480006
Denver, CO 80248-0006

Executive MBA in Health Administration

Program Manager: Pete Taffe

Telephone: 303-623-1888 or 1-800-228-5778

PROGRAM SPONSORS

The executive program in health administration is a cooperative program of UCDHSC and the Network for Healthcare Management.

The University of Colorado at Denver and Health Sciences Center serves as the degree-granting institution for the executive program. The graduate program in health administration is located in the Business School.

The Network for Healthcare Management is an educational consortium representing healthcare executives and academic faculty from major health administration graduate programs in the United States and Canada, including Arizona State University, Northwestern University, Ohio State University, San Diego State University, the University of California at Berkeley, the University of California at Los Angeles, the University of Colorado at Denver and Health Sciences Center, the University of Michigan, the University of Missouri, the University of North Carolina, the University of Southern California, the University of Toronto, the University of Washington and Virginia Commonwealth University.

DISTINCTIVE FEATURES OF THE EXECUTIVE PROGRAM IN HEALTH ADMINISTRATION

1. Drawing on the expertise represented by the faculties of a consortium of western universities, the program offers high-quality courses taught by instructors that are typically not available from a single university.
2. The executive program facilitates learning for professionals who have continuing career and family responsibilities. The program is especially tailored for working individuals, allowing students to remain on their jobs while completing their educational program.
3. The program employs innovation in the technology of educational delivery. Learning methods include:
 - computer-assisted instruction and self-paced learning packages
 - computer conferencing and electronic case analyses
 - on-campus sessions

For application and additional information, write to:

Executive Program in Health Administration
 The Business School
 University of Colorado at Denver and Health Sciences Center
 P.O. Box 480006
 Denver, CO 80248-0006
www.colorado.edu/execed

At A Glance: School of Education & Human Development

Students*

1,236
Undergraduate: 55
Graduate: 1,181

Degrees Awarded 2006‡

Graduate: 596

Faculty*

Full-time: 57
Lecturers: 67

Student-Faculty Ratio*

12:1

Degree Programs

Initial licensure programs

Elementary Education
Secondary Education (all core subjects)
K-12 Special Education
Early Childhood Special Education

Graduate degree programs

Administrative Leadership and
Policy Studies
Counseling Psychology and
Counselor Education
Curriculum and Instruction
(ESL, literacy, math and science)
Early Childhood Education
Educational Leadership and Innovation
Educational Psychology
Information and Learning Technologies
School Psychology
Special Education



Accreditation

National Council for the Accreditation of
Teacher Education (NCATE)
Council for Accreditation of Counseling and
Related Educational Programs (CACREP)
National Association of School Psychologists
(NASP)

Research Centers

Center for Collaborative Educational
Leadership
Center for Evidence Based Practices in Early
Learning
Center for Teaching and Learning with
Technology
Colorado Principal's Center
Evaluation Center
National Center for Culturally Responsive
Educational Systems
National Institute for Urban School
Improvement
PARA2 Center
Positive Early Learning Experiences Center
Professional Development in Autism Center

Alumni‡

8,869
Undergraduate: 3%
Graduate: 97%

Sample Companies Hiring Alumni

Adams County School District 12
Adams County School District 50
Aurora Public Schools
Denver Public Schools
Jefferson County Public Schools

Average starting salary for those working full-time in related field†:

Graduate education students = \$44,394

Bragging Rights

Largest graduate school of education
in Colorado.
The School of Education & Human
Development was ranked 70th nationally
in 2007 by *U.S. News & World Report*.
Faculty hold \$38 million in grants (about
\$8 million per year).
A network of partnerships with Denver
Public Schools and a number of the
other largest metropolitan districts
enables students to gain relevant
classroom experience.

*Fall 2006 end-of-term enrollment data ‡Fiscal Year 2005-2006 data †2005 survey of 2003-2004 graduates one year after graduation

School of Education & Human Development

Dean
Lynn Rhodes

Associate Deans
Wanda Blanchett
Luis Rene Galindo
Deanna Sands

Contact

Admissions
Student Services Center
North Classroom, 5012
303-556-2717
education@cudenver.edu
www.cudenver.edu/sehd

Mailing Address
School of Education &
Human Development
Campus Box 106
P.O. Box 173364
Denver, CO 80217-3364

Application Deadlines

Vary by program. Visit
www.cudenver.edu/sehd/apply.

As a graduate school in the heart of the city, the School of Education & Human Development provides leadership for learning to support diverse individuals, communities and organizations. We give primary attention to the environments and personnel that support learning in the public schools, but learning also includes human growth and development in the workplace, in community services and in families.

Leadership for Learning

Urban communities depend on leaders who value diversity in race, culture, economic status and ability. As a graduate school in the heart of Denver, the School of Education & Human Development prides itself on preparing urban leaders who are committed to enhancing the life choices and chances of urban children, youth and their families. We prepare educational leaders for roles as school counselors and psychologists, Title I teachers, math and science specialists, special educators, bilingual and ESL teachers, corporate trainers, media specialists and a host of other professional educators and mental health practitioners. Our programs draw upon the rich resources of Denver's communities to graduate individuals who foster innovation and change within schools, mental health organizations and other educationally oriented businesses. We emphasize practice that links faculty, students, schools, community agencies, business and families in the shared cause of improved learning. Our entrance requirements, courses, assignments in schools and other practice settings and student evaluations all reflect the knowledge, skills and dispositions we believe will support leadership in professional practice.

Faculty Engagement in the Community

Through partnerships with schools and community services, our faculty ensure that teaching and research have an impact on educational practice in Denver's communities. The School of Education & Human Development faculty are actively involved in local and national efforts to improve schools and schools of education.

Professionals as Students

Our program and class schedules offer flexibility to meet the needs of professionals who balance graduate education with the demands of work, families and other interests.

Accreditation

The School of Education & Human Development is fully accredited by the Colorado Department of Education (CDE), the National Council for the Accreditation of Teacher Education (NCATE), and the Council for Accreditation of Counseling and Related Education Programs (CACREP) in Agency Counseling, School Counseling and Marriage and Family Therapy, and the National Association of School Psychologists (NASP) in School Psychology.

A Brief History of the School of Education & Human Development

By 1965 what is now the School of Education & Human Development had emerged from its longtime "extension" status (staffed by Boulder faculty) to become a branch campus of the School of Education (SOE) at Boulder. The Denver school was led by an associate dean who also presided over the Colorado Springs SOE branch campus. At the time, the Denver campus was known as the CU-Denver Center. The next year Denver's original faculty of three held joint campus appointments. For almost a decade, the growing Denver-based faculty were considered part of a single University of Colorado SOE faculty. Graduate programs—both master's and doctoral—were integrated within the university's three campuses. Differentiation of programs developed at the undergraduate level initial certification program, with the Denver campus offering a unique urban-oriented teacher education program by the mid-1970s.

Faculty offices originally were located in the Tower Building, which once housed the offices of Denver's tramway system (hence, the nickname "Tramway Tech," now the Hotel Teatro). In 1975 the faculty voted to separate from the Boulder campus and become the Graduate School of Educational Studies, although undergraduate courses continued. Within a few years, the initial certification program was

moved to the graduate level, and the school began conferring MA degrees in elementary and secondary education. Other master's degrees were offered in counseling and guidance, educational psychology and foundations of education. In the late 1970s, faculty offices were moved to St. Cajetan's rectory and then back to the second floor of the Tower Building. In the early 1980s, the school moved to the second floor of the CU-Denver building. In January 1988, when the North Classroom building was completed, the faculty moved once again on the fourth and fifth floors of North Classroom.

Up until 1985 the faculty was composed of about 10 professors who prepared teachers, special educators, school psychologists, reading teachers and bilingual teachers. In the latter 1980s, the faculty doubled in size through aggressive expansion, hiring a total of 10 faculty in the span of two years. The principal preparation program and a doctoral program in educational leadership were moved to Denver from Boulder in 1987. That same year the school established an instructional technology program.

In the ensuing years, the school has grown to 57 full-time faculty and a curriculum of 10 degree and 13 licensure programs, including two educational specialist degrees and a PhD program. The school's award-winning faculty leads the field in initial and continuing teacher education with specialties in language, literacy and culture; early childhood special education research; technical assistance to urban schools; leadership for paraeducator education; and the preparation of teachers and principals as well as marriage and family counselors. The School of Education & Human Development is now the largest education program in the CU system and has more graduate students than any other school of education in the state. Our remarkable growth parallels the rapid growth of the city of Denver as it becomes a majority minority city serving an urban Latino/a, African-American, Asian and Caucasian population, drawing from the Pacific Rim and the East Coast as well as Latin America. With a strong commitment to urban development and growth, the school's innovative graduate and undergraduate programs provide opportunities to work side by side with researchers and practitioners on authentic problems of practice and action-oriented research.

Programs Leading to Degrees and Licenses

The School of Education & Human Development offers a doctoral program in educational leadership and innovation, two educational specialist degrees and master's degrees in seven program areas. Students in these degree programs may pursue a variety of state licenses for teaching and school administration or may elect to earn these licenses without pursuing a graduate degree. As of spring 2003, the school has begun offering teacher licensure course work to undergraduate students in the downtown Denver campus College of Liberal Arts and Sciences who wish to obtain an elementary or secondary English, math or social studies teaching license.

The school's degree programs and the associated state licenses are listed in a table that also provides contact information. The school's Initial Professional Teacher Education program prepares elementary and secondary teachers for a variety of school settings through academic work, professional studies, classroom teaching experiences and community field experiences.

Continuing Education

In cooperation with schools and other community agencies, the school's continuing education program offers a variety of graduate workshops, courses and academies. While these are designed to meet specific education and training needs of partner organizations, many of the continuing education programs articulate with the school's regular master's degree programs. For more information, call Hilary Bruce at 303-556-6030.

Front Range BOCES for Teacher Leadership

The Front Range BOCES for Teacher Leadership was established in 1998 as a Board of Cooperative Educational Services (BOCES) by the Denver Area School Superintendents' Council and the School of Education & Human Development at UCDHSC. Through collaborative efforts and resource sharing, the members of the Front Range BOCES for Teacher Leadership are committed to effecting significant improvements in professional development based on National Staff Development Council standards.

Center for Collaborative Educational Leadership (CCEL)

Contact: Patrice Ball
Telephone: 303-556-3937

The CCEL was chartered in 1993 in response to the growing need for collaboration between the School of Education & Human Development, P-12 schools and related community agencies. The center's purpose is to bring increasing coherence, support, and continuity to existing university-community partnerships and to expand collaborative efforts that are responsive to local needs and research and development opportunities. Contact Patricia Ball, 303-556-3937, for more information.

CCEL's partners include the Health Sciences Center campuses, the North Central Organization of Schools and Colleges and various advocacy and nonprofit local and national organizations. CCEL has conducted research and policy studies, engaged in model demonstration and program development, conducted longitudinal studies on the effectiveness of early intervention procedures, provided education and training to personnel across the country and collaborated with professional organization and local communities throughout the United States and abroad. The CCEL's work is supported by federal and state sources as well as private foundations, corporations and organizations.

Programs and Admissions

Prospective degree candidates (master's, educational specialist and PhD) should request application materials from the School of Education & Human Development Student Services Center located in the North Classroom building, Room 5012, by telephone at 303-556-2717 or by e-mail to education@cudenver.edu. Information about all degrees, programs and admission requirements can be found on the school's Web site at www.cudenver.edu/sehd.

DIVISION OF INITIAL PROFESSIONAL TEACHER EDUCATION (IPTE)

Program Coordinator: Cindy Gutierrez
Office: North Classroom, 5012
Campus Box 106
P.O. Box 173364
Denver, CO 80217-3364
Telephone: 303-556-2717 or 303-556-5274
Fax: 303-556-4479
E-mail: education@cudenver.edu
Web site: www.cudenver.edu/sehd/ipte

Programs of Study

For more information about faculty in the initial professional teacher education program, visit www.cudenver.edu/sehd/ipte/faculty.

IPTE Licensure Program Overview

The initial professional teacher education (IPTE) program fosters critically reflective inquiry about teaching and learning and the

(continued on page 138)

School of Education & Human Development Degree Programs and Associated State Licenses		
Programs	Approved Degrees	Licenses and Endorsements
ALPS: Administrative Leadership and Policy Studies	Master of Arts: Administrative Leadership and Policy Studies Educational Specialist (EdS): Administrative Leadership and Policy Studies	Principal License Administrator License
EDLI: Educational Leadership and Innovation (doctoral program)	PhD: Educational Leadership and Innovation	
IPTE: Initial Professional Teacher Education	Teacher Licensure Master of Arts: Special Education	Elementary Education Secondary Education: Math, Science, Social Studies, English, Foreign Language Special Education: Generalist–K–12
CPCE: Counseling Psychology and Counselor Education	Master of Arts: Counseling Psychology and Counselor Education	Public School Counselor License 0–21 Encouraged to apply for licensure from the State of Colorado: Couples and Family Therapy Community Agency – Interdisciplinary Community Agency – Employee Assistance Program Community Agency – Career Community Agency – Multicultural
SPSY: School Psychology	Educational Specialist (EdS): School Psychology	School Psychology License: 0–21
EPSY: Educational Psychology	Master of Arts: Educational Psychology	
ECE: Early Childhood Education	Master of Arts: Early Childhood Education	Teacher 4, Early Childhood Special Education
LDE: Linguistically Diverse Education	Master of Arts: Curriculum and Instruction	Endorsement/emphasis: • Linguistically Diverse Education
L2CRT: Literacy, Language and Culturally Responsive Teaching	Master of Arts: Curriculum and Instruction	Endorsements/emphases: • Reading Teacher: K–6, 7–12 • Secondary English Education
C&P: Curriculum and Pedagogy	Master of Arts: Curriculum and Instruction	Endorsements/emphases: • Elementary Education • Secondary Math, Science or Social Studies
ILT: Information and Learning Technologies	Master of Arts: Information and Learning Technologies	Endorsements/emphases: • K–12 ILT Specialist/Teacher Level • Dual MS in Technical Communications/ILT • School Library Media

development of collaborative skills necessary to work effectively with other adults on schooling issues. The IPTE program strives to meet the needs of an increasingly diverse population of students, and to productively participate in and lead school renewal by applying democratic principles in educational settings.

IPTE Program Distinctions

Program Structure

The IPTE program admits teacher candidates in two cohort groups, one in the summer/fall and one in the spring. The initial professional teacher education program includes a 12- or 18-month licensure plan. Students will be taking course work at the university and field-based work in one of UCDHSC's partner schools. By enrolling in several courses together, elementary and secondary teacher candidates consider how students develop as learners over the entire K–12 school span. This collaborative approach applies to students in the general and special education program as well. This ensures that all elementary and secondary classroom teachers are well-prepared to work with students with special needs and that all special educators have a solid foundation in general education in curriculum and instruction.

Partner Schools

While in the licensure portion of the program, teacher candidates work in a partner school one to four days per week, depending on the internship. University courses are closely interrelated with the four internship experiences in which teacher candidates gradually assume responsibility for teaching. Elementary teacher candidates generally spend an entire academic year in a single partner elementary school, whereas secondary teacher candidates spend their four internships in one of the partner middle schools *and* one of the partner high schools. The partner schools are located in several Denver metropolitan districts with most serving large populations of low-income and/or minority students, as well as a sizeable number of students for whom English is a second language and students with special needs. Each partner school is supported by a site professor from the university one day per week and by a master teacher, called a site coordinator.

Assessment

The IPTE licensure programs require students to complete a series of performance-based assessments in: content knowledge, literacy, mathematics, differentiated instruction, democratic schooling, classroom management, instruction and assessment, and technology. All of these assessments are embedded into IPTE course work.

Passing the PLACE or PRAXIS II Content examination is also required before a candidate is eligible for a provisional teaching license in Colorado.

Licensure Options and Master's Degree

Students in the IPTE program may choose dual licensure as both general and special education teachers. Many of the courses serve as requirements for both fields.

The IPTE program design supports the concept of teacher education as an ongoing developmental process linking preservice, induction and ongoing professional growth experiences.

Upon completion of the licensure portion of the program, beginning teachers continue working toward their master's degree (an additional 15-31 semester hours) in the areas of special education, educational psychology or curriculum and instruction during their first or second year of teaching. This ensures that UCDHSC's new teachers are provided with continuing support from the university while in their first few years of teaching.

IPTE Graduate Program

The IPTE graduate program at UCDHSC is designed for individuals with a minimum of a bachelor's degree who seek a master's degree along with an Initial Colorado Provisional Teacher's License in the following areas:

- Elementary Education (K–6) (40 semester hours)
- Secondary Education (7–12) (37 semester hours)
 - English
 - mathematics
 - science (general science, biology, earth science, physics, chemistry)
 - social studies
 - foreign language (Spanish, French)
- Special Education Generalist (K–12) (58 semester hours)

DUAL GENERAL EDUCATION/SPECIAL EDUCATION

IPTE teacher candidates may earn an initial license in elementary or secondary education with an additional endorsement in special education or an initial license in special education with an additional endorsement in elementary or secondary education.

Requirements for Admission

The IPTE program conducts rolling admissions each semester. Please check the Web site for all current dates: www.cudenver.edu/sehd/ipte.

INITIAL PROFESSIONAL TEACHER EDUCATION INFORMATION SESSIONS

All prospective teacher candidates are strongly encouraged to attend an IPTE information session before applying to the IPTE program.

IPTE information sessions are held Mondays and begin promptly at noon and at 5:30 p.m. lasting approximately one hour. A calendar of upcoming information sessions can be viewed on the downtown Denver campus Web site. Go to www.cudenver.edu/sehd/ipte.

The IPTE academic advisor will be available to meet individually with prospective students to review transcripts and provide pre-admission advising. To more effectively facilitate this process, please bring copies of all transcripts with you.

For more information about IPTE information sessions, call the school's Student Services Center at 303-556-2717.

IPTE PROGRAM REQUIREMENTS

- Applicants to the IPTE program must hold at least a bachelor's degree with a minimum undergraduate cumulative GPA of 2.75 for admission.
- Candidates with a GPA less than 2.75 are required to take the GRE, with a combined score of 1000 on the verbal and quantitative sections; or the Miller Analogies Test, with an average score of 50, before consideration for admittance.
- All elementary education candidates must have a liberal arts major or strong liberal arts concentration of at least 18 semester hours.
- All secondary education candidates must have a liberal arts background with a major or major equivalent of at least 30 semester hours in their desired teaching field.
- Special education generalist candidates must pass the PRAXIS II or PLACE elementary content exam prior to admission in IPTE.

Each candidate should meet with a School of Education & Human Development academic advisor before applying to the IPTE program. The advisor will determine whether any prerequisite courses are needed to meet minimum teaching field requirements.

IPTE Graduate Course Requirements

The IPTE Undergraduate Program

The undergraduate teacher education program at UCDHSC is a joint effort between the College of Liberal Arts and Sciences and the School of Education & Human Development. This IPTE undergraduate program is dedicated to quality teacher education. To that end, our admission standards are rigorous and there are a number of program “gates” that teacher candidates go through to complete licensure.

UCDHSC has selective admission standards for entering freshmen, including a 93 institutional index that includes students who are typically in the top third of their class or have a 3.4 GPA or score above a 23 on the ACT or 1100 on the SAT. Students transferring from community colleges must have a minimum of a 2.5 GPA.

Please note: The admission into the IPTE program is a separate process from admission to the university. We use a rolling admission process. Please check the Web site for dates: www.cudenver.edu/sehd/ipte.

IPTE UNDERGRADUATE ADVISING

Undergraduate teacher candidates will have a team of individuals who work with them throughout the completion of their bachelor’s degree and teacher licensure. The following are the members of your advising team:

College of Liberal Arts and Science (CLAS) Advisor

The CLAS advisor will assist you upon entry to the university through graduation. The CLAS advisor will monitor your progress through the core curriculum, pre-IPTE curriculum, eligibility requirements for the IPTE program and transfer credits. The CLAS advisor will also approve individually structured major-elementary education contracts for elementary education teacher candidates.

Faculty Advisor

A faculty advisor designated within the academic department works with undergraduate teacher education students regarding specific requirements within academic major (i.e., English, history, mathematics and political science). See the CLAS advisor for specific names and contact information.

IPTE Advisors

There are many people supporting students and programs.

- First, advisors in the School of Education & Human Development’s Student Services Center (North Classroom, 5012; 303-556-2717) are able to help with questions about prerequisite completion, taking the PRAXIS II/PLACE exam and other general questions.
- For students in partner schools, the site professor is the primary advisor related to courses and internships.
- For students in their own classrooms, the university site supervisor or special education advisor will provide advising about courses, internships and practicum. Our undergraduate students should contact a CLAS advisor for specific information about their plan of study.
- Undergraduate students beginning MA courses should contact the university faculty member assigned to the option they have chosen.

IPTE UNDERGRADUATE ACADEMIC PLANNING SHEETS

Developed in collaboration with the academic departments and IPTE program faculty, advisors will work with the teacher candidates on an academic planning sheet. There is little flexibility in the program course requirements as these requirements meet and exceed the Colorado Department of Education’s teacher education professional and content standards.

IPTE UNDERGRADUATE COMMUNITY COLLEGE ARTICULATION

UCDHSC honors the community college articulation agreement to transfer the 60 designated semester hours from the community college to anyone admitted to the teacher licensure program. If the teacher candidate is a transfer student, he/she should work with his/her CLAS advisor early and often to ensure that all courses are transferred properly.

IPTE UNDERGRADUATE MAJORS

Undergraduate teacher candidates can earn a BA and a Colorado Provisional Teacher’s License in the following areas:

- BA—Individually Structured Major
Elementary Education Licensure
- BA—English Literature
Secondary English Licensure
- BS—Mathematics
Secondary Mathematics Licensure
- BA—History
Secondary Social Science Licensure
- BA—Political Science
Secondary Social Science Licensure
- BA—Spanish
Secondary Spanish Licensure
- BA—French
Secondary French Licensure

IPTE GRADUATE COURSE REQUIREMENTS

IPTE Elementary Courses

Elementary K–6 Licensure Total

	<i>Semester Hours</i>
MATH 3040. Mathematics for Teachers	3
IPTE 4000. Literacy Assessment and Instruction	3
IPTE 4001. Literacy Assessment and Instruction Laboratory	1
<i>(Prerequisite: IPTE 5000)</i>	
IPTE 4002. Mathematics Assessment and Instruction	2
<i>(Prerequisite: MATH 3040)</i>	
IPTE 4006. Science and Social Studies in the Elementary Curriculum	4
IPTE 4020. Exploring Diversity in Content and Pedagogy I	3
SPED 4021. Exploring Diversity in Content and Pedagogy II	2
<i>(Prerequisite: IPTE 5020)</i>	
IPTE 4120. Negotiating the Classroom Culture with Children	3
IPTE 4130. Democratic Schooling: Issues of Law and Ethics	3
IPTE 4910. Pre-IPTE Internship and Site Seminar I	2
IPTE 4911. Internship and Site Seminar II	2
IPTE 4912. Internship and Site Seminar III	3
IPTE 4913. Internship and Site Seminar IV	6
Total	37

IPTE Secondary Courses

Secondary 7–12 Licensure Total

	<i>Semester Hours</i>
Two Courses Required in Content Area (listed below)	6
IPTE 4020. Exploring Diversity in Content and Pedagogy I	3
SPED 4021. Exploring Diversity in Content and Pedagogy II	2
<i>(Prerequisite: IPTE 5020)</i>	
IPTE 4025. Secondary Literacy Instruction and Assessment	3
IPTE 4026. Content Literacy Assessment and Instruction Teaching Laboratory	1
IPTE 4121. Negotiating the Classroom Culture with Adolescents	3
IPTE 4130. Democratic Schooling: Issues of Law and Ethics	3

SPED 4111. Teaching for the Success of All Adolescents 3
 IPTE 4910. Pre-IPTE Internship and Site Seminar I 2
 IPTE 4911. Internship and Site Seminar II 2
 IPTE 4912. Internship and Site Seminar III 3
 IPTE 4913. Internship and Site Seminar IV 6
 Total 37

Content Specific Methods Courses

Fall Semester

English—IPTE 4760. Theory and Methods of Teaching
 Secondary English 3
 Foreign Language—IPTE 4690. Curriculum and Methods in
 Foreign Language I 3
 Mathematics—IPTE 4300. Curriculum and Methods
 in Secondary Math 3
 Science—IPTE 4351. Inquiry Science Methods 3
 Social Studies—HIST 4465. Problems and Methods in
 Teaching History and Social Studies 3

Spring Semester

English—IPTE 4740. Adolescent Literature 3
 Foreign Language—IPTE 4691. Curriculum and Methods
 in Foreign Language II 3
 Mathematics—IPTE 4401. Assessment in Math Education 3
 Science—IPTE 4350. Modern Trends in Science Education 3
 Social Studies—HIST 4460. Problems and Methods
 in Teaching History and Social Studies I 3

Special Education Program

Program Leader: Donna Sobel
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The special education program within the initial professional teacher education Division offers a special education generalist license and a special education specialist endorsement as well as a master of arts in special education degree.

SPECIAL EDUCATION PROGRAM

All special education program options foster the development of critical reflection, inquiry about teaching and learning, as well as the breadth and depth in content knowledge necessary to work effectively in elementary and secondary classrooms. The program faculty promote the ability of teacher candidates to meet the needs of an increasingly diverse population of K–12 learners, as well as to participate productively in and lead school renewal.

The faculty in the program in special education value collaborative relationships between general and special educators, so we offer our teacher candidates the option of pursuing a dual endorsement in both general and special education.

SPECIAL EDUCATION GENERALIST

To be a licensed as a special education generalist for grades K–12, a teacher candidate must hold a bachelor's degree from a four-year accepted institution of higher education, have completed the plan of study from one of the program options for the preparation of special education generalist, have passed the approved elementary content and special education assessments and have demonstrated all required state and national standards.

Program options for the special education generalist include: 1) initial licensure as a special education generalist; 2) dual licensure in either elementary or secondary education and as a special education generalist; and, 3) for those who already hold a Colorado teaching license in either elementary or secondary education, an added endorsement as a special education generalist.

The time needed to complete the various special education generalist program options varies based on the needs of teacher candidates. In addition to traditional on-campus offerings, a wide selection of courses are available in online formats. During the academic year, core special education courses are scheduled in late afternoons, evenings and on Saturdays to avoid conflict with teaching responsibilities.

All teacher candidates in the generalist program develop a portfolio that documents their achievements in acquiring the knowledge, skills and disposition of the program, fulfillment of the teaching roles and demonstration of state and national standards through a series of performance based assessments (PBAs). The portfolio is validated by program faculty prior to a recommendation for licensure.

PLANS OF STUDY FOR LICENSURE AS A SPECIAL EDUCATION GENERALIST

The table on the following page delineates the course work for the special education generalist license through various program options. All classes in the special education generalist program options earn graduate credit which may apply to a graduate degree.

PLANS OF STUDY FOR LICENSURE

The table on the following page delineates required course work for the special education generalist license through four different pathways. Classes taken in the School of Education & Human Development earn graduate credit, which may apply toward a master's degree.

DIVISION OF COUNSELING PSYCHOLOGY AND COUNSELOR EDUCATION

Program Leader: Marsha Wiggins
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Telephone: 303-556-2717
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Faculty

Information about faculty in the Division of Counseling Psychology and Counselor Education program is available online at www.cudenver.edu/sehd/cpce.

The master of arts degree in counseling psychology and counselor education prepares professionals for community/mental health agencies, private practice, family clinics, public schools, universities and business settings. Students should obtain faculty advising regarding requirements.

Programs consist of 66 semester hours. Core requirements that are common to all areas of study are followed by courses specific to each program. All programs require a practicum (150 clock hours) and an internship (600 clock hours). For most students, the master's degree is a three-year program with course work for two years followed by a year of practicum and internship. All beginning students enroll in CPCE 5010. Foundations of Counseling. The community counseling, school counseling and couple and family therapy programs are nationally accredited by CACREP, the Council for the Accreditation of Counseling and Related Educational Programs.

All students are expected to have online computer capability for communication and instructional purposes. For students in off-campus programs, some courses may be offered via computer technology.

Special Education Generalist Plan of Study					
Course Title	Semester Hours	Initial License in SPED Only	Dual Licensure Elementary	Dual Licensure Secondary	Added Endorsement
IPTE 5000. Literacy Instruction and Assessment	3	x	x		
IPTE 5001. Literacy Instruction and Assessment Lab	1		x		
IPTE 5025. Secondary Literacy Instruction and Assessment	3			x	
IPTE 5026. Secondary Literacy Instruction and Assessment Lab	1			x	
MATH 3040. Mathematics for Elementary Teachers (see SPED advisor)	3	x	x		
IPTE 5002. Mathematics Instruction and Assessment (see SPED advisor)	2	x	x		
IPTE 5006. Science and Social Studies in the Elementary or Secondary Curriculum (see SPED advisor)	4	x	x		
SPED 5111 or 5112. Teaching for the Success of All Adolescents/Children	3	x	x	x	
IPTE 5120 or 5121. Negotiating the Classroom Culture With Children/Adolescents	3	x	x	x	
IPTE 5020. Exploring Diversity in Content and Pedagogy I	3	x	x	x	
SPED 5021. Exploring Diversity in Content and Pedagogy II	2	x	x	x	
SPED 5600. Special Education for School Professionals	3	x	x	x	x
SPED 5320. The Uses of Technology in Special Education	2	x	x	x	x
SPED 5300. Collaborating in Schools and Communities	3	x	x	x	x
First/Second Content-Specific Methods Course (see advisor)	3			x	
	3			x	
SPED 5010. Instructional Strategies for Students With Special Needs	3	x	x		x
SPED 5140. Advanced Assessment in Special Education	4	x	x	x	x
SPED 5500. Transition/Secondary Issues in Special Education	2	x	x	x	x
SPED 5780. Literacy Intervention for Students With Disabilities	3	x	x	x	x
SPED 5151. Positive Behavioral Support	2	x	x	x	x
IPTE 5910 (2 cr), 5912 (3 cr) and 5913 (6 cr) Internship and Site Seminar*	11		x	x	
SPED 5910. Internship and Site Seminar Second internship, replaces IPTE 5911	2	x	x	x	x (2)
SPED 5911 (2 cr) and 5912 (3 cr): Internship and Site Seminar	5	x			
SPED 5913. Internship and Site Seminar*	1-6	x (6)	x (4)	x (4)	x (2)
TOTAL		58	63	60	26

Note: School professionals who hold a Colorado license in physical education, early childhood education or similar areas are also required to complete additional course work in elementary or secondary literacy, mathematics content and methods and human development. Evidence of professional development in differentiated content, process and activities is also required. The IPTE 5020/SPED 5021 sequence is an element of the plan of studies as well.

*The PRAXIS or PLACE content exam must be passed prior to the final internship.

Admission Requirements

Successful applicants to the counseling psychology and counselor education (CPCE) program will have obtained a minimum 2.75 undergraduate GPA and will score at least 900 on the verbal and quantitative sections of the GRE or at least 396 on the Miller Analogy Test. Also, applicants will submit a current resume, a statement of goals and four letters of recommendation. Applicants meeting these minimum standards will be invited to a half-day group interview that involves program orientation, counseling simulations, a writing assignment and a group dynamics exercise.

Application materials are available by calling the Student Services Center at 303-556-2717 or coming to North Classroom, 5012. All materials must be submitted to the Student Services Center in one complete packet by the appropriate deadline: September 15 for spring semester, February 15 for summer and fall semesters. Application materials include the following:

- part I of the application for admission
- tuition classification form
- \$50 application fee (make checks payable to the University of Colorado at Denver and Health Sciences Center)
- written statement

- four letters of recommendation (in sealed and signed envelopes)
- two official transcripts from each higher education institution attended (in original sealed envelope)
- official GRE or MAT scores sent directly to the University of Colorado at Denver and Health Sciences Center (if you do not already hold a graduate degree; see CPCE application checklist)

Matriculation Requirements

CPCE students must earn at least a *B* in skills-oriented courses (CPCE 5100, 5160, 6140, 7100, 5910, 5930) or must repeat these courses until they do so. In addition, all students must make a formal case presentation in CPCE 5930 (internship) to demonstrate their clinical knowledge. Students must also take a national comprehensive examination. Students may opt to write a research-based thesis instead of taking the national written examination.

Program Areas

Students accepted into the CPCE division follow one of three programs offering counseling psychology and counselor education. The couple and family therapy program follows licensure requirements

designated by the state of Colorado for licensure as a marriage and family therapist. The community counseling program follows state licensure requirements for licensed professional counselor, and the school counseling program follows state department licensure requirements.

Counseling Psychology and Counselor Education Core

(required in all program areas)

	<i>Semester Hours</i>
CPCE 5010. Foundations of Counseling	.3
CPCE 5100. Theory and Techniques of Counseling	.3
CPCE 5110. Group Counseling	.3
CPCE 5150. Family Therapy Theory	.3
CPCE 5330. Counseling Issues and Ethics	.3
CPCE 5400. Career Development	.3
CPCE 5810. Multicultural and Diversity Issues for Individuals and Families	.3
CPCE 5910. Practicum in CPCE	.6
CPCE 5930. Internship in CPCE	.6
EPSY 6200. Human Development Over the Life Span	.3
REM 5200. Introduction to Research Methods	.3
REM 5300. Introduction to Measurement	.3
Total	.42

Additional Requirements for Program Area One: Community Counseling (MA)

CPCE 5160. Techniques in Family Therapy	.3
CPCE 5280. Addictions Counseling	.3
CPCE 5820. Strategies in Agency Counseling	.3
CPCE 6250. Advanced Abnormal Psychology	.3
CPCE 7100. Advanced Theories and Techniques in Psychotherapy	.3
Two Electives	.6
Total	.21

Additional Requirements for Multicultural/Diversity Strand in Community Counseling

CPCE 5160. Techniques in Family Therapy	.3
CPCE 5280. Addictions Counseling	.3
CPCE 5820. Strategies in Agency Counseling	.3
CPCE 6250. Advanced Abnormal Psychology	.3
CPCE 7100. Advanced Theories and Techniques in Psychotherapy	.3
CPCE 5830. ST: Advanced Multicultural Counseling	.3
CPCE 5830. ST: Gender and Sexual Orientation	.3
CPCE 6100. Spiritual Dimensions of Counseling	.3
Total	.24

Additional Requirements for Community Agency Counseling Emphasis in Employee Assistance Program (EAP)

CPCE 5240. Employee Assistance Counseling	.3
CPCE 5280. Addictions Counseling	.3
CPCE 5420. Organizational Development	.3
<i>Semester Hours</i>	
CPCE 5820. Strategies in Agency Counseling	.3
CPCE 6250. Advanced Abnormal Psychology	.3
CPCE 7100. Advanced Theories and Techniques in Psychotherapy	.3
Recommend Elective: CPCE 5160-3. Techniques in Family Therapy	.3
Total	.21

Additional Requirements for Community Agency Counseling Emphasis in Career Counseling

CPCE 5240. Employee Assistance Counseling	.3
CPCE 5280. Addictions Counseling	.3
CPCE 5820. Strategies in Agency Counseling	.3
CPCE 6250. Advanced Abnormal Psychology	.3
CPCE 6400. Career Counseling, Assessment, Consultation	.3

and Resources	.3
CPCE 6420. Seminar: Professional Career Counseling and Research	.3
Recommend Elective: CPCE 5160. Techniques in Family Therapy	.3
Total	.21

Additional Requirements for Program Area Two: Public School Counseling Certificate (MA)*

CPCE 5280. Addictions Counseling	.3
CPCE 5420. Organizational Development	.3
CPCE 5800. Strategies in Public School Counseling	.6
CPCE 6140. Counseling Children, Adolescents and Their Parents	.3
CPCE 6220. Youth Challenges and Resiliency	.3
CPCE 6250. Advanced Abnormal Psychology	.3
Total	.21

* Students without teaching experience must accumulate 10 hours of observation time in a school setting. Three hundred of the 600 hours of internship must be in a concentrated environment. Full-time experience consisting of at least a four-hour block of time each day is required. Students may not do their concentrated experience in their teaching building. Three hundred (300) hours of concentrated experience are needed at both the elementary and secondary level for a K-12 program. CPCE 5150, 6140 and 7100 are necessary for students to work with school-related family issues, individual counseling and children's counseling in practicum and internship. CPCE 5160 is necessary prior to couple and family therapy. Ten hours of laboratory experiences working with youth are required as part of this course.

Additional Requirements for Program Area Three: Couple and Family Therapy (MA)

CPCE 5160. Techniques in Family Therapy	.3
CPCE 5170. Issues in Family Studies	.3
CPCE 5180. Counseling Couples	.3
CPCE 6000. Introduction to Sex Therapy	.3
CPCE 6140. Counseling Children, Adolescents and Their Parents	.3
CPCE 6160. Advanced Assessment: Theory and Treatment in Family Systems	.3
CPCE 6250. Advanced Abnormal Psychology	.3
Total	.21

School Psychology Program

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Faculty

Information about faculty in the school psychology program is available online at www.cudenver.edu/sehd/spsy.

The educational specialist degree in school psychology is a 75 graduate-semester-hour program that leads to licensure in school psychology by the Colorado Department of Education, national certification in school psychology by the National School Psychology Certification Board and the educational specialist degree in school psychology.

This NASP-approved program allows students to create individual plans for meeting program requirements on a full- or part-time basis, during summer and academic year terms and during evening and weekend hours.

The school psychology faculty have adopted a preventative model of school mental health services. Upon completion of the program, students will be able to:

- screen for and recognize the early warning signs of social, emotional or academic risk, distinguishing between these and the typical development of infants, children and adolescents (birth–age 21)
- communicate effectively and consult collaboratively with students, parents, school professionals and community leaders to enhance the academic and mental health skills of students
- incorporate data-based decision making through formal and informal assessment procedures and planning interventions that enhance students’ cognitive, social-emotional and behavioral competencies
- plan, implement and evaluate the effectiveness of preventative and remedial therapeutic interventions that strengthen students’ mental health and academic skills
- advocate for children and families through the application of legal, ethical and professional standards for practice

Admission Requirements

Successful applicants to the school psychology (SPSY) program will have obtained a minimum 3.0 undergraduate GPA and will score at least 1000 on the verbal and quantitative sections of the GRE. Also, applicants will submit a current resume, a statement of goals and three letters of recommendations. Applicants meeting these minimum standards will be invited to a half-day group interview that involves program orientation, a writing assignment and a group dynamics exercise.

Application materials are available by calling the Student Services Center at 303-556-2717 or coming to North Classroom, 5012. All materials must be submitted to the Student Services Center in one complete packet by the appropriate deadline—February 15 for fall semester. Application materials include the following:

- part I of the application for admissions
- tuition classification form
- \$50 application fee (make checks payable to the University of Colorado at Denver and Health Sciences Center)
- written statement
- three letters of recommendations (in sealed and signed envelopes)
- two official transcripts from each higher education institution attended (in the original, sealed envelope)
- official GRE scores sent directly to the University of Colorado at Denver and Health Sciences Center

Requirements for the Educational Specialist Degree in School Psychology and licensure

Students will complete course work in child development, learning and cognition, educational methods, professional issues, assessment, counseling, intervention and consultation. Specific course requirements include one prerequisite course, 20 graduate courses and 14 graduate semester hours (1700 clock hours) of supervised experiences. Prerequisites include an undergraduate or graduate course in exceptional children and an undergraduate or graduate course in child or adolescent development. Students will complete the following core course work:

Semester Hours

CPCE 5810. Multicultural Counseling Issues for Individuals and Families	3
EPSY 5100. Advanced Child Growth and Development —or—	
EPSY 5140. Advanced Adolescent Growth and Development	3
EPSY 5240. Cognition and Instruction	3
REM 5100. Basic Statistics —or—	
REM 7110. Advanced Statistics	3

Semester Hours

REM 5300. Introduction to Measurement	3
SPED 5780. Literacy Instruction for Students With Special Needs	3
SPSY 5600. Functional Behavior Assessment and Planning	3
SPSY 5800. Early Childhood Assessment and Intervention	3
SPSY 6100. Seminar in Professional Issues in School Psychology	2
SPSY 6150-4. Psychoeducational Assessment I	4
SPSY 6160. Psychoeducational Assessment II	3
SPSY 6200. Risk, Resilience and Prevention in School Mental Health	3
SPSY 6300. Legal and Ethical Issues in School Psychology	3
SPSY 6350. School-based Interventions: Children, Youth and Families	4
SPSY 6400. School-based Interventions: Groups, Classrooms and Systems	3
SPSY 6420. Crisis Intervention, Prevention and Planning	3
SPSY 6450. School-based Consultation for Mental Health Professionals	3
SPSY 5800. Advanced Topics in Assessment III	3
SPSY 6500. Identifying and Planning for the Mental Health of Children and Adolescents	3
REM 5400. Introduction to Evaluation of Programs and Persons	3

Supervised Experiences

SPSY 6911. School Psychology Practicum	6
SPSY 6930. School Psychology Internship	8
Total	75

The education specialist in school psychology degree also requires satisfactory completion of two professional portfolios (pre-internship and EdS) demonstrating mastery of the program objectives and passing scores (≥ 660) on the Praxis specialty exam in school psychology.

Professional Expectations

All students in the SPSY program are expected to show a strong commitment to the program and to maintain a high academic, professional, ethical standards and sensitivity to diversity. Inappropriate or unprofessional conduct is cause for discipline or dismissal from the program.

DIVISION OF TEACHER EDUCATION AND PROFESSIONAL LEARNING

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Faculty

Information about faculty in the Division of Teacher Education and Professional Learning is available online at www.cudenver.edu/c&p.

Programs of Study

Curriculum and Pedagogy Master of Arts for Practicing Teachers Science-Math-Social Studies

The curriculum and pedagogy (C&P) studies lead to an advanced master’s degree in curriculum and instruction. All programs require 36 semester hours, including the C&P core or its equivalent. The core courses provide a sound basis in curriculum theory, teacher inquiry, appreciation of diversity and philosophical foundations. The various specializations allow teachers to focus in an area of interest.

Elementary teachers take the math and science concentration. Secondary teachers may choose mathematics, science or social studies.

Each of these programs is designed to prepare teachers to qualify for master certification from the National Board of Professional Teaching Standards, as well as prepare for licensure renewal with the Colorado Department of Education.

CORE (REQUIRED IN ELEMENTARY MATH AND SCIENCE, SECONDARY SCIENCE AND SECONDARY MATH)

	<i>Semester Hours</i>
ELED/SECE 6110. Curriculum Development and School Improvement	.3
FNDS 5050. Critical Issues in American Education	.3
One 5000-level course in research and evaluation methodology (REM)	.3
Total	.9

ELEMENTARY MATH AND SCIENCE

27 semester hours of electives, chosen with advisor’s approval	.27
Program Total	.36

SCIENCE (SECONDARY)

SECE 5350. Issues and Problems in Science Education	.3
SECE 5650. Environmental Education	.3
21 hours of electives in science or education chosen with advisor’s approval	.21
Total	.27
Program Total	.36

MATHEMATICS (SECONDARY)

SECE 5401. Assessment in Mathematics Education	.3
SECE 5400. Curriculum in Secondary Mathematics	—or—
SECE 5410. Advanced Methods and Strategies in Secondary Mathematic	.3

Choose three:

ELED 5416. Math-Science Connections (Outdoors)	.3
SECE 5417. Structure of Rational Numbers	.3
SECE 5418. Mathematical Modeling	.3
SECE 5419. Exploring the Structure of Geology Using Technology	.3
SECE 5420. Teaching Mathematics to Low Achievers	.3
SECE 5440. Topics in Mathematics Education	.3
Total	.9

12 hours of electives from the School of Education & Human Development or the mathematics department, chosen with an advisor’s approval	.12
Total	.27
Program Total	.36

SOCIAL STUDIES (SECONDARY)

Core

SECE 6110. Curriculum Development and School Improvement	.3
FNDS 5050. Critical Issues in American Education	—or—
IPTE 5080. Principles and Practice of Change	—or—
SPED 5300. Collaborating in Schools and Communities	.3
One 5000-level course in research and evaluation methodology (REM)	.3
One 5000-level course in educational psychology (EPSY)	.3
One 5000-level course in instructional technology (IT)	.3
Total	1.5

Content and Pedagogy

Semester Hours

SECE 5464. Teaching about Ethnicity, Race and Prejudice	.3
HIST 5464. Problems and Methods in Teaching History/ Social Studies I	.3
HIST 5465. Problems and Methods in Teaching History/ Social Studies II	.3
HIST 6951. Master’s Project: Advanced History Curriculum Development (capstone course, to be taken in final semester)	.1
9 hours of electives, chosen with advisor’s approval; history, sociology and economics strongly recommended	.9
Total	.19
Program Total	.34

PORTFOLIO

C&P programs require a master’s project or a comprehensive portfolio for graduation. Details may be obtained from your advisor and from the “C&P Handbook” available at www.cudenver.edu/sehd.

INFORMATION AND LEARNING TECHNOLOGIES

Program Leader: Brent Wilson
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Faculty

Information about Information ILT faculty is available online at www.cudenver.edu/ilt/faculty.staff/index.htm.

INFORMATION AND LEARNING TECHNOLOGIES (ILT) MASTER’S DEGREE

The ILT master’s program helps people design and use various resources and technologies for learning. Applying sound principles of instructional design, graduates can develop learning resources such as multimedia lessons, knowledge-sharing tools and online courses. Program graduates also learn to implement learning technologies in specific professional settings—either K–12 schools or adult learning settings such as business or higher education.

- Students are assigned to tracks according to their professional goals:
- The instructional design track prepares students to work in adult-learning settings such as business, higher education, nonprofits or government.
 - The eLearning track prepares educators to develop online courses and learning materials, and to teach and facilitate learning in those eLearning environments.
 - The K–12 teaching track helps teachers integrate technologies into schools and classrooms with a focus on improving teaching practices. Teachers may earn a state endorsement in instructional technology
 - The dual information learning technologies and technical communications track enables students to earn simultaneously information and learning technologies (ILT) and technical communication (MS in technical communications) master’s degrees.

Once admitted, students begin a plan of study that typically takes about two years to complete. Some students are organized into a cohort to complete courses together at a fixed sequence. Other students select courses at a more flexible pace. Consult the ILT Web site for more information about specific plans of study, course offerings and expectations of cohort groups.

ILT faculty members also participate in the school’s PhD program. Students interested in a PhD may participate in a technology-focused doctoral lab with a number of ILT faculty members. The program also delivers an online certificate on eLearning design.

Admission Requirements

Admission decisions are based on undergraduate and graduate grades, external letters of recommendation, writing samples and fit with the program as reflected in a letter of intent. In some cases, results of a test (GRE) are also required. Prospective students should consult the ILT program Web site (<http://thunder1.cudenver.edu/ilt>) for complete admission procedures and requirements.

PROFESSIONAL EXPECTATIONS

All students in the ILT program are expected to show a strong commitment to the program and to maintain high academic, professional and ethical standards. Inappropriate or unprofessional conduct is cause for discipline or dismissal from the program.

TECHNOLOGY EXPECTATIONS

The ILT program uses computers and related technologies either as a focus or a tool for learning. Students are expected to obtain an e-mail account and check it frequently. In addition to on-campus facilities, ILT students need convenient access to Internet-connected computers off campus, either at their place of work or at home. In addition to textbooks, software purchases may be required or recommended for specific classes.

Program Requirements

INSTRUCTIONAL DESIGN

Students complete at least 36 graduate semester hours of course work from a set of core courses and approved electives within and outside the ILT program. The plan of study is nationally accredited by NCATE and AECT and is consistent with standards for instructional designers.

eLEARNING DESIGN AND IMPLEMENTATION

Students may complete a 36 semester hours online master's degree with an eLearning emphasis. The focus of this master's track is on the planning, design, development, delivery, facilitation and evaluation of online learning resources and programs. A certificate is also available in designing Web-based learning environments (WLE).

K-12 TEACHING

Students may select a master's program or an endorsement program in instructional technology. For the full master of arts degree, students complete at least 36 graduate semester hours of course work consisting of a core set of courses and approved electives. The plan of study is accredited by NCATE and AECT and is designed in line with standards of the Colorado Department of Education. Students may also complete an endorsement-only program in ITT or ITS consisting of 24 graduate credits.

INFORMATION LEARNING TECHNOLOGIES AND TECHNICAL COMMUNICATIONS (MSTC) DUAL DEGREE

The Department of Communication of the College of Liberal Arts and Sciences and the Information and Learning Technologies Program in the School of Education & Human Development jointly sponsor a dual master's degree program. This program enables students to earn simultaneously information and learning technologies (ILT) and technical communication (MS in technical communications) master's degrees. An advantage of pursuing the dual degree is that students do not need to complete both master programs in their entirety. Instead, certain course credits from each program are applied simultaneously toward the total credits needed for each degree.

Elementary and Secondary Teacher Leadership: ILT Emphasis (22 Hours)

Students completing their initial teaching license with UCDHSC have an option to continue course work to obtain a postbaccalaureate certificate or master of arts in curriculum and instruction with a technology emphasis. Consult the IPTE Web site for the plan of study and other program requirements at www.cudenver.edu/ipte/ogreen.

Other Programs

The ILT program offers an endorsement in instructional technology and certificates in elearning and digital storytelling.

ENDORSEMENT-ONLY OPTIONS IN INSTRUCTIONAL TECHNOLOGY

K-12 teachers may elect to complete a 24-semester-hour program leading to state endorsement in instructional technology at the teacher or specialist level. Teachers beginning their careers may complete the initial teacher licensing program, followed by 24 semester hours for teacher-level endorsement. More experienced teachers may complete 24 semester hours for the specialist-level endorsement.

DESIGNING EARNING ENVIRONMENTS (DEE CERTIFICATE)

The DeE certificate is an 18-semester-hour program offered entirely online that focuses specifically on the skills needed to design and facilitate online learning opportunities for learners in K-12, higher education and corporate settings. This program is perfect for educators who are not interested in a graduate degree. More information is available at www.cudenver.edu/ilt/elearning/programs/overview.htm.

DIGITAL STORYTELLING CERTIFICATE

A 9-semester-hour certificate in digital storytelling includes face-to-face workshops as well as a 4-semester-hour online course. Participants develop digital stories using non-linear video editing programs and other presentation tools. They learn to integrate digital storytelling methods into existing courses and curricula for all ages.

Note: To receive Colorado teacher endorsements, students are required to pass the PLACE test in instructional technology. This is a Colorado Department of Education requirement.

COMPREHENSIVE EXAMINATION FOR ALL ILT STUDENTS

The comprehensive exam consists of a professional portfolio wherein students demonstrate program competencies through work products and related accomplishments. The portfolio is created throughout the student's program and submitted for faculty review the final semester. For more information, see the ILT Web site.

For complete details about ILT programs, endorsement requirements and certificates, see the ILT Web site at www.cudenver.edu/ilt.

SCHOOL LIBRARY AND INSTRUCTIONAL LEADERSHIP

Program Leader: Laura Summers
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Faculty

Information about SLIL faculty is available online at www.cudenver.edu/ilt/faculty.staff/index.htm.

School Library and Instructional Leadership Master's Degree

The school library and instructional leadership program option is a nationally recognized NCATE-AASL revised and approved school library media education program that leads to the Colorado Department of Education endorsement for school libraries. The program integrates information literacy standards through the use of collaborative planning, as approved by the American Association of School Libraries. Technology and library resources are seen as tools to increase student achievement by integrating the information literacy standards with the content standards of the classroom teacher. The program adheres to the constructivist theory of resource-based learning and promotes an appreciation of children's and adolescent literature. The program believes that school librarians require education as a teacher as well as a librarian, as advocated by the American Library Association and the International Association of School Librarians. As a school librarian, you will provide collaborative instruction, information access and leadership through the management of your library program and the library resources. Courses are offered in a completely online program, an evening on-campus program, or a monthly Saturday cohort scheduled in communities across Colorado.

Once admitted, students begin a plan of study that typically takes about two years to complete. Consult the SLIL Web site for more information about specific plans of study, course offerings and expectations of cohort groups.

ADMISSION REQUIREMENTS

Admission decisions are based on undergraduate and graduate grades, external letters of recommendation, writing samples and fit with the program as reflected in a letter of intent. In some cases, results of a test (GRE) are also required. Prospective students should consult the SLIL program Web site (www.cudenver.edu/ilt) for complete admission procedures and requirements.

PROFESSIONAL EXPECTATIONS

All students in the SLIL program are expected to show a strong commitment to the program and to maintain high academic, professional and ethical standards. Inappropriate or unprofessional conduct is cause for discipline or dismissal from the program.

TECHNOLOGY EXPECTATIONS

The SLIL program uses computers and related technologies either as a focus or a tool for learning. Students are expected to obtain an e-mail account and check it frequently. In addition to on-campus facilities, SLIL students need convenient access to Internet-connected computers off campus, either at their place of work or at home. In addition to textbooks, software purchases may be required or recommended for specific classes.

Program Requirements for LDE Degree/Endorsement or TESOL Certificate

Course	MA No CDE Endorsement	MA and CDE Endorsement	CDE Endorsement Only	IPTE to MA and CDE Endorsement	TESOL Certificate
LLC 5910. Foundations of Language, Literacy and Culture	Required	Required	Required	Required	
<i>One course from culture options:</i> LLC 5140. Multicultural Education LLC 5150. Culture of the Classroom LLC 5160. Foundations of Bilingual Education	Select one	Select one	Select one	Select one	
LLC 5070. Linguistic Analysis of English	Required	Required	Required	Required	Required
LLC 5030. Language and Literacy Acquisition I	Required	Required	Required	Required	Required
LLC 5820. Techniques in Teaching ESL	Required	Required	Required	Required	Required
LLC 5050. Linguistic and Cultural Issues in Linking Assessment and Instruction	Required	Required	Required	Required	Required
<i>One course from field-based teaching options:</i> LLC 5020. Workshop in Literacy and Language Teaching LLC 5825. Methods and Materials of Language Teaching LLC 5826. Language Teaching Lab LLC 5730. Language and Literacy Across the Curriculum	Select one	Elem: 5825 Sec: 5826	Elem: 5825 Sec: 5826	Elem: 5825 Sec: 5826	5826
LLC 5035. Language and Literacy Acquisition II	Required	Required			
LLC 6912. Seminar and Practicum	Required	Required	Required	Required	
<i>One course from research and evaluation methodology:</i> REM 5050. Assessment for Teachers REM 5080. Research for Teachers	Select one	Select one		Select one	
<i>One course from educational psychology:</i> EPSY 5110. Human Learning EPSY 5220. Adult Learning and Education	Select one	Select one			
Elective of student's choice.	Select one	Select one			
Portfolio	Required	Required	Required	Required	
PLACE Exam		Required	Required	Required	
Total Semester Hours	36	36	24	27	15

PROGRAM REQUIREMENTS

School library students also have a choice between endorsement-only and full master's programs. The master's program requires a minimum of 36 graduate semester hours. Students complete a plan of study consisting of courses and professional field experience. To receive Colorado teacher endorsement, students are required to pass the PLACE test in school library. This is a Colorado Department of Education requirement.

COMPREHENSIVE EXAMINATION FOR ALL SLIL STUDENTS

The comprehensive exam consists of a professional portfolio wherein students demonstrate program competencies through work products and related accomplishments. The portfolio is created throughout the student's program and submitted for faculty review the final semester. For more information, see the ILT Web site. For complete details about the SLIL program and endorsement requirements, see the ILT Web site at www.cudenver.edu/ilt.

LINGUISTICALLY DIVERSE EDUCATION

Program Leader: Mark A. Clarke
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Web site: www.cudenver.edu/sehd/lde

Faculty

Information about faculty in this program is available at www.cudenver.edu/sehd/lde.

The faculty of linguistically diverse education (LDE) believe that effective teaching requires an awareness of and the ability to respond to individual differences. LDE faculty also emphasize the importance of teachers as scholars and reflective practitioners. In particular, teachers must understand how linguistic and cultural diversity affect their teaching. Two themes run throughout all program offerings. The first concerns the importance of recognizing a variety of literacies—"home" literacies, school literacy, "mainstream" literacy, first and second language literacies—and to develop teaching practices that utilize an understanding of the complexity of literacy development across language contexts. The second theme involves the meaningful use of language and literacy to improve the quality of one's life. As an approach to teaching, this theme emphasizes the creation of diverse, rich environments in which learners experience oral and written language as part of authentic tasks, and where concern for the cultural and linguistic heritage of the students is evident.

Program Options

The LDE program offers options leading to the following:

- a master of arts in curriculum and instruction
- the Colorado Endorsement for Linguistically Diverse Education
- a Teaching English to Speakers of Other Languages (TESOL) certificate
- a Content Instruction for English Learners (CIEL) certificate

The program is intended for:

- novice teachers who have completed their Colorado teaching credentials in the IPTE licensure program at the graduate or postbaccalaureate level and are enrolled in the MA in curriculum and instruction with an emphasis in LDE (see 27 semester-hour option)
- veteran elementary and secondary teachers returning to graduate studies for the master's degree (36 semester hours)
- veteran elementary and secondary teachers returning to acquire Colorado endorsement credentials (24 semester hours)

- individuals interested in teaching English abroad (TESOL: 15 semester hours)
- veteran elementary and secondary teachers returning to graduate studies for a certificate to aid them in helping their English language learners succeed (CIEL: 9 semester hours)
- individuals interested in teaching adults (MA: 36 semester hours)

The MA is a field-based professional development program involving university faculty and practicing LDE instructors in public school and intensive English settings. Courses, laboratories and practica emphasize scholarly approaches to complex problems of practice and feature interactive, collaborative and practical approaches to working with English language learners.

We emphasize a sociocultural approach to issues of language and learning, acknowledging the legitimacy of linguistic and cultural differences and recognizing that academic settings represent important socializing forces in students' lives. Because of this, we emphasize the "whole learner" in our teaching and in teacher education, understanding that individuals do not merely add a language to their repertoire of communication but make fundamental identity adjustments as they progress in their studies. For this reason, all of our course work, labs and practica experiences are field-based, putting teacher candidates in contact with veteran teachers and English language learners. We draw heavily on recent scholarship in collaborative approaches to school-university partnerships and systemic school change in developing classroom methods and materials, curricula and teacher development experiences.

The MA program provides a foundation in teaching English in a variety of contexts in the United States and abroad. Course work includes language teaching methodology, language acquisition, applied linguistics, cross-cultural education, curriculum development, literacy and other areas. This program has been developed as an advanced course of study for practicing teachers or individuals with some teaching experience.

Teachers who work in LDE programs or in other content areas (such as art, language arts, math, music, science, social studies or technology), but who wish to integrate LDE principles and strategies into their instruction for their English language learners, will find the MA program relevant to their interests and goals.

Applicants who are new to teaching, and who wish to teach in U.S. K–12 public school settings, should inquire about the initial professional teacher education program. Applicants who are new to teaching, but who do not need a teaching license (certification) because they do not wish to teach in U.S. public schools, may consider the TESOL certificate to gain initial teaching experiences before applying for the MA.

Program Requirements and Courses

To earn an LDE program master's degree and/or endorsement, or to earn a TESOL certificate, students must complete the appropriate course work as outlined in the table on the previous page. Students interested in the CIEL certificate must complete the following:

	<i>Semester Hours</i>
LLC 5030. Language and Literacy Acquisition I	
—or—	
LLC 5070. Linguistic Analysis of English	3
LLC 5050. Linguistic and Cultural Issues in Linking Assessment and Instruction	
—or—	
LLC 5820. Techniques in Teaching ESL	
—or—	
LLC 5825. Methods and Materials of Language Teaching	
—or—	
LLC C 5826. Language Teaching Laboratory	3
LLC 6912. Seminar and Practicum	3
Total	9

CUMULATIVE PORTFOLIO OF PERFORMANCE BASED ASSESSMENTS (PBAS)

The portfolio is required for the CDE endorsement, counts as the comprehensive exam for the master’s degree and permits you to document your development over the course of your program.

Portfolios are reviewed by LDE faculty members. At least two faculty members must agree that your portfolio is acceptable in order to pass. It is important to keep your portfolio updated throughout your degree program. The portfolio process is reviewed in every class as each of the PBAs is completed in the classes. For more portfolio guidelines, visit the Web site at www.cudenver.edu/sehd/lde.

PLACE EXAM FOR LINGUISTICALLY DIVERSE EDUCATION ENDORSEMENT

To add the endorsement to their teaching license, students must pass the PLACE (Program for Licensing Assessments for Colorado Educators) test for linguistically diverse education; secure and submit the appropriate paperwork from the Colorado Department of Education for the added endorsement for linguistically diverse education; and pay fees required for the PLACE and for the endorsement paperwork.

Information about PLACE is online at www.place.nesinc.com.

Course Scheduling

During the fall and spring semesters, university courses are offered in the late afternoon and evening. Most courses meet for three hours once a week over a 16-week semester. Some alternative course schedules are available, such as meeting on five Friday-evening/all-day Saturday combinations. In the summer semester, three- to eight-week sessions are offered, and courses may be in the morning, afternoon or evening. A current schedule of courses is available online at www.cudenver.edu/registrar.

Planning

For practicing full-time teachers, we recommend taking one course each fall and spring semester and up to two courses each summer. Students may simultaneously complete requirements for the MA and the endorsement for linguistically diverse education. Plan carefully because courses are intended to build upon each other, and some courses are only offered once a year.

Active Status in the Graduate School

Students must complete their programs within seven years, maintaining a GPA of 3.0. Students typically take four courses each calendar year.

Requirements for Reading and Writing Degree/Endorsement Program Options

Course	ELEMENTARY (K–6)			SECONDARY (7–12)		
	MA & CDE Endorsement	Post-IPTE MA & CDE Endorsement	CDE Endorsement Only	MA & CDE Endorsement	Post-IPTE MA & CDE Endorsement	CDE Endorsement Only
LLC 5020. Workshop in Literacy and Language Teaching	Required		Required	Required	Required	Required
LLC 5810. Workshop in Language Acquisition and Development	Required	Required	Required	Required	Required	Required
LLC 5910. Foundations of Language, Literacy and Culture	Required	Required	Required	Required	Required	Required
LLC 5710. Primary Literacy: Pre-Third Grade	Required	Required	Required			
LLC 5720. Writing: Process, Development and Teaching—Grades 3–12	Required	Required	Required	Required	Required	Required
LLC 5730. Language and Literacy Across the Curriculum	Required		Required	Required		Required
Children’s literature course, per advisor approval	Select one	Select one	Select one			
LLC 5740. Adolescent Literature				Required	Required (waived if taken as part of English licensure)	Required
LLC 6910. Seminar and Practicum in Literacy and Language, K–6	Required	Required	Required			
LLC 6911. Seminar and Practicum in Literacy and Language, 7–12+				Required	Required	Required
LLC 5055. Linking Assessment and Instruction in Language and Literacy, Part I	Required	Required	Required	Required	Required	Required
LLC 6915. Seminar and Practicum in Literacy Professional Development	Required	Required		Required	Required	Required
Core course in Research and Evaluation Methodology (REM) – see list on page 150	Select one	5080		Select one	5080	
Interdisciplinary core course – see list on page 150	Select one			Select one		
Elective of student’s choice				Select one		
Portfolio	Required	Required		Required	Required	
PLACE Exam	Required	Required	Required	Required	Required	Required
Total Semester Hours	36	27	27	36	27	27

Failure to enroll over three contiguous semesters will result in a requirement to resubmit part I of the application for admission and a letter of intent.

LITERACY, LANGUAGE AND CULTURALLY RESPONSIVE TEACHING

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 Web sites: www.cudenver.edu/sehd/literacy and www.cudenver.edu/sehd/englished

Faculty

Information about faculty in this program is available online at www.cudenver.edu/sehd/literacy.

The faculty of literacy, language and culturally responsive teaching (L2CRT) believe that effective teaching requires an awareness of and the ability to respond to individual differences. L2CRT faculty also emphasize the importance of teachers as scholars and reflective practitioners. In particular, teachers must understand how linguistic and cultural diversity affect their teaching. Two themes run throughout all program offerings. The first concerns the importance of recognizing a variety of literacies—“home” literacies, school literacy, “mainstream” literacy, first and second language literacies—and to develop teaching practices that utilize an understanding of the complexity of literacy development across language contexts. The second theme involves the meaningful use of language and literacy to improve the quality of one’s life. As an approach to teaching, this theme emphasizes the creation of diverse, rich environments in which learners experience oral and written language as part of authentic tasks, and where concern for the cultural and linguistic heritage of the students is evident.

Reading and Writing

This master’s program is designed to prepare teachers in K–6 or 7–12. Students interested in an elementary focus should see faculty in the Early Literacy Network (Nathenson-Mejia, Taylor). Those interested in secondary and adult literacy should see faculty in the Secondary Literacy Network (Polleck, Shanklin).

Reading is a credentialed program meeting the Colorado Department of Education requirements for reading teacher endorsement. Therefore, students who obtain a master’s degree in reading education from UCDHSC are certified to hold positions in public and private schools as special developmental and remedial reading teachers in K–6 or 7–12. This program is also valuable for elementary and secondary teachers who wish to enhance reading and writing instruction in their classrooms.

By placing emphasis on the reading, writing and oral language development of culturally, linguistically and academically diverse student populations, this master’s program is at the forefront of the field. Reading, writing and oral language are approached from a socio-psycholinguistic perspective that emphasizes the learner’s construction of meaning rather than the learning of isolated skills. Importance is placed on using theory, inquiry and personal reflection to inform classroom practice. The program prepares teachers to become decision makers capable of developing learner-centered curriculums where each student’s reading and writing abilities are assessed to address developmental or special needs.

CURRICULUM

Course offerings lead to an MA degree in curriculum and instruction with an emphasis in reading and writing, as well as a reading teacher endorsement at one of two levels: K–6 or 7–12.

Those who have completed UCDHSC’s Initial Professional Teacher Education (IPTE) licensure program at the graduate or postbaccalaureate

level must earn an additional 27 semester hours to obtain the MA and endorsement. Those who completed licensure through other means must earn an additional 36 semester hours to obtain the MA and endorsement.

Teachers may add a reading teacher endorsement to an already-earned master’s degree in education by taking those courses listed under the chosen endorsement level. (In the state of Colorado, the reading teacher endorsement cannot simply be added to a bachelor’s degree.) Electives and core courses are not required. Two additional courses must be taken in other areas specified by the Colorado Department of Education. In many cases, previous master’s degree courses will satisfy this requirement.

Secondary English Education

The master’s program in secondary English education is designed to enhance the preparation of middle and high school English/language arts teachers. Students complete course work in language development, assessment and field experiences. With the help of their advisor, they also select specific courses from the English Department or within the School of Education & Human Development that add further depth to their preparation as English teachers, especially in the areas of composition and/or literature. Special consideration is given to working with diverse ethnic populations. Students interested in English education should see faculty in the Secondary Literacy Network (Polleck, Shanklin).

PROGRAM REQUIREMENTS

To earn a master of arts degree in curriculum and instruction with an emphasis in secondary English education, students must complete the following:

- 30 graduate semester hours in English education
- 6 graduate semester hours of core courses
- performance based assessments that culminate in a portfolio submitted in the final semester of the program as fulfillment of the MA comprehensive exam requirement

Each student’s course plan is developed in conjunction with his/her advisor. Please review www.cudenver.edu/sehd/englished for recommended course sequence.

	<i>Semester Hours</i>
LLC 5055. Linking Assessment and Instruction in Language and Literacy, Part I	.3
LLC 5740. Adolescent Literature	.3
LLC 5760. Theory and Methods of English Education	.3
LLC 5810. Workshop in Language Acquisition and Development	.3
LLC 5910. Foundations of Language, Literacy and Culture	.3
LLC 6911. Seminar and Practicum in Literacy and Language, Grades 7–12+	.3
Research and Evaluation Methodology core course (see list on the following page)	.3
Interdisciplinary core course (see list on the following page)	.3
Four additional courses from the English Department or School of Education & Human Development, per advisor approval	.12
Total	.36

PROGRAM REQUIREMENTS—WHEN ADDED TO INITIAL PROFESSIONAL TEACHER EDUCATION

MA in curriculum and instruction with emphasis in secondary content leadership (English), when added to UCDHSC’s Initial Professional Teacher Education licensure program completed at the graduate level:

- 18 graduate semester hours
- performance based assessments that culminate in a portfolio submitted in the final semester of the program as fulfillment of the MA comprehensive exam requirement

Each student’s course plan is developed in conjunction with his/her advisor. Please review www.cudenver.edu/sehd/englished for recommended course sequence.

Semester Hours

FNDS-5050. Critical Issues in American Education
—or—
IPTE 5080. Principals and Practice of Change
—or—
SPED 5300. Collaborating in Schools and Communities3
REM 5080. Research for Teachers3
Technology applications in education course, per advisor approval .3
Three additional courses from the English Department
or School of Education & Human Development,
per advisor approval9
Total18

Core Courses

Research and Evaluation Methodology

REM 5000. Orientation to Research and Measurement in Education .3
REM 5050. Assessment for Teachers3
REM 5080. Research for Teachers3
REM 5100. Basic Statistics3
REM 5200. Introduction to Research Methods3
REM 5300. Introduction to Measurement3

Interdisciplinary

EPSY 5100. Advanced Child Growth and Development3
EPSY 5140. Advanced Adolescent Growth and Development3
EPSY 5220. Adult Learning and Education3
EPSY 6200. Human Development Over the Lifespan3
FNDS 5050. Critical Issues in American Education3
FNDS 5420. History and Philosophy of Education:
Twentieth Century America3
LLC 5140. Multicultural Education3
LLC 5150. Culture of the Classroom3
LLC 5160. Historical and Legal Foundations of
Bilingual Education3

Cumulative Portfolio

The MA portfolio counts as the comprehensive exam for the master’s degree. The portfolio is an accumulation of the performance based assessments completed during program courses and reflects on the student’s development over the course of the degree program. Reading and writing students must include confirmation of Reading Teacher PLACE exam registration in their portfolios.

Course Scheduling

During the fall and spring semesters, university courses are offered in the late afternoon and evening. Most courses meet for three hours once a week over a 16-week semester. Some alternative course schedules are available, such as meeting on five Friday-evening/all-day Saturday combinations. In the summer semester, three- to eight-week sessions are offered, and courses may be in the morning, afternoon or evening. A current schedule of courses is available online at www.cudenver.edu/register.

Planning

For practicing full-time teachers, we recommend taking one course each fall and spring semester, and up to two courses each summer. Plan carefully because courses are intended to build upon each other, and some courses are only offered once a year.

Active Status in the Graduate School

Students must complete their programs within seven years, maintaining

a GPA of 3.0. Students typically take four courses each calendar year. Failure to enroll over three contiguous semesters will result in a requirement to resubmit part I of the application for admission and a letter of intent.

ADMINISTRATIVE LEADERSHIP AND POLICY STUDIES

Program Leader: Connie Fulmer
Office: North Classroom, 5012
Phone: 303-556-2717
Fax: 303-556-4479
E-mail: education@cudenver.edu
Web site: www.cudenver.edu/sehd/alps

Faculty

For information about faculty in this area, visit www.cudenver.edu/sehd/alps.

The primary responsibility of the administrative leadership and policy studies (ALPS) faculty is to prepare leaders for public education in Colorado and the nation. Currently, the principal license is required for people seeking building-level administrative positions in Colorado.

Programs

PRINCIPAL/ADMINISTRATOR LICENSURE PROGRAM

ALPS offers course work that leads to the initial license for principal or administrator. Having earned an initial license, those who have obtained a master’s degree and who go on to complete a district-sponsored induction program may then be awarded a professional license by the Colorado Department of Education.

Geared primarily toward preparation for the initial principal license, ALPS’s 32 semester-hour program is project-based, requiring students to present evidence of meeting both state and national standards through performance based assessments. A 400-hour clinical-practice experience is integrated throughout the four-semester program.

Students interested in preparing for the initial administrator license must meet knowledge and skill requirements that include but go beyond the expectations for the principal license. In addition to the work for the principal licensure program, students seeking the administrative credential must create new projects or expand existing projects to meet requirements of the administrator standards. Students seeking an administrator license must also complete 6 semester hours of EDUC 6930. Clinical Practice for Administrative Leadership. Clinical practice activities and additional projects must be developed to meet the state standards for school administrators. *Note: Experienced school or district leaders already holding a principal license should see the Executive Leadership Program (below) for pursuing administrator licensure.*

Denver Metro-Area Cohorts

Denver metro-area cohorts are delivered in four 8-semester-hour courses over four consecutive semesters. Cohorts start at one or more locations each semester and involve a combination of weekly in-person meetings and online work.

Semester Hours

EDUC 5751. Principal/Administrator Licensing I8
EDUC 5752. Principal/Administrator Licensing II8
EDUC 5753. Principal/Administrator Licensing III8
EDUC 5754. Principal/Administrator Licensing IV8
Total32

Distance-Learning Cohorts

Distance-learning cohorts start each summer in June with a weeklong

boot camp in Denver, meet over several intensive weekends during the subsequent fall and spring semesters, and end with a weekend the following summer. Online work is completed in between the in-person sessions. Distance-learning cohorts are delivered in three 9-semester-hour courses and one 5-semester-hour course:

	<i>Semester Hours</i>
EDUC 5751. Principal/Administrator Licensing I	9
EDUC 5752. Principal/Administrator Licensing II	9
EDUC 5753. Principal/Administrator Licensing III	9
EDUC 5754. Principal/Administrator Licensing IV	5
Total	32

MASTER OF ARTS (MA)

The MA is designed for those who do not already hold a graduate degree. Usually master’s students will complete 9 semester hours beyond the 32 required in the licensure program, for a total of 41 semester hours of course work after the bachelor’s degree.

For the MA degree, students must select at least one course in each of the following three areas:

- educational research
- educational foundations/multicultural education
- educational psychology/special education

Specific course listings are at www.cudenver.edu/sehd/alps. Candidates must also successfully complete a comprehensive exam paper, reflecting on how the three MA classes will help them in the role of principal or administrator.

SPECIALIST IN EDUCATION (EDS)

The EdS degree program affords the opportunity for advanced graduate study and is available to those who already hold a master’s degree. Generally for the specialist degree students will complete 9 semester hours that constitute an area of focus, in addition to the 32 required in the licensure program. Candidates must also successfully complete a comprehensive exam paper, reflecting on how the three EdS classes will help them in the role of principal or administrator.

EXECUTIVE LEADERSHIP PROGRAM

Designed for principals and central-office administrators who, already holding a principal license, wish to obtain an initial administrator license in Colorado and prepare for careers as superintendents. Beginning each summer and meeting over four semesters, the program involves a combination of intensive weekends and online work.

EDUC 7000. Special Topics—Charting the Course: Preparing Future Superintendents for Success	3
EDUC 7002. Special Topics—The Name of the Game: District Improvement and Learning for All	3
EDUC 7004. Special Topics—Leading from the Left Seat: School Board and Community Relations	3
EDUC 7006. Special Topics—People Make the Difference: Personnel, Labor Relations, Contract Negotiations	3
Total	12

The executive leadership program does not lead to a degree.

Admission Criteria/Guidelines

PRINCIPAL/ADMINISTRATOR LICENSURE PROGRAM, MASTER OF ARTS (MA) AND SPECIALIST IN EDUCATION (EDS)

Admission to the ALPS principal/administrator licensure and MA/EdS programs is competitive. The faculty seek students who possess (a) high intellectual ability, (b) strong academic backgrounds and (c) clear leadership potential. Below are the minimum requirements for admission.

- GPA: undergraduate—2.75 or better on a 4-point scale; graduate—3.0 or better
- examination scores. Either, not both: Miller Analogy Test (MAT)—44 or higher; GRE—900 or higher, combined verbal and quantitative scores. Although a minimum has not been set, the analytical part of the GRE also will be considered. (If undergraduate GPA is 2.75 or higher, GRE/MAT scores are waived. The MAT/GRE is also not required of applicants who already hold a graduate degree or have completed 24 hours of graduate-level (not postbaccalaureate) course work with at least a 3.0 GPA.)
- positive review of letters of recommendation and resume
- high-quality writing sample

For complete admission requirements and materials, please visit www.cudenver.edu/sehd/alps or call 303-556-2717.

EXECUTIVE LEADERSHIP PROGRAM

Admission is competitive. The faculty seek students who hold a Colorado principal license and have at least two years of post-licensure administrative experience. Complete admission requirements and materials are available at www.cudenver.edu/sehd/elp.

Additional Program Information

Individuals interested in any of these programs are encouraged to contact ALPS faculty. Conferences prior to application are encouraged and welcomed. Following admission, students are expected to maintain frequent contact with assigned advisors to plan, develop and complete their programs of study.

DIVISION OF EDUCATIONAL PSYCHOLOGY

Early Childhood Education (ECE)

Division Coordinator: William L. Goodwin
Program Team Leader: Suzanne Adams
Office: North Classroom, 5012
Phone: 303-556-2717
Fax: 303-556-4479
E-mail: education@cudenver.edu
Web site: www.cudenver.edu/sehd/ece

Faculty

More information about faculty in this division is available online at www.cudenver.edu/sehd/ece.

The early childhood education (ECE) program leads to a master’s degree in early childhood education (early childhood accomplished teacher focus) and/or licensure in early childhood special education (early childhood special education specialist). The program prepares leaders who will enrich the life experience of young children (birth to 8) and their families through a variety of professional roles.

The ECE program is interdisciplinary in focus, drawing on university resources and the clinical expertise of various community professionals. There is a strong emphasis on fieldwork and practicum experiences in both regular and special education concentrations. Field experiences are a part of each course and provide an opportunity for each student to gain knowledge, abilities and dispositions while interacting with children, families, program staff and community agencies. Practicum experiences are designed to allow students to apply knowledge and practice skills in a closely supervised environment.

The program also offers students opportunities to pursue three areas of specialization: 1) infant/toddler specialist, 2) early childhood mental health education specialist and 3) challenging behavior/autism specialist.

CURRICULUM

The master's degree in early childhood education with an endorsement in early childhood special education (ECSE) requires 49 semester hours of course work including 6 hours of practicum. Forty semester hours are required for the ECSE specialist endorsement only. The master's degree in early childhood typically requires 40 semester hours of course work, including 3 semester hours of practicum. Selecting an area of specialization adds 3 to 6 semester hours depending on the specialized roles.

The early childhood accomplished teacher focus and the early childhood special education focus share course content in:

- language development and disorders
- child growth and development, differences and disorders
- learning approaches with young children
- measurement and evaluation
- basic statistics/research methods
- multicultural education
- research and current issues
- early childhood curriculum and program development for inclusive classrooms
- working collaboratively with parents and families
- program administration/leadership

The early childhood special education program provides specialized training in:

- screening and assessment of young children
- intervention strategies with infants and preschoolers
- behavior management
- working as a member of the transdisciplinary team
- cognitive and socioemotional development and disorders
- treatment of children who have neurological impairment and chronic illness
- challenging behaviors and autism

The early childhood regular education program provides specialized training in:

- language acquisition and development
- literacy instruction
- infant/toddler development
- early childhood mental health and social competence

ECE-CARES

Project Director: Suzanne Adams
Office: North Classroom, 4025 E
Telephone: 303-556-6293

Faculty

Information about ECE-CARES faculty is available at www.cudenver.edu/sehd/facstaff.

The ECE-CARES focus provides in-depth training in competencies related to working with: (a) children and families experiencing stress and violence; and (b) children with behavior challenges. The specialization consists of one additional course, ECE 5202, dealing with stress, violence and behavioral challenges in young children, as well as appropriate classroom intervention strategies.

Educational Psychology

Division Coordinator: William L. Goodwin
Program Team Leader: Ellen Stevens (on temporary assignment)
Office: North Classroom, 5012
Phone: 303-556-2717
Fax: 303-556-4479
E-mail: education@cudenver.edu
Web site: www.cudenver.edu/sehd/epsy

Faculty

Information about educational psychology faculty is available online at www.cudenver.edu/sehd/epsy.

The MA program in educational psychology prepares students to facilitate the teaching/learning process. Thus, many students pursue the degree to enhance their skills as professional classroom teachers. The degree also provides skills necessary for a variety of roles where knowledge of learning, development and research is essential; examples would include teaching at the community college level, teaching adults and conducting program evaluation. Other students seek the MA as preparation for advanced study in educational psychology.

Note, too, that many students in the school's initial professional teacher education program—as well as interns in the alternative teacher licensure programs conducted by the Stanley British Primary School, the Boulder Journey School and Friends' School—also seek the MA degree in the Division of Educational Psychology.

AREAS OF CONCENTRATION

Four major areas of concentration are available—human learning, child growth and development, research and evaluation, and individualized programs (such as adult learning). Regardless of the concentration area selected, all students must:

- take 9 semester hours of core courses required by the School of Education & Human Development
- demonstrate competence in educational psychology by successfully completing a minimum of 36 semester hours of relevant course work (9 of which are the core)
- complete either a master's thesis (4 semester hours, MA Plan I) or an independent study project (3 to 4 semester hours, MA Plan II), the latter involving the collection of data bearing on a given problem and its analysis and interpretation in writing
- perform satisfactorily on a written comprehensive examination (typically during the last term enrolled in regular courses)
- complete the degree on a timely basis, usually within three years

Research and Evaluation Methodology

Division Coordinator: William L. Goodwin
Program Team Leader: Alan Davis
Office: North Classroom, 5012
Phone: 303-556-2717
Fax: 303-556-4479
E-mail: education@cudenver.edu
Web site: www.cudenver.edu/sehd

Faculty

To find information about faculty in this division visit www.cudenver.edu/sehd/facstaff.

There is a REM emphasis track within the educational psychology master's degree program; students can select either an evaluation/data analysis focus or an assessment focus. This area also provides classes to all education graduate programs, offering courses in research methods, evaluation, statistics, assessment and measurement.

DOCTOR OF PHILOSOPHY IN EDUCATIONAL LEADERSHIP AND INNOVATION (EDLI)

Program Leaders: Deanna Sands and Sheila M. Shannon
Office: North Classroom, 5012
Phone: 303-556-2717
Fax: 303-556-4479
E-mail: education@cudenver.edu
Web site: www.cudenver.edu/sehd/edli

Faculty

For information about faculty in this program, visit www.cudenver.edu/sehd/edli.

The PhD in educational leadership and innovation prepares individuals for applied leadership roles in education and related services. As schools and organizations respond to shifting economic, political and cultural pressures, leaders must be able to integrate theoretical and practical knowledge by cultivating habits of analysis, inquiry and judgment to formulate policy and change. The PhD in educational leadership and innovation assists students in developing strategies for applying knowledge to difficult problems of practice.

Graduates of the program acquire broad practical knowledge that will help them understand and address problems encountered in work settings. In addition, they acquire the analytic and research tools needed to gather, interpret and use information effectively to lead organizations in change.

Admission Procedures

PREREQUISITES

The typical applicant will hold a master's degree in education or a related field. Students accepted for doctoral work are expected to have content area expertise in a foundational area, as well as knowledge and skills in basic research methodology and design. Course work completed at the master's level in basic statistics and research design will have prepared the student to complete the doctoral core successfully. Absence of these background courses will add additional requirements to a student's plan of study.

Doctoral study is not intended to lead to Colorado licensure for teachers, related services personnel or administrators. Students are expected to hold professional licensure in a field when applying for study at the doctoral level. Exceptions would be individuals who do not intend to work as direct service providers or administrators in the public schools.

ADMISSION STANDARDS

To be admitted to the program, the applicant must submit evidence of the following:

- master's degree in a relevant field with a GPA of 3.2 or higher
- general GRE score (verbal + quantitative) of 1100 or higher recommended; current scores (i.e., within the past five years) must come directly from ETS; students may submit ETS examinee copies of older scores (between 6 and 10 years old)
- international students: minimum TOEFL score of 550 (paper based), 213 (computer based) or 79 (Internet based)
- evidence of writing ability (writing samples in the form of projects, reports, academic papers, instructional materials)
- professional commitment to leadership and innovation in education
- clear purpose for pursuing doctoral work in education

Note: The likelihood of an applicant being admitted without the informed support of an EDLI faculty member within a research lab is slight. To assure the best possible review of materials, applicants should contact faculty members and visit the respective research labs that closely coincide with their interests. See more information about research labs in the following pages and at www.cudenver.edu/sehd/edli.

APPLICATION PROCESS

To apply for admission, contact the following office to obtain a graduate student application packet:

School of Education & Human Development
Student Services Center
Campus Box 106
P.O. Box 173364
Denver, CO 80217-3364
303-556-2717
Fax: 303-556-4479
E-mail: education@cudenver.edu
Web site: www.cudenver.edu/sehd/edli

Admission to the PhD program occurs only once a year, for the summer semester. To be considered, a completed graduate application must be received by January 15.

The EDLI faculty meet to review completed files and determine whom to interview. Offers of admission are then extended after the interview. Applicants will receive e-mail notification of interview invitations and committee decisions.

SPECIAL STUDENT STATUS

Before being officially accepted into the program, applicants may enroll as "nondegree" students. Upon admittance to the PhD program, up to 9 semester hours of prior UCDHSC nondegree course work may be accepted toward the student's requirements. In addition, a limited number of graduate-level transfer hours from an accredited university may be considered. Hours already applied toward a master's degree may not be applied to the PhD.

Financial Aid

A number of graduate assistantships are available within the School of Education & Human Development. Opportunities include working with faculty members on research studies, working in computer labs or helping teach classes. Graduate assistants typically work 20 hours per week, and tuition reimbursement may be included.

Educational or corporate internships are also available from a number of cooperating businesses, agencies and schools. Internships range from 20 hours per week to working the entire summer on a full-time project.

Research assistantships are often available as part of externally sponsored research and development projects undertaken by School of Education & Human Development faculty. Depending on student interests and expertise, assistantships may consist of work on special projects, assisting in research, development, evaluation or training activities.

Program Requirements

The University of Colorado Graduate School stipulates that all PhD students must complete their degree requirements within an eight-year period. A course of study is negotiated with a program committee, which is formed by the student after admission to the program. A minimum of 70 semester hours beyond the master's degree is required: 50 semester hours of course work/labs and 20 semester hours of dissertation work, plus any necessary prerequisite courses. (Typically, programs run about 75 semester hours.)

Over the course of the program, students construct a portfolio of products that serves as the basis for annual reviews by their advisors and program committees. These reviews ensure that satisfactory progress is being made. The first review serves as the qualifying review, successful completion of which is required for the student to be fully admitted to the program. The last, which occurs when all of the course requirements and portfolio entries have been completed, serves as the comprehensive review, the successful completion of which admits the student to candidacy.

RESIDENCY REQUIREMENT

The residency requirement consists of two consecutive semesters of full-time graduate-level enrollment (5 semester hours). Many students combine traditional course work with labs and projects to meet this requirement.

CONTINUOUS ENROLLMENT

The Graduate School requires that students be actively enrolled every fall and spring semester throughout their program. Should a leave of absence become necessary, the student must contact his or her advisor and notify the Student Services Center in the School of Education & Human Development in writing.

A doctoral student attending parttime can be expected to complete courses and labs and be ready for the comprehensive review within three years.

COURSE REQUIREMENTS

Leadership and Innovation

	<i>Semester Hours</i>
EDLI 7100. Leadership and Innovation in Education . . . . .	.3
EDLI 7300. Individual and Organizational Change . . . . .	.3
EDLI 7700. Doctoral Pro Seminar (1 semester hour the first summer and 1 semester hour the second summer) . . . . .	.2
Total . . . . .	.8

Discipline

Choose four:

EDLI 7710. Theoretical Bases of Instructional Technology . . . . .	.3
EDLI 7712. Seminar: Learning Theory and Learners . . . . .	.3
EDLI 7833. Culture and Critical Theory . . . . .	.3
Organizational Course or Alternative . . . . .	.3
Policy Course or Alternative . . . . .	.3
Total . . . . .	.12

Inquiry

Required

EDLI 7000. Doctoral Seminar in Research Methods . . . . .	.3
Choose three:	
REM 6100. Methods of Qualitative Inquiry . . . . .	.3
REM 7050. Methods of Survey Research . . . . .	.3
REM 7100. Advanced Methods of Qualitative Inquiry . . . . .	.3
REM 7110. Intermediate Statistics . . . . .	.3
REM 7120. Advanced Methods of Quantitative Inquiry and Measurement . . . . .	.3
Total . . . . .	.12

Electives

Working with your advisor, you select a minimum of 6 semester hours of elective courses

Total6
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Dissertation

Choose from:

EDLI 7010. Dissertation Planning and Design3
EDLI 8994. Doctoral Dissertation PhD1-10
Total20

Doctoral Research Laboratory

EDLI 7600 to 760812
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The doctoral research labs play a pivotal role in the EDLI program. We are committed to improving professional practice through a scholarship of practice. We reject the strict binary oppositions of research versus practice, theoretical versus applied, and academic versus “real world.” We acknowledge the value of practitioner research and encourage mutual respect and support for different scholarly roles for diverse members of universities, schools and other organizations. The research labs provide the community within which you accomplish your scholarly goals. The following are areas addressed by research labs:

- cognitive science and learning
- diversity and equity
- early childhood education
- innovative designs of environments for adult learners
- inquiry—professional development
- leadership and policy studies
- leadership capacity
- learning and activity
- literacy and responsive teaching
- postsecondary teaching/learning
- research evaluation methodology
- urban education and studies

Students are required to enroll in a laboratory in the spring semester of their first year and to maintain enrollment in labs until the required number of semester hours has been accumulated. Participation in labs beyond the required semester-hour accumulation is strongly encouraged. The laboratories provide an opportunity for students and faculty to develop communities of practice—networks of collegial support for scholarly work.

Annual Reviews

The student’s program committee will conduct annual reviews of the student’s work. The first review finalizes admission into the program; the last review constitutes the comprehensive exam and advances the student to candidacy. These reviews occur prior to acceptance of dissertation work. Failure to complete a successful annual review can lead to an academic stop and/or program termination.

ANNUAL REVIEW

Every student who is accepted into the program receives provisional admission. The provisional status continues until the first annual review is successfully completed. This review satisfies the university requirement that the student is qualified for doctoral study as well as providing the student with explicit feedback about progress and program planning. Students must successfully complete their first annual review within four semesters of provisional admission into the program. Failure to do so will lead to an academic stop and/or program termination. Students work with their program advisor, a tenured or tenure-track full-time faculty member in the School of Education & Human Development, to develop a three-person program committee for portfolio reviews. Students are responsible for contacting their advisor to convene a program committee for the first annual review.

The student can request the first annual review after completing 9 hours of course work, including at least one doctoral seminar. Guidelines for the first review and subsequent annual reviews are set forth in the “EDLI Student Handbook.” *At a minimum*, the portfolio will contain the following for the first annual review:

- a student’s program committee membership
- a statement of professional values and goals
- identification of a problem space to guide the student’s program planning, with an initial rationale and selected bibliography

- a plan of study developed in consultation with the program committee
- records of courses taken and grades, including at least one doctoral seminar
- a plan for preparing portfolio products
- two products

COMPREHENSIVE REVIEW

A student undergoes a comprehensive review after completing the following tasks:

- successful completion of at least 50 semester hours of course work (not counting dissertation hours)
- completion of a portfolio that includes products demonstrating depth and breadth in a problem space
- initial draft of a dissertation research proposal

The comprehensive review consists of two components:

- portfolio review
- oral responses to questions about the portfolio products and the student's knowledge

Dissertation

Following successful completion of the comprehensive review and advancement to candidacy, students develop the final draft of their proposal for research for the dissertation. A separate meeting of the dissertation committee for the defense of the proposal occurs after the committee agrees on its adequacy for the dissertation and human subjects review.

Students must register for a minimum of 5 dissertation semester hours each fall and spring semester of their dissertation work, as well as the semester in which the dissertation oral examination is held.

Exception: Once students have completed 20 or more dissertation semester hours, only 1 dissertation hour is required each fall and spring semester of their dissertation work, and only 1 hour is required during the semester of the oral examination. If unable to register for dissertation hours, students must request a leave of absence from the PhD program until able to complete the minimum dissertation requirement. Leaves of absence lasting three or more consecutive semesters will require students to apply for readmission to the program.

Students select a dissertation advisor to supervise and guide the dissertation process. The dissertation advisor must hold regular graduate faculty status (be full-time, tenured or tenure-track faculty) in the School of Education & Human Development. The advisor and student invite additional committee members as needed to provide the substantive and methodological support to complete the dissertation. The dissertation advisor and the student will set a time for the oral examination after the dissertation has been accepted by the dissertation advisory committee. The examination will be conducted by a committee appointed by the graduate dean and will consist of at least four members of the graduate faculty, one of whom must be from outside the School of Education & Human Development. The format for dissertations is described in the "Contents and Guidelines for Thesis Preparation," although alternative formats may be proposed to the dissertation committee for approval by the Graduate School.

At A Glance: College of Engineering and Applied Science

Students*

829
Undergraduate: 510
Graduate: 319

Degrees Awarded 2006‡

258
Undergraduate: 132
Graduate: 126

Faculty*

Full-time: 37
Lecturers: 48

Student-Faculty Ratio*

9:1

Undergraduate Degree Program Offering 10 Areas of Emphasis

Civil Engineering
Computer Science and Engineering
Electrical Engineering
Mechanical Engineering

Graduate Degree Programs

Civil Engineering, MS, PhD
Computer Science, MS
Computer Science and Information
Systems, PhD
Electrical Engineering, MS
Engineering, MEng
Mechanical Engineering, MS

Other Programs

BS in engineering and business
administration
Premedicine (bioengineering) option
BS and MS degree program
Computational biology option

Research Centers

Center for Geotechnical Engineering Science
Facility for Advanced Spatial Technology
Transportation Research Center



Accreditation

Accreditation Board for Engineering and
Technology (ABET)

Student Organizations

American Society of Civil Engineers
American Society of Mechanical Engineers
Association for Computing Machinery
Chi Epsilon, honorary civil engineering
society (invitation only)
Eta Kappa Nu, honorary electrical
engineering society (invitation only)
Institute of Electrical and Electronic
Engineers
Participatory Learning and Creativity
Education for Sustainability
Pi Tau Sigma, honorary mechanical
engineering society (invitation only)
Student Advisory Panel
Society of Hispanic Professional Engineers
Society of Women Engineers
Tau Beta Pi, honorary engineering society
(invitation only)

Alumni‡

6,023
Undergraduate: 73%
Graduate: 27%
Strong alumni network for job placement.

Average starting salary for those working full-time in related field†:

Graduate Engineering Students = \$73,333
Undergraduate Engineering Students =
\$55,000

Engineering Leadership Council

James D. Bartlett, Jr., Sopheon
Paul E. Bartlett, Dean Emeritus
Francis Lee Belisle, Raytheon Company
David Benmetts, Urban Drainage & Flood
Control District
Stanley R. Bull, National Renewable Energy
Laboratory
Ralph W. Christie, Jr., Merrick & Company
Robert L. Clevenger, DMJM Harris
Grady Cope, Reata Engineering and
Machine Works
Lesley S. Craig
Carlos de Moraes
Michael J. Driver, Patton Boggs, LLP
Marcia Edwards, Lockheed Martin
Mary J. Gearhart, Brown and Caldwell
Mark Glidden, CH2M HILL
Richard Hepworth, Hepworth-Pawlak
Geotechnical, Inc.
Tai-Dan Hsu, Pacific Western Technologies, Ltd.
Albert Knott, Albert Knott & Associates
Kathryn L. Lee, Raytheon Company
Tom Maceyka, Sundyne Corporation
Gary Meggison, The Weitz Company
Gabriele Miles
J.J. O'Brien, Washington Group
International, Inc.
Keith Platte, R.W. Beck, Inc.
Pedro C. Repetto, URS Corporation
Arthur C. "Sandy" Riese, EnSci, Inc.
George Saliba, Quantum
Kristy Schloss, Schloss Engineered Equipment, Inc.
Barbara Schroeder, Parsons Transportation
Group, Inc.
Narayan Shrestha, SANN Research Institute
Anne Stilson-Cope, Corey Electrical
Engineering, Inc.
Doug Tashiro
George L. Thorn, Mile High Development, LLC
Donald G. White

*Fall 2006 end-of-term enrollment data ‡Fiscal year 2005-2006 data †2005 survey of 2003-2004 graduates, one year after graduation

College of Engineering and Applied Science

Dean
Renjeng Su

Associate Dean
John Trapp

Contact

Office
North Classroom 3024
1200 Larimer Street, 3rd Floor
303-556-2870
Fax: 303-556-2511
www.cudenver.edu/engineer

Mailing Address
College of Engineering and Applied Science
Campus Box 104
P.O. Box 173364
Denver, CO 80217-3364

Engineering Student Services/
Academic Advising
303-556-4768

Application Deadlines

Undergraduate
Fall—August 1
Spring—December 1
Summer—May 1

Graduate Programs
Civil Engineering
Rolling Admissions

Computer Science and Engineering
Fall—March 15
Spring—October 1
Summer—January 15

Electrical Engineering
Rolling Admissions

Mechanical Engineering
Fall—April 1
Spring—October 1

Continuing an 80-year tradition, the College of Engineering and Applied Science on the downtown Denver campus of the University of Colorado at Denver and Health Sciences Center (UCDHSC) meets the needs of the Denver metropolitan area by providing nationally accredited engineering education in a flexible format that suits both students and employers. UCDHSC is the only institution in the area where the working individual can earn both undergraduate and graduate degrees in engineering entirely through evening studies. Recognizing the importance for students to pursue professional studies and related employment simultaneously, the college offers undergraduate and graduate degree programs in civil engineering, mechanical engineering, electrical engineering, and computer science and engineering through evening studies or through a more traditional schedule of day classes. As a practicing engineer, you can improve and update your professional capabilities and earn a graduate degree. Or, through our interdisciplinary master of engineering degree, you can obtain graduate education in management, computer science, behavioral science or other areas together with new engineering skills in your field. We also participate in an interdisciplinary master of science in environmental science.

A listing of the fields in which engineers work would have hundreds of entries. The following list gives only a brief summary of the fields available at UCDHSC.

Civil engineering offers an interesting and challenging career in the design and construction of buildings, bridges, dams, aqueducts and other structures; in transportation systems including highways, canals, pipelines, airports, rapid transit lines, railroads and harbor facilities; in the distribution of water and the regulation of rivers; in the development of water resources for urban use, industry and land reclamation; in the control of water quality through water purification and proper waste treatment; in the construction and contracting industry; and in the problems concerned with our physical environment and the growth of cities.

Computer science and engineering involves work in the theory, design and application of computers and computational methods. It includes design and development of efficient software systems, as well as hardware

design and manufacture. The application of microprocessors to many areas of engineering has opened new opportunities in computer engineering and computer science.

Electrical engineering offers professional careers that include research in development of new electrical or electronic devices, instruments or products; design of equipment or systems; production and quality control of electrical products; and sales or management for private industry or government. There are numerous specialties within electrical engineering. Among them are the design and application of computer systems and digital engineering; electromagnetic fields and microwave devices; control systems; communication theory and signal processing; electrical integrated circuits and electron devices; and energy and power systems.

Mechanical engineering offers a wide range of interesting and challenging career opportunities in research, design, development, manufacturing, testing and marketing for either private industry or government.

Mechanical engineers help develop a wide range of products such as engines, transmissions, compressors, pumps, computer disk drives, oil field drilling rigs, missiles, space satellites, earth-moving equipment, container-manufacturing machines, medical equipment and many other products encountered in daily life.

College of Engineering and Applied Science Educational Goals

The College of Engineering and Applied Science has established the following goals and objectives for undergraduate education:

- successful completion of the fundamental core courses, primarily lower division, in mathematics and the physical sciences
- successful completion of the required upper-division courses in engineering science, analysis and design
- successful completion of real-world engineering design projects that require integration of engineering, economic and social skills
- successful completion of a series of humanities and social science courses that introduce the student to societal problems and historical perspectives
- evidence, through close student/faculty contact, of development of professionalism, ethics and concern for the multifaceted human element of engineering
- evidence, from successful completion of a full engineering curriculum, of the ability to maintain professional competency through lifelong learning
- evidence, through successful completion of a series of communications-oriented courses and project presentations, of an ability to communicate effectively with professionals and lay persons alike

Accreditation

The civil, computer science and engineering, electrical and mechanical engineering programs are accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET).

Availability of Degree Programs

UCDHSC will accept for matriculation only those prospective engineering students who designate a degree program awarded by the UCDHSC College of Engineering and Applied Science. *Students desiring degree programs other than those named above must apply to the campus awarding the degree.* In some cases, the university campus accepting the student may grant permission to take courses on another CU campus, subject to enrollment limitations. In such cases, the engineering department of the admitting campus will counsel the student in the preparation of course schedules.

Nondegree Students

Nondegree students may apply 12 semester hours of course work (or up to 18 if taken in one semester) toward a bachelor's degree in engineering from UCDHSC. Nondegree graduate students may apply 9 semester hours of course work toward a master's degree in engineering from UCDHSC.

Summer Courses

Summer session courses are offered for regular students and those who have academic deficiencies. Courses are also offered for high school graduates who wish to enter as freshmen and need some additional preparatory work.

For some students, there are advantages in starting their college careers during the summer session. Some required freshman and sophomore courses and many elective courses are offered at UCDHSC during the summer. The summer session gives students a head start and enables them to take a lighter load during the fall semester or take additional courses to enrich their programs.

Computing

The College of Engineering and Applied Science encourages all students to develop their skills in using the computer as a tool, not only for solving technical problems but for use in all other facets of their careers. Students are encouraged to explore computer courses other than the fundamental programming course required in their curriculum.

Cooperative Education

Students who need or prefer to work while completing their degrees should explore cooperative education offered through full-time work alternating with semesters of full-time school or work part time year round. Many co-op positions lead to permanent career appointments upon graduation.

This program is available to students who have completed their freshman year and have maintained a GPA of at least 2.5. See the "Career Center" section of the Campus Life chapter in this catalog for further information on this program.

Scholarships, Fellowships and Loan Funds

The college receives an annual allocation of state funds for Dean's Scholarships; these funds are awarded to students who apply and meet scholarship and community service criteria. Additional funds for scholarships and loans are obtained through contributions from alumni and friends. Enrollment in the College of Engineering makes the student eligible for these scholarships. Scholarship application forms are available in the college. Students must apply by March 1 for summer or fall semester or by October 1 for spring semester of each year. All recipients are notified in either May or December. Students can apply for all industry scholarships and Dean's Scholarship using the general application form. Scholarship application forms require information about the applicant's participation in school-related activities, community activities and work. Dean's Scholarship applicants must qualify for in-state tuition and have at least a 3.0 GPA, but do not need to show unmet financial need. All recipients must be registered for six or more hours in the semester when the awards are made.

For more scholarship information go to www.cudenver.edu/engineer under "Student Affairs."

For additional information on other types of financial aid, consult the Tuition, Fees and Financial Aid chapter of this catalog.

Transportation Research Center

Director: Bruce Janson
Telephone: 303-556-2831

The Transportation Research Center (TRC) involves both students and faculty on the downtown Denver campus in a range of education and research activities. The TRC works on projects in collaboration with other departments and colleges such as business, urban planning and public affairs. TRC projects address local, state, national and international concerns with funding from federal, state, local or private sources.

Some focuses of the Transportation Research Center are transportation modeling; traffic monitoring technologies and data analysis techniques; transportation planning and travel demand forecasting for both person and freight movements; traffic engineering and control; facility design and management; use of geographic information systems in transportation; environmental impact assessment; transportation investment decision analysis, including cost-benefit analyses and cross-subsidization issues; and accident studies. Several studies on advanced system development involve partnerships with Colorado's high-tech industry.

Center for Geotechnical Engineering Science

Director: N. Y. Chang
Associate Director: Brian Brady
Telephone: 303-556-2871

The Center for Geotechnical Engineering Science was formed to advance the understanding of the safety, reliability, performance and environmental impact of engineered geotechnical structures. Resolution of geotechnical and environmental remediation problems are addressed through research that is sponsored by public funding agencies and private industry, both national and international. The center serves as a vehicle for technology transfer. Cooperative research with other universities in Colorado, the U.S. and around the world is welcomed. The center includes research on geotechnical stability, rock engineering, geoenvironmental engineering and expansive soils.

The Expansive Soil Research Laboratory provides leadership in the advancement of technology needed to mitigate damage from expansive soils in Colorado. Studies cover national and international problems, as expansive soils underlie more than one-third of the earth's land surface. In the U.S., these materials are prevalent in the southern, western and Rocky Mountain states. As development takes place in these areas, structures may experience damaging effects of expansive soil resulting in the loss of millions of dollars annually. The current frequency and severity of damage clearly demonstrate that important deficiencies persist in our understanding and application of the current technology in engineering designs.

The Expansive Soil Research Laboratory identifies and conducts research aimed at better understanding of the mechanisms and processes that characterize expansive soil; promotes education and training for engineering students and professionals, the construction industry and the public; assists consulting industries and governments with realistic guidelines on design, construction and operation of facilities built on expansive soils; and provides a database and clearinghouse for information and technology transfer.

Continuing Engineering Education Program

Program Coordinator: Heidi Utt
Telephone: 303-556-4907
Web site: cudenver.edu/engineer/cont

The Continuing Engineering Education Program makes professional development and training opportunities available in engineering and engineering-related fields, such as information technology, civil, mechanical, electrical, project management and systems engineering. The program offers credit and noncredit certificate programs, exam preparation courses, seminars, workshops and short courses.

The program collaborates with key representatives from business, industry, government agencies and professional organizations to provide customized training designed to meet continuing education and professional development goals. Continuing Engineering Education Programs are held at various locations throughout the Denver metropolitan area, including on the Auraria campus.

OTHER UNIVERSITY CAMPUSES

University of Colorado at Boulder

Six engineering departments are located on the campus of the University of Colorado at Boulder. Complete BS, MS and PhD degree programs are offered by the Department of Aerospace Engineering Sciences; the Department of Chemical Engineering; the Department of Civil, Environmental and Architectural Engineering; the Department of Computer Science; the Department of Electrical and Computer Engineering; and the Department of Mechanical Engineering. Undergraduate and graduate degrees also are offered in applied mathematics and engineering

physics. The programs at the Boulder campus are primarily oriented to the full-time student who can attend day classes.

University of Colorado at Colorado Springs

Three engineering departments are located on the campus of the University of Colorado at Colorado Springs (UCCS). Complete BS degree programs are offered in electrical engineering, mechanical engineering and computer science, and the MS and PhD degrees are awarded in electrical engineering. The UCCS Department of Mathematics also is a department of the College of Engineering and offers the BS and MS degrees in applied mathematics.

REQUIREMENTS FOR ADMISSION

The student must generally meet the admission requirements described in the Information for Undergraduate Students and Information for Graduate Students chapters of this catalog and of the College of Engineering in which the degree program selected by the student is offered.

Beginning students in engineering should be prepared to start analytic geometry-calculus. No credit toward any degree in engineering will be given for algebra, trigonometry or precalculus mathematics (MATH 1110, 1120 and 1130). (These courses are offered to allow a student to make up deficiencies.) Students who question the adequacy of their precollege background in mathematics should contact the Department of Mathematics office in the College of Liberal Arts and Sciences. Placement tests covering precalculus mathematics are required of new freshmen to select the appropriate beginning mathematics course.

To be prepared for the type of mathematics courses that will be taught, the student must be competent in the basic ideas and skills of ordinary algebra, geometry and plane trigonometry. These include such topics as the fundamental operations with algebraic expressions, exponents and radicals, fractions, simple factoring, solution of linear and quadratic equations, graphical representation, simple systems of equations, complex numbers, the binomial theorem, arithmetic and geometric progressions, logarithms, the trigonometric functions and their use in triangle solving and simple applications, and the standard theorems of geometry, including some solid geometry. It usually takes eight semesters to cover this material adequately in high school.

Refer to the "Minimum Academic Preparation Standards (MAPS)" and "Admission Requirements for Freshmen" sections in the Information for Undergraduate Students chapter of this catalog for a list of high school subjects required for admission to the College of Engineering.

Former Students

Former students must meet the re-admission requirements outlined in the Information for Undergraduate Students and Information for Graduate Students chapters of this catalog.

Students who interrupt their degree program for an extended period will be required to follow the degree program in effect at the time of their re-admission to the college. Repetition of course work may be necessary because of the interruption; re-admitted applicants will be evaluated on an individual basis. Repeated courses must be taken for no credit (*NC*). See the "Repetition of Courses" policy under "Academic Policies" in this chapter of the catalog.

Intercampus Transfer

Transfers between campuses of the University of Colorado should be carefully planned to avoid loss of academic credit. Courses and credits required for engineering degrees vary from campus to campus; therefore, students should plan as far ahead as possible. The campus advisor can help choose the right courses. Such planning should also include contacting the engineering department to which the student plans to

transfer at least one semester before the transfer is planned. The transfer student must have at least a 2.0 GPA for 30 hours of credit toward an engineering degree to be eligible to transfer. A higher GPA may be required to transfer directly into the College of Engineering. In general, calculus, physics and chemistry courses will transfer for full credit. In addition, 12 semester hours of humanities and social sciences electives will usually transfer for full credit. Fundamental computing courses may be unique by campus and should be checked with the campus to which the student is transferring. Any minimum academic preparation standards (MAPS) deficiencies should be eliminated before transferring.

Transfer Agreements

The College of Engineering has formal transfer agreements with the following Denver metro-area community colleges:

Arapahoe Community College (Littleton)—303-794-1550
 Community College of Aurora—303-360-4790
 Community College of Denver—303-556-2600
 Front Range Community College (Westminster)—303-466-8811
 Red Rocks Community College (Lakewood)—303-988-6160

These transfer agreements provide an opportunity for potential engineering students to complete courses applicable to an engineering program offered at UCDHSC. Students interested in a transfer should contact Engineering Student Services at 303-556-4768 and the respective community college counseling office at the phone number indicated above.

Transfer Students

Students applying for transfer from other accredited collegiate institutions will be considered for admission on an individual basis, if they meet the requirements outlined in the Information for Undergraduate Students chapter of this catalog and have successfully completed a year each of calculus and physics (calculus-based).

Applications to transfer from another college on the downtown Denver campus to the College of Engineering and Applied Science will be considered on an individual basis by the Office of the Dean, if the student's prior academic record includes successful completion of a year each of calculus and calculus-based physics and the student's cumulative GPA is 2.75 or higher.

Transfer Credit

Refer to the Information for Undergraduate Students and Information for Graduate Students chapters of this catalog for descriptions of university-wide policies on transfer credit.

After a prospective transfer student has made application and submitted official transcripts to the University of Colorado Office of Admissions, that office issues an applicant transfer credit evaluation listing those courses that are acceptable by university standards for transfer. A copy of this evaluation is sent to the student and to the Office of the Dean by the Office of Admissions Processing and is made a part of the permanent record. An advisor will use this form to indicate which courses and credit hours listed are acceptable toward the graduation requirements for the student's degree program. The decisions will be recorded on both the applicant transfer credit evaluation form and the department's study program for BS form, and signed and dated. Both forms are reviewed by the Office of the Dean, and signed and dated. Any modification to the initial evaluation must be by petition, have the recommendation of the transfer advisor and department chair and have approval of the Office of the Dean. All documents will become a part of the student's master file in the Office of the Dean. All transfer credit must be validated by satisfactory achievement in subsequent courses.

Note: All requests for consideration of transfer credit and its application toward a degree in engineering and applied science must be submitted prior to the student's last two semesters at the downtown Denver campus of UCDHSC.

Nontransferable Credits

Courses on basic subjects such as mathematics, physics, literature or history may be acceptable for direct transfer of credit if they were taught as part of an accredited program for all students and were not specifically designated for engineering technology students.

Engineering technology courses (courses with technology designations) will not be considered for transfer into an engineering degree program.

Students may seek credit for course work by examination (see "Transfer of College-Level Credit" section of the Information for Undergraduate Students chapter of this catalog).

UNDERGRADUATE CORE CURRICULUM IN ENGINEERING

The faculty of the College of Arts & Media, the Business School, the College of Engineering and Applied Science, and the College of Liberal Arts and Sciences have established a core curriculum for undergraduate students. See the "General Information" section of this catalog for an overview of the common core concept.

Students graduating from the College of Engineering are required to satisfy the humanities and social sciences and writing portions of their engineering program by taking courses from the UCDHSC core curriculum listed in the engineering table in this chapter.

The intent of the humanities and social sciences component of an engineering program is to provide the student with a coherent and well-structured exploration of a substantive issue or theme appropriate to the engineering profession and/or of interest to the student.

The required humanities and social sciences electives must include both breadth and depth, must include advanced-level course work, and should be planned in consultation with the advisor. A random selection of lower-division courses will not satisfy the humanities and social sciences elective requirement.

Courses such as accounting, contracts, management, elementary foreign languages, public speaking and technical writing are not acceptable as humanities and social sciences electives.

ACADEMIC POLICIES

Refer to the Information for Undergraduate Students and University Policies chapters of this catalog for descriptions of universitywide policies. The following policies apply specifically to students in the College of Engineering and Applied Science.

Advanced Placement

Advanced placement credit may be granted by special examination or by College Entrance Examination Board (CEEB) tests. If the applicant has scored four or five on the CEEB Advanced Placement Examination, credit toward graduation may be awarded. Students who have scored three may be considered for advanced placement by the department concerned. All advanced placement and transfer credit must be validated by satisfactory achievement in subsequent courses in accordance with standard transfer policies of the college.

College-Level Examination (CLEP) Credit

Prospective students may earn college-level credit through the College-Level Examination Program (CLEP) *subject* examinations, provided that they score at the 50th percentile or above. The Engineering Student Services advisor will advise students of the credits accepted for such courses toward a degree program. CLEP *general* examinations are not acceptable. (See also "College-Level Examination Program" in the Information for Undergraduate Students chapter of this catalog.)

Attendance Regulations

Successful work in the College of Engineering and Applied Science is dependent upon regular attendance in all classes. Students who are absent should make arrangements with instructors to make up the work missed. Students who for illness or other good reason miss a final examination must notify the instructor or the Office of the Dean no later than the end of the day on which the examination is given. Failure to do so will result in an *F* in the course.

Changing Departments

Students who wish to change to another department within the College of Engineering and Applied Science must apply for transfer by

submitting a change of major for undergraduate degree students form, which must have the approval of the new department. (See also discussion of interdepartmental transfer requirements under “Transfer Students” in this chapter of the catalog.)

Advising

Freshman students are advised by Engineering Student Services and by representatives from each academic department. These representatives are readily available to assist students with academic or vocational concerns. Contact Engineering Student Services at 303-556-4768.

Students are assigned specific departmental advisors for academic planning and should contact the departmental office for advising appointments.

UNDERGRADUATE CORE CURRICULUM IN ENGINEERING

SOCIAL SCIENCES: (3 hours) Choose one course from any of the following courses: ECON, ENVS, ETST, GEOG, HBSC, P SC, SOC.

Semester Hours

ECON 2012. Principles of Economics-Macro	3
ECON 2022. Principles of Economics-Micro	3
ENVS 1342. Introduction to Environment and Society	3
ETST 2000. Introduction to Ethnic Studies	3
GEOG 1102. World Regional Geography	3
GEOG 1602. Introduction to Urban Studies	3
GEOG 2202. Natural Hazards	3
HBSC 2001. Intro to Community and Population Health Science...	3
P SC 1001. Intro to Political Science: Quest for Freedom to Justice ...	3
P SC 1101. American Political System	3
SOC 1001. Introduction to Sociology	3
SOC 2462. Introduction to Social Psychology	3

HUMANITIES: (3 hours) Choose one course from any of the following courses: ENGL, ETST, FR, GER, HIST, PHIL, RLST.

CNST1000. China and the Chinese	3
ENGL 1601. Telling Tales: Narrative Art in Literature and Film	3
ENGL 2600. Great Works in British and American Literature	3
ETST 2155. African American History	3
FR 1000. Intro to Cultures of the French-Speaking World	3
GER 1000. Germany and the Germans	3
HIST 1361. U.S. History to 1876	3
HIST 1362. U.S. History since 1876	3
HIST 1381. Paths to the Present I	3
HIST 1382. Paths to the Present II	3
PHIL 1012. Intro to Philosophy: Relationship of Individual to World.	3
PHIL 1020. Introduction to Ethics & Society:	
Person and Community	3
PHIL 2441. Logic and Language	3
RLST 1610. Introduction to Religious Studies	3
RLST 2660. World Religions	3
SPAN 1000. Introduction to Cultures of the Spanish Speaking World.	3

ARTS: (3 hours) Choose one course from any of the following courses: FA, PMUS, THTR.

F A 1001. Introduction to Art	3
PMUS 1001. Music Appreciation	3
THTR 1001. Introduction to Theatre	3

INTERNATIONAL PERSPECTIVES: (3 hours) Choose one course from any of the following courses: ENGR, HIST, P SC.

ENGR 3600. International Dimensions of Culture and Technology ..	3
HIST 3899. Encounters in World History	3
P SC 3022. Introduction to Comparative Politics	3
P SC 3042. Introduction to International Relations	3

CULTURAL DIVERSITY: (3 hours) Choose one course from any of the following courses: ANTH, CMMU, ECON, ENGR, ETST, PHIL, PSY, SOC, THTR, HIST, MGMT, P SC, RLST.

Semester Hours

ANTH 3142. Cultural Diversity in the Modern World	3
CMMU 3271. Communication and Diversity	3
ECON 3100. Economics of Race and Gender	3
ENGR 3400. Technology and Culture	3
ETST 3704. Culture, Racism and Alienation	3
ETST 3794. Ethnic Diversity in American Literature	3
HIST 3345. Immigration and Ethnicity in U.S. History	3
MGMT 4100. Managing Cultural Diversity	3
PHIL 3500. Ideology and Culture: Racism and Sexism	3
P SC 3034. Race, Gender, Law and Public Policy	3
P SC 3035. Political Movement: Race and Gender	3
PSY 4485. Psychology of Cultural Diversity	3
RLST 4000. Religion and Cultural Diversity	3
SOC 3020. Race and Ethnicity in the U.S.	3
THTR 3611. Drama of Diversity	3

BEHAVIORAL SCIENCES: (3 hours) Choose one course from any of the following courses: ANTH, CMMU, PSY.

ANTH 1302. Introduction to Archaeology	4
ANTH 2102. Culture and the Human Experience	3
CMMU 1011. Fundamentals of Communication	3
CMMU 1021. Fundamentals of Mass Communication	3
PSY 1000. Introduction to Psychology I	3
PSY 1005. Introduction to Psychology II	3

INTELLECTUAL COMPETENCIES* (6 hours)

ENGL 1020. Core Composition I**	3
ENGL 2030. Core Composition II	3

TOTAL SEMESTER HOURS: 24-25

Please note the above core list does not include mathematics or biological and physical sciences due to the extensive math and physics curricula required by the College of Engineering and Applied Science. Please see the Engineering Student Services advisor for questions.

*English 1020 and English 2030 are the only approved composition courses for the UCDHSC Core Curriculum.

**English 1020 should be taken the first semester a student is enrolled at UCDHSC.

Counseling

Personal counseling is available through the UCDHSC Student and Community Counseling Center. Contact 303-556-4372 for questions or an appointment.

Course Load Policy

Full-time Students. Undergraduate students employed less than 10 hours per week should register for the regular work as outlined in the departmental curricula. Additional courses may be allowed when there is satisfactory evidence that the student has the capability to handle the added load. Permission to take more than 21 hours may be granted only after written petition and approval of the department chair and the dean.

Employed Students. Suggested maximum course loads for undergraduate students employed 10 or more hours per week are as follows:

- Employed 40 or more hours per week—two courses (maximum of 9 semester hours)
- Employed 30 hours per week—three courses (maximum of 12 semester hours)
- Employed 20 hours per week—four courses (maximum of 15 semester hours)
- Employed 10 hours per week—five courses (maximum of 18 semester hours)

Freshman Year

Fundamentals taught in the freshman year are of critical importance in the more advanced classes. Special attention should be given to taking courses in the proper sequence. (Course requirements for freshmen are detailed within the typical curriculum given under each department.)

All freshmen are urged to consult their instructors whenever they need help.

Repetition of Courses

Students may not register for credit in a course in which they already have received a grade of *C-* or higher. An *F* grade in a required course necessitates subsequent satisfactory completion of the course. Students must repeat a course in which a grade of *D+* or lower was earned, if that course is a prerequisite to another required course. If students do not successfully complete (*C-* or higher) an engineering class on the second attempt, they must obtain written approval from their major department to enroll for the course for the third time. When a course is retaken because of a *D* or *F* grade on the first attempt, both grades will appear in the transcript and both will be averaged into the GPA.

No Credit

An engineering student must petition for approval before enrolling for no credit (*NC*) for any course. Required courses may not be taken for no credit. Once a course has been taken *NC*, the course cannot be repeated for credit.

Work Experience

The College of Engineering and Applied Science does not award academic credit for work experience.

College Policy on Academic Progress

All undergraduate students must declare a major by the time they have accumulated 60 semester hours. An engineering student must maintain a cumulative GPA of 2.0 or better in all hours attempted at the University of Colorado, in those courses applied toward graduation requirements

and in all courses taken from the student's major department in order to remain in good standing in the College of Engineering and Applied Science. Grades earned at another institution are not used in calculating the GPA at the University of Colorado. However, grades earned in another school or college of the University of Colorado will be used in determining the student's scholastic standing and progress or lack of progress toward the bachelor of science degree in the College of Engineering and Applied Science.

Students whose cumulative CU GPA falls below 2.0 will be placed on probation for the next semester in which they are enrolled in the college and will be so notified. If after the probationary semester the student's cumulative GPA is still below 2.0, the student will be suspended from the college.

The following conditions apply:

1. During a probation semester, the student must complete a normal load, i.e., 12 semester hours or more (see employed student suggested course load) of courses counting toward graduation requirements. Physical education courses do not count; if the student has previously completed 6 semester hours of ROTC courses, ROTC courses do not count; if the required hours of humanities and social science subjects have been completed, such subjects do not count.
2. Students are suspended indefinitely and may not enroll at any University of Colorado campus during any regular academic year, September through May, but may enroll in summer sessions and/or may take correspondence courses for credit through the Division of Continuing Education in Boulder.
3. Students who have been suspended may apply for re-admission if they bring their University of Colorado cumulative GPA up to a 2.0 through summer session and/or correspondence work applying to engineering degree requirements.
4. Upon satisfactorily completing a minimum of 12 semester hours of acceptable work appropriate to an engineering curriculum at another college or university, subsequent to suspension, students may apply for re-admission as a transfer student during the second semester following their suspension.
5. Applicants for re-admission to the University of Colorado cannot be assured of re-admission.
6. Students who have been on probation or suspension at any time in the past will automatically be suspended again if their cumulative GPA falls below a 2.0. (No additional probationary semester is permitted.)

Details of the probationary and suspension status and of the conditions for return to good academic standing will be stipulated in the letters of probation and suspension. Information regarding these matters may be obtained in the Office of the Dean, North Classroom 3024.

In addition to college policies, departments within the college may set standards of progress within their department, and students should make a point of knowing them.

Academic Ethics (Dishonesty, Cheating)

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 attempts 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 the student's own.

At the downtown Denver campus of UCDHSC, there is a student Academic Honor Code. The code is published in a brochure available from the Office of Student Life. Information regarding all student grievance procedures may be obtained in that office.

In addition, the college has a committee on discipline that hears cases of alleged violations of academic ethics and recommends disciplinary action. In a case of proven academic dishonesty/misconduct, the committee may invoke penalties that may include probation,

suspension or expulsion. In a case of suspension or expulsion, a distinction may be placed on a student's academic record indicating the action was due to academic dishonesty/misconduct. Students who suspect or observe violations of academic ethics should report them to their instructor, the department chair or the Office of the Dean.

Grading System, Incompletes, Pass/Fail and Drop/Add Procedures

See the Registration and Records chapter of this catalog for the University of Colorado uniform grading system and for additional pass/fail information and drop/add procedures.

Final grades, as reported by instructors, are to be considered permanent and final. Grade changes will be considered only in cases of documented clerical error and must be approved by the dean.

INCOMPLETES

An incomplete *may* be given by the instructor for circumstances beyond the student's control, such as a documented medical or personal emergency. When it is given, the student, the Office of the Dean and the departmental office are informed in writing by the instructor, who states what the student is to do in order to remove the incomplete and the date the tasks are to be completed. The instructor may assign only the *I/F* grade. The student is expected to complete the course requirements (e.g., the final examination or term paper), within the established deadline and not to retake the entire course. The grade will be converted automatically to a grade of *F* after one year if the specified work is not completed.

PASS/FAIL

The primary purpose for offering courses on a pass/fail grade basis is to encourage students, especially juniors and seniors, to broaden their educational experience by electing challenging upper-division humanities and social sciences elective courses without serious risk to their academic records. In general, pass/fail should be limited to 3000- or 4000-level humanities and social sciences courses. Students must process the pass/fail form during the first two weeks of the semester. Engineering students cannot take required courses pass/fail. Below are specific pass/fail regulations for the College of Engineering and Applied Science:

1. A maximum of 16 pass/fail semester hours may be included in a student's total program. A maximum of 6 semester hours may be taken in one semester, but it is recommended that not more than one course at a time be taken pass/fail.
2. Courses that a student may elect to take pass/fail shall be designated and *approved in advance* by the student's major department. If courses not so designated are taken, the earned grade will be recorded in place of the *P*. An engineering student who has not designated a major field will not be allowed the pass/fail option without approval through the Office of the Dean.
3. A transfer student may count toward graduation 1 semester hour of pass/fail for each 9 semester hours completed in the college; however, the maximum number of pass/fail semester hours counting toward graduation shall not exceed 16, including courses taken in the honors program under that program's pass/fail grading system.

DROPPING

After the tenth week of the semester, dropping a course requires a petition signed by the department chair and the dean. Only under very extenuating circumstances, such as a documented medical or personal emergency, will petitions for dropping courses be approved after the tenth week of the semester.

Sequence of Courses

Full-time students must generally complete the courses in the department in which they are registered, according to the typical curriculum shown under their major department in this catalog. Part-time students may modify the order of courses with their advisor's approval.

Graduation with Honors

In recognition of high scholarship and professional attainments, *Honors*, *Special Honors* or *With Distinction* may be awarded at graduation at the discretion of the student's major department. These honors are recorded on the diploma of the graduate and indicated in the commencement program. Grades earned during the semester of graduation will not be considered.

For *Special Honors*, a student must have a cumulative GPA of at least 3.80, and for *Honors*, a GPA between 3.60 and 3.79. *With Distinction* is awarded at the discretion of the College Executive Council.

Transfer students, to be considered for honors, will be expected to complete a minimum of one-half of their work at the University of Colorado. Grades earned at other institutions will not be considered. Transfer students must have completed at least 54 semester hours at CU before their last semester and must have a minimum of 64 semester hours completed at graduation.

PLANNING AN ENGINEERING PROGRAM

It is the responsibility of all students:

- to meet with their department transfer credit advisor as necessary
- to meet with their department academic advisor at least once each year
- to meet with their department senior check-out advisor prior to their last 30 semester hours of course work to finalize a graduation program that will be reviewed by the dean's office
- to complete a graduation contract and an application for diploma card before or during the first two weeks of their last semester
- to keep their senior check-out advisor informed of any changes in the student's plans throughout their last year

Graduation Requirements

In order to become eligible for one of the bachelor's degrees in the College of Engineering and Applied Science, a student, in addition to being in good standing in the university, must meet the following minimum requirements:

Courses—The prescribed and elective work in any curriculum as determined by the appropriate department must be completed satisfactorily.

Hours—A minimum of 130 semester hours is required for students seeking a civil engineering degree; a minimum of 128 semester hours for computer science or engineering, electrical engineering or mechanical engineering degrees.

Hours in Residence—At least 30 semester hours of course work applicable to a bachelor of science degree in engineering must be taken at the downtown Denver campus while a declared student in good standing at the College of Engineering and Applied Science. Students must be enrolled in the college for at least the final two semesters prior to graduation.

Transfer Credit—All requests for consideration of transfer credit and its application toward a degree in Engineering and Applied Science must be submitted prior to the student's last two semesters at the downtown Denver campus.

Grade Point Average—A minimum GPA of 2.0 (*C*) is required for all courses attempted, for all required courses and for all courses taken from the student's major department.

Assessment Test—An assessment test must be passed during the senior year. The test may be the Fundamentals of Engineering exam or

other exam as designated by the department. Students should check with their department for details.

Faculty Recommendation—The recommendation of the faculty of the department offering the degree and the approval of the faculty of the College of Engineering and Applied Science is required.

Incompletes and Correspondence Courses—It is the student’s responsibility to ensure that all incompletes and correspondence courses are officially completed before the tenth week of the student’s final semester in school.

Simultaneous Conferring of Degrees—For any double degree program, both bachelor’s degrees must be conferred at the same commencement.

Commencement Exercises—Commencement exercises are held in December and May. A student finishing in August is encouraged to attend commencement the following December, but may request that the diploma be mailed.

UNDERGRADUATE DEGREES

In addition to the standard four-year degree programs previously listed, the college is involved in double degree programs.

Business and Engineering

Undergraduates in the College of Engineering and Applied Science with career interests in management may complete all of the requirements for both a BS degree in engineering and a BS degree in business administration by extending their study programs to five years, including one or two summer terms. The business courses required by the Business School may be started in the second, third or fourth year, depending upon the curriculum plan for the particular field of engineering in which the student is enrolled.

Students interested in this undergraduate program are required to submit an application to the Business School. Students should contact a business advisor to obtain the application form and determine an acceptable degree program.

Requirements for the undergraduate business degree and engineering degree must be completed concurrently. At least a 2.0 GPA must be earned in all business courses undertaken in the Business School. No fewer than 30 semester credits in business courses from UCDHSC must be earned after admission to business to establish residency credit. Courses offered or required by the Business School may be used in lieu of electives required for undergraduate engineering degrees, subject to the approval of the individual department.

Joint Engineering Degrees

A student may obtain two engineering majors by meeting the requirements of both programs; however, the approval of both departments and the dean is required. Thirty hours of elective or required subjects must be completed in addition to the largest minimum number required by either of the two departments. A course taken for one completed master’s degree may not be counted toward a second master’s degree.

Premedicine Option

A professional school in a field such as medicine requires a student to have a college education prior to pursuing its professional courses. In practically all cases, medical students are university graduates, although occasionally a student may enter medical school after three years of university training.

The desirability of obtaining an engineering education prior to undertaking a study of medicine is increasing continually as medicine itself is evolving. A great deal of new equipment, most of it electronic, is being developed to assist the medical practitioner in treatment of patients. Bioengineering, engineering systems analysis, probability and

communication theory are highly applicable to medical problems. Improved communication techniques also are allowing the storage and retrieval of information not previously available to the medical doctor. An advanced knowledge of basic mathematics and computing techniques, along with increased understanding of physical chemistry, improves the scientific base upon which medical knowledge rests. It is therefore desirable that the future medical practitioner and researcher be well equipped with the tools engineering can offer.

To provide a minimum of the necessary knowledge, the additional courses listed below must be completed with superior grades. Students can meet these requirements by careful substitution of electives in the engineering curriculum. In some cases where additional hours may be required, interested students should consult with the engineering department chair.

	<i>Semester Hours</i>
<i>General Chemistry (two semesters)</i>	9
(CHEM 2031, 2038, 2061, 2068)	
<i>Organic Chemistry (two semesters)</i>	10
(CHEM 3411, 3421, 3418, 3428)	
<i>General Biology (two semesters)</i>	8
(BIOL 2051, 2061, 2071, 2081)	
<i>English Composition (one semester)</i>	3
<i>Literature (two semesters)</i>	6
Total	36

Students desiring to enter a premedical program should consult the representative of the department involved. On the downtown Denver campus, premedical advising is available through the health careers advisor, North Classroom, 3014B, 303-556-4350.

GRADUATE STUDY IN ENGINEERING

The College of Engineering and Applied Science at UCDHSC offers graduate programs in civil engineering, computer science, electrical engineering, mechanical engineering and computer sciences and engineering.

For information regarding courses and requirements leading to the master of science, master of engineering, or the PhD degree, see the appropriate discipline heading in this section. For graduate admission information and policies, see the Information for Graduate Students chapter of this catalog.

Education for Employed Professional Engineers

Continuing education for employed engineers grows more important each year. Therefore, the college puts great emphasis upon making graduate courses available through evening and televised courses. The master of engineering degree permits graduate students more flexibility in defining specialized interdisciplinary fields that meet their professional needs. This degree has standards equivalent to those of the master of science degree.

In addition to credit course work, the college also offers courses of interest to practicing engineers through its Continuing Engineering Education Program, 303-556-4907. (See also information under “Continuing Engineering Education Program” in this chapter.)

Concurrent BS and MS Degree Program in Engineering

A student who plans to continue on to graduate study after completing the requirements for the BS degree may be admitted to a graduate program through his/her major department in the senior year (after completion of at least 110 semester hours). Requirements are the same as for the two degrees taken separately: 128 or 130 semester hours, depending on the major, for the BS degree; and 30 semester hours for the MS degree. Humanities and social sciences requirements must be completed within the first 136 semester hours. A 3.0 GPA for all work attempted through the first six semesters (at least 96 semester hours) and written recommendations from at least two major-field faculty members are required.

The purpose of the concurrent degree program is to allow students who qualify for graduate study and expect to continue for an advanced degree to plan their graduate program from the beginning of the senior year rather than from the first year of graduate study. The student can then reach the degree of proficiency required to begin research at an earlier time and can make better and fuller use of courses offered only in alternate years.

Students will be assigned faculty advisors to help them develop the program best suited to their particular interests. Those in the program will be encouraged to pursue independent study on research problems or in areas of specialization where no formal courses are offered. A liberal substitution policy will be followed for courses normally required in the last year of the undergraduate curriculum. The program selected must be planned so that the student may qualify for a BS degree after completing the semester-hour requirements for the degree, if the student so elects, or if the student's GPA falls below the 3.0 required to remain in the program. In this case, all hours completed with a passing grade while in the program will count toward fulfilling the normal requirements for the BS degree.

There will be no credit given toward a graduate degree for courses applied to the BS degree requirements.

Graduate Work in Business

Undergraduates in engineering who intend to pursue graduate study in business may complete some of the business background requirements as electives in their undergraduate programs. Seniors in engineering who have such intentions and appear likely to qualify for admission to graduate study in business may be permitted to register for graduate fundamentals courses, which are designed to provide qualified students with needed background preparation in business. Students must see an advisor from the Business School for approval.

PROGRAMS OF STUDY

Courses listed in the following curricula are typical illustrations. Changes in specific courses may be necessary to accommodate students' needs and/or changes in institution requirements; however, students should take courses in logical sequence, i.e., complete all freshman courses before taking sophomore courses.

Civil Engineering

Chair: Bruce N. Janson
Program Assistant: Mindy R. Gewuerz
Office: North Classroom, 3027
Telephone: 303-556-2871
Fax: 303-556-2368

FACULTY

Professors: Nien-Yin Chang, PhD, Ohio State University, Professional Engineer (PE)—Ohio and Colorado; James C.-Y. Guo, PhD, University of Illinois at Urbana-Champaign, PE—Colorado; Bruce N. Janson, PhD, University of Illinois; Lynn E. Johnson, PhD, Cornell, PE—Connecticut; Jonathan T. H. Wu, PhD, Purdue
Associate Professors: Anu Ramaswami, PhD, Carnegie Mellon; Kevin L. Rens, PhD, Iowa State University, PE—Colorado
Assistant Professors: Stephan A. Durham, PhD, University of Arkansas; David C. Mays, PhD, University of California at Berkeley
Senior Instructor: Brian Brady, PhD, Colorado School of Mines
Associate Professor Adjunct: Michael Tang, PhD, University of Wisconsin at Madison
Professors Emeriti: Paul E. Bartlett, MS, University of Colorado, PE—Colorado; David W. Hubly, PhD, Iowa State, PE—Colorado; Orem G. Strom, PhD, University of Texas at Austin

STATEMENT OF MISSION

The mission of the Department of Civil Engineering is to:

- deliver high-quality comprehensive degree programs (BS, MS, MEng, PhD) to all of our students at both the undergraduate and graduate levels
- matriculate students who excel in professional practice and leadership and who possess compassion and respect for people of all cultural backgrounds
- teach our classes with excellence, whether in a traditional classroom setting or online
- offer our students state-of-the-art laboratories, equipment and classrooms with the latest technology needed for a complete learning experience
- develop ambitious and innovative research programs involving both faculty and students through funding from federal, state and local sources
- provide supportive mentoring and guidance to our students through teaching, research and advising
- produce students who can work as leading professionals in civil engineering and in many other fields for which civil engineering knowledge can be a foundation

STATEMENT OF OBJECTIVES

The objectives of the bachelor of science in civil engineering program are to produce graduates who:

- are able to perform the technical analyses and design tasks of entry-level civil engineers
- can successfully work toward professional engineering licensure
- communicate effectively, both orally and in writing
- understand the importance of leadership skills, team building and ethical practice
- value lifelong learning and improvement through graduate degrees or professional study
- appreciate the importance of community involvement and social contribution

Civil engineers are dedicated to improving our living environment. They are responsible for the planning, design and construction of buildings, bridges, highways, water distribution systems, wastewater collection and treatment systems, solid waste treatment and disposal systems, airports, railroads, pipelines, water treatment plants, dams, geographic information systems and other parts of our infrastructure systems. In preparing for work in such a broad field, the civil engineering student studies mathematics, basic science, communication, social science and humanities, engineering science and civil engineering design. UCDHSC's civil engineering graduates usually find their first professional employment with consulting engineering firms, government agencies and various industries.

UNDERGRADUATE

The UCDHSC undergraduate civil engineering curriculum places balanced emphasis on four principal areas of civil engineering practice: structures, transportation, water and geotechnical engineering. In each of these areas, the student receives instruction in planning, design and analysis methods. Microcomputer skills are taught early in the program of study and used frequently in subsequent courses.

Typical Curriculum for BS (Civil Engineering)

A minimum of 130 semester hours is required to earn the BS degree. The faculty provide advising to help students develop an efficient study plan. The student must satisfactorily complete all the course work in the curriculum shown below, satisfy all university graduation requirements and maintain at least a 2.0 GPA in the civil engineering courses.

A typical four-year program of study is shown below.

FRESHMAN YEAR

<i>First Semester</i>	<i>Semester Hours</i>
MATH 1401. Analytical Geometry and Calculus I	4
CHEM 1130. Engineering General Chemistry (<i>see note 1</i>)	5
ENGL 1020. Core Composition I (<i>see note 2</i>)	3
Core Curriculum Elective (<i>see note 2</i>)	3
Total	15

<i>Second Semester</i>	<i>Semester Hours</i>
MATH 2411. Analytical Geometry and Calculus II	4
PHYS 2311. General Physics I	4
PHYS 2321. General Physics Laboratory I	1
C E 2212. Plane Surveying	3
ENGR 1025. Engineering Graphics and Computer-Aided Design	3
Core Curriculum Elective (<i>see note 2</i>)	3
Total	18

SOPHOMORE YEAR

<i>First Semester</i>	<i>Semester Hours</i>
MATH 2421. Calculus and Analytical Geometry III	4
PHYS 2331. General Physics II	4
C E 2121. Analytical Mechanics I	3
C E 2200. Computing Methods in Civil Engineering	3
Core Curriculum Elective (<i>see note 2</i>)	3
Total	17

<i>Second Semester</i>	<i>Semester Hours</i>
MATH 3195. Linear Algebra and Differential Equations	4
C E 3121. Mechanics of Materials	3
C E 3141. Materials Testing Laboratory	2
C E 3401. Introduction to Environmental Engineering	3
C E 4780. Engineering Geology	3

—or—

GEOL 1072. Physical Geology: Surface Processes

—or—

MATH 3800. Probability and Statistics for Engineers	3
Total	15

JUNIOR YEAR

<i>First Semester</i>	<i>Semester Hours</i>
C E 3111. Analytical Mechanics II	3
C E 3313. Theoretical Fluid Mechanics	3
C E 3505. Structural Analysis	3
C E 3602. Transportation Engineering	3
Core Curriculum Elective (<i>see note 2</i>)	3
Total	15

<i>Second Semester</i>	<i>Semester Hours</i>
C E 3323. Applied Fluid Mechanics	3
C E 3414. Design of Water and Wastewater Systems	3
C E 3708. Introduction to Geotechnical Engineering	3
C E 4718. Intermediate Soils Engineering	2
ENGR 3012. Thermodynamics	3
Core Curriculum Elective (<i>see note 2</i>)	3
Total	17

SENIOR YEAR

<i>First Semester</i>	<i>Semester Hours</i>
E E 3030. Electric Circuits and Systems	3
Civil Engineering Design Electives (<i>see note 3</i>)	6
Science, Math or Engineering Electives (<i>see note 4</i>)	6
Core Curriculum Elective (<i>see note 2</i>)	3
C E 4000. Senior Seminar	0
Total	18

<i>Second Semester</i>	<i>Semester Hours</i>
Civil Engineering Design Electives (<i>see note 3</i>)	6
C E 4067. Senior Design Project	3
Core Curriculum Elective (<i>see note 2</i>)	3
Science, Math or Engineering Elective (<i>see note 4</i>)	3
Total	15

Notes for BS (Civil Engineering)

1. Or CHEM 2031 and CHEM 2038, which are required for students wishing to take CHEM 2061 and CHEM 2068 as general electives.
2. The communication, humanities and social science electives selected by the student and approved by his/her advisor must satisfy the college core curriculum.
3. Students must satisfactorily complete four of the six civil engineering design courses listed below:

C E 4427. Storm Water System Design	3
C E 4565. Timber Structure Design	3
C E 4575. Structural Steel Design	3
C E 4585. Reinforced Concrete Design	3
C E 4602. Highway Engineering	3
C E 4738. Intermediate Foundation Engineering	3
4. Science, math or engineering electives. The purpose of the electives is to extend the student's knowledge beyond the basic civil engineering requirements. Electives chosen should come from the areas of engineering, mathematics, chemistry, biology, physics or geology. In the case of mathematics, chemistry, physics or geology, the elective must be of higher level than courses in this field required by the civil engineering program. At least one elective must be a civil engineering course. Suggested courses are C E 4077, C E 4087, C E design courses or any 5000-level C E course.

GRADUATE

Degree Programs

UCDHSC offers the master of science in civil engineering (MSCE) with emphases in the following areas: environmental engineering, geotechnical/geo-environmental engineering, structural engineering, transportation engineering, hydrology and water resources, and geographical information systems (GIS). The Department of Civil Engineering also offers the master of engineering (MEng) degree with an emphasis in either geographical information systems (GIS) or transportation. The PhD degree in civil engineering is offered through a coordinated program with CU-Boulder. For the convenience of working students, all graduate-level courses are scheduled in the evenings or on Saturdays.

Requirements for Admission

Applicants to the master of science in civil engineering (MSCE) program must satisfy all requirements specified in the Information for Graduate Students chapter of this catalog, have an ABET-accredited undergraduate degree in civil engineering and have an undergraduate GPA of 3.0 (on a 4-point scale) or better for regular admission. Students with lower GPAs may qualify for provisional admission and are strongly encouraged to submit GRE scores in such cases. International applicants are also encouraged to submit GRE scores to support their applications if needed. Applicants whose undergraduate degree is in a field other than civil engineering may also be admitted into the MSCE degree program, if they have or will complete undergraduate prerequisite courses as required by the Department of Civil Engineering and the student's graduate advisor.

Applicants to the master of engineering (MEng) program must have a baccalaureate degree in engineering, math, science, economics or planning from an accredited college or university and satisfy all requirements specified by the Graduate School.

Prospective PhD students should contact the Department of Civil Engineering on the downtown Denver campus to inquire about application requirements and to obtain the “Rules and Policies for the Coordinated PhD Program.”

Degree Requirements

Two MSCE degree programs are available. Plan I includes a master’s thesis, while Plan II includes a master’s report. Both plans require a minimum of 30 semester hours.

Plan I requires 24 or more semester hours of graduate-level courses plus at least 6 semester credits for a thesis. Plan II requires 27 or more semester hours of graduate-level courses plus at least 3 credits for a report.

The MEng degree requires 27 or more credits of graduate-level courses plus at least 3 credits for a master’s report. The MEng degree requires at least 15 semester hours of civil engineering courses, which can include the master’s report and up to 15 semester hours of graduate-level courses in other disciplines.

Both the MSCE and MEng degrees require satisfactory completion of a written comprehensive exam and an oral defense of the master’s thesis or master’s report to a committee of at least three graduate faculty.

Every graduate student must also satisfy the degree requirements of the Graduate School on the downtown Denver campus, specified in the Information for Graduate Students chapter of this catalog. Both the MSCE and the MEng degree programs must be completed within seven years of the date the student begins the degree program.

Courses for both the MSCE and MEng degree programs are selected by mutual agreement of the student and his/her graduate advisor after admission to the degree program. The advisor may also specify undergraduate courses that must be completed before starting graduate course work but will not count toward the credit hour requirements for the degree. The student’s thesis or report topic must also be approved by the graduate advisor.

Computer Science and Engineering

Chair: Bogdan Chlebus

Program Assistant: Frances Moore

Office: North Classroom, 2605

Telephone: 303-556-4083

Fax: 303-556-8369

Web: www.cse.cudenver.edu

FACULTY

Professors: Gita Alaghband, PhD, University of Colorado; Tom Altman, PhD, University of Pittsburgh; Krzysztof (Krys) Cios, PhD, University of Mining and Metallurgy, Kraków, Poland, DSc, Polish Academy of Science, MBA, University of Toledo, Ohio; John Clark, PhD, Massachusetts Institute of Technology; Boris Stilman, PhD, National Research Institute for Electrical Engineering, Moscow, Russia

Associate Professors: Bogdan Chlebus, DSc, Warsaw University, Poland; Min-Hyung Choi, PhD, University of Iowa

Assistant Professors: Ellen Gethner, PhD, University of British Columbia; Il Kyeun Ra, PhD, Syracuse University

Senior Instructor and Undergraduate Advisor: Will Trobaugh, MS, University of Colorado

MISSION AND OBJECTIVES

The mission of the computer science and engineering (CSE) department is to:

- provide high-quality education for undergraduates students in CSE, MS students in CS, and PhD students in CSIS
- encourage and support scholarly research activities by both faculty and students
- form partnerships with industry firms and agencies, both local and beyond, to address important computing and engineering problems

- offer a wide range of computing and information technology courses as a service to the university and professional community
- continue to exemplify leadership to students, businesses, professionals and the community at large

The objectives of the CSE bachelor of science program are to:

- produce graduates who are immediately productive professionals in computer science and engineering
- prepare students for graduate or professional study
- instill leadership skills
- produce graduates who are valued members of their community
- involve undergraduates in software design research

UNDERGRADUATE

Computer Science and Engineering Program

Computers as a combination of software and hardware have become significant to the whole of society. They affect the way in which business is conducted and the way people study and learn. Very important is the use of computers to develop new avenues of human communication, interaction and cooperation. Communication networks and the combination of text with audio and video are providing more people with fingertip access to a vast array of information and knowledge.

The computer scientist and engineer is a professional who must be prepared to apply his or her skills, knowledge and creativity in a rapidly changing field. The bachelor of science in computer science and engineering at UCDHSC prepares students for such creative work. The emphasis is on fundamental concepts and basic principles with a long useful life. The program is composed of five major study areas: mathematics, basic or engineering science, required computer science courses, technical electives and the downtown Denver campus core curriculum.

The computer science and engineering program has dual accreditation from the Computing Accreditation Commission (CAC) and the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET).

Computer Science and Engineering Curriculum

The mathematics, basic science and computer science core requirements give the student a broad exposure to the concepts, methods and practice of computer science and engineering; the student learns the fundamentals of producing solutions to problems.

Technical electives are chosen to add depth to a student’s knowledge in an area of special interest.

The downtown Denver campus core curriculum is designed to give the student an exposure to knowledge outside his or her major. For students in the College of Engineering, courses in the humanities, social sciences and human communications are required.

To be awarded the bachelor of science in computer science and engineering, a student must satisfactorily complete all course work shown in the curriculum below, satisfy all university graduation requirements, and maintain at least a 2.0 GPA in all computer science courses attempted (see “Policy on Academic Progress” in the introductory section of this chapter). Students must meet with an undergraduate advisor each semester to assure that they are on track within the degree program and are aware of the current requirements of the program. An additional source of information is the “C SE Undergraduate Advising Handbook” or the department’s Web site, www.cse.cudenver.edu. Students are required to set up an appointment with the senior check-out advisor before registering for the last 30 semester hours of their program. Upon completion of the 30-hour checkout, all students are required to schedule an appointment with the CSE undergraduate advisor to complete the graduation agreement. Prerequisites will be strictly enforced. *Note:* Prerequisites must be taken before a course that requires them; co-requisites may be taken before or concurrent with a course that requires them.

Typical Curriculum for BS in CSE**FRESHMAN YEAR**

<i>First Semester</i>	<i>Semester Hours</i>
MATH 1401. Analytic Geometry and Calculus I	4
CHEM 1130. Engineering General Chemistry (<i>see Note 2</i>)	5
ENGL 1020. Core Composition I (<i>see Note 1</i>)	3
C SC 1410. Fundamentals of Computing	3
C SC 1510. Logic Design	3
Total	18

Second Semester

MATH 2411. Analytic Geometry and Calculus II	4
PHYS 2311. General Physics I: Calculus-Based	4
PHYS 2321. General Physics Laboratory I	1
C SC 2312. Intermediate Programming	3
C SC 2421. Data Structures and Program Design	3
C SC 2531. Logic Laboratory	1
Total	16

SOPHOMORE YEAR*First Semester*

MATH 2421. Calculus and Analytic Geometry III	4
PHYS 2331. General Physics II: Calculus-Based	4
PHYS 2341. General Physics Laboratory II	1
C SC 2511. Discrete Structures	3
C SC 2525. Assembly Language and Computer Organization	3
C SC 2132. Circuit Analysis I	3
Total	18

Second Semester

MATH 3195. Applied Linear Algebra/Elementary Differential Equations	4
C SC 3412. Algorithms	3
C SC 2142. Circuit Analysis II	3
ENGL 2030. English Composition II	3
Core Curriculum Elective (<i>see note 1</i>)	3
Total	16

JUNIOR YEAR*First Semester*

General Science Elective (<i>see Note 2</i>)	3
C SC 3415. Principles of Programming Languages	3
C SC 3651. Digital Hardware Design	3
Core Curriculum Electives (<i>see note 1</i>)	6
Total	15

Second Semester

C SC 3453. Operating System Concepts	3
C SC 3645. Discrete Linear Systems	3
C SE Technical Elective (<i>see note 3</i>)	3
Core Curriculum Electives (<i>see note 1</i>)	6
Total	15

SENIOR YEAR*First Semester*

MATH 4650. Numerical Analysis I	3
C SC 4508. Introduction to Software Engineering	3
C SC 4535. Probability and Statistics	3
C SC 4591. Computer Architecture	3
C SE Technical Elective (<i>see note 3</i>)	3
Total	15

*Second Semester**Semester Hours*

C SC 4034. Theoretical Foundations of Computer Science	3
C SC 4735. Computers, Society and Ethics	3
C SC 4739. Senior Design Project	3
C SE Technical Elective (<i>see note 3</i>)	3
Core Curriculum Elective (<i>see note 1</i>)	3
Total	15

Notes for BS (Computer Science and Engineering)

In addition to planning for sequences of courses based on prerequisites, students should plan to complete sophomore-level courses before taking junior-level courses.

1. Downtown Denver campus core curriculum: core requirements of the College of Engineering and Applied Science are outlined in the section titled "Undergraduate Core Curriculum in Engineering" in this catalog or at www.cse.cudenver.edu. In the communication area, students must pass ENGL 1020-3. Core Composition I, with a C- or better prior to taking either C SC 2421 or C SC 4739.
2. The chemistry sequence CHEM 2031/CHEM 2038 may be substituted for CHEM 1130. In addition to the required chemistry and physics courses, students must take a general science elective chosen from basic or engineering science. Refer to the "C SE Undergraduate Advising Handbook" for further information.
3. Computer science and engineering technical electives: The student must take three courses (9 semester hours) chosen from any C SC 4000-level courses and/or any EE 4000-level computer engineering courses that are not part of the required bachelor of science in computer science and engineering (BSCSE) curriculum.

MINOR IN COMPUTER SCIENCE

The Department of Computer Science and Engineering offers a minor in computer science. The requirements for the minor are listed below.

1. Any undergraduate student currently enrolled in a UCDHSC degree program with a major other than computer science and engineering may earn a minor in computer science. This includes students from the College of Engineering and Applied Science, the College of Liberal Arts and Sciences, the Business School and College of Arts & Media and the School of Public Affairs.
2. The student must complete the following classes with a grade of C- or better.
 - C SC 1410. Fundamentals of Computing
 - C SC 2421. Data Structures and Program Design
 - C SC 2511. Discrete Structures
 - MATH 1401. Calculus and Analytical Geometry I
 - MATH 2411. Calculus and Analytical Geometry II
3. The student must complete (with a C- or better) three additional computer science courses at the 3000 level or higher with the approval of an undergraduate advisor.

Note: Some courses at the 3000 level and above require additional prerequisites. A student must fulfill all prerequisites for the courses he/she selects. See the catalog course descriptions for prerequisite information for each course.
4. All computer science courses 3000-level and above must be taken at the downtown Denver campus of UCDHSC.
5. At the time of graduation, the student must have a UCDHSC cumulative GPA of 2.0 and must have a 2.0 GPA for the eight classes taken for the minor.
6. The student must file a minor declaration form with an undergraduate advisor or with the Engineering Student Services office in North Classroom 3024. For more information or an advising appointment, contact the Department of Computer Science and Engineering in North Classroom 2605 or by phone at 303-556-4314.

GRADUATE

The Department of Computer Science and Engineering (CSE) offers a master of science in computer science (MSCS), including an option in computational biology. The CSE department, together with the Business School, also offers a joint program leading to a doctoral degree in computer science and information systems (CSIS).

Research areas of emphasis include algorithms, artificial intelligence, automata theory, data mining and knowledge discovery, graphics, machine learning, networks, parallel and distributed processing and simulation. Only graduate students can take graduate courses.

Admission Requirements

Applicants should hold a bachelor's degree in engineering or science. They should have considerable programming experience.

Prerequisites

Applicants should have had the equivalent of the following University of Colorado courses:

- C SC 1410. Fundamentals of Computing
- C SC 2421. Data Structures and Program Design
- C SC 2511. Discrete Structures

In addition, applicants should have had at least three upper division computer science courses, such as the following:

- C SC 3412. Algorithms
- C SC 3415. Principles of Programming Languages
- C SC 3453. Operating System Concepts
- C SC 4034. Theoretical Foundations of Computer Science
- C SC 4591. Computer Architecture
- C SC 4508. Introduction to Software Engineering

Additional requirements include (1) 10 semester hours of university-level calculus and (2) at least one math course beyond calculus, such as advanced calculus, differential equations, linear algebra, probability, statistics or combinatorial analysis.

Students lacking some of these courses must complete them after admission.

Required GPA

Applicants should have a GPA of at least 2.75. If the GPA is below 2.75 but above 2.50, and/or some prerequisites are lacking, an applicant may be accepted as a provisional degree student.

GRE Exam

Applicants whose GPA is below 2.75 must submit GRE results (verbal, quantitative and analytical); a score of at least 1600 is required.

TOEFL Exam

International students must take the Test of English as a Foreign Language (TOEFL) and score a minimum of 500 (paper based) or 173 (computer based).

Transfer Credit

A maximum of 9 semester hours of graduate course work may be transferred into the program based on department approval.

Note: A student applying for MS study will be evaluated by the department's graduate advisor using the above specified rules and requirements. The admission letter will be sent to the student by the CSE chair. A student in Plan I (see below) should immediately choose a full-time faculty member as permanent thesis advisor based on his or her area of interest. The permanent thesis advisor, in cooperation with the student will form a thesis committee.

General MS Degree Requirements

In addition to the basic requirements of the university, the Department of Computer Science and Engineering requires master's degree candidates to complete an approved program of study consisting of at least 30 semester hours of graduate-level computer courses while maintaining a GPA of at least 3.0. With prior approval by an advisor, a student may substitute up to 6 semester hours of mathematics or other engineering courses. All courses must be taught by University of Colorado graduate faculty.

A student must submit an approved plan of study to the department during the first semester of his/her admission. An academic advisor will consult with each student to develop a plan of study.

Requirements for the MS in Computer Science Degree

Students may choose either Plan I (thesis) or Plan II (nonthesis).

Plan I—Thesis

Students choosing Plan I take 24 semester hours of graduate course work plus 6 semester hours of thesis work. Three courses must be chosen from among five core courses and three additional courses chosen from among more than a dozen "breadth" courses. All must be passed with a grade of *B* or better. Plan I students must also write a thesis and defend it before a thesis committee. The students in Plan I may take two independent study courses for a maximum of 6 hours.

Plan II—Non-Thesis

Students choosing Plan II take 30 semester hours of graduate course work. Three courses must be chosen from among five core courses and three additional courses chosen from among more than a dozen "breadth" courses. All must be passed with a grade of *B* or better. The students in Plan II may take only one independent study course for a maximum of 3 semester hours.

Notes:

1. Students in Plan I will have a priority in obtaining departmental teaching assistantships.
2. Students can take only graduate engineering (21 semester hours must be CS courses) and graduate mathematics courses. No more than 6 semester credits can be taken in the form of online courses.

Computational Biology Option

<i>Required Courses</i>	<i>Semester Hours</i>
BIOL 5099. Biology for Computer Scientists, Engineers and Mathematicians*	3
C SC 5610. Computational Biology	3
C SC 5451. Algorithms	3
C SC 5840. Directed Study: Complex Programming Project	3
MATH 5396. Introduction to Bayesian Statistics	3
Total	15

Note: C SC 5840. Directed Study: Complex Programming Project is a complex software development project that must be completed under the direction of a CU faculty member approved by the Center for Computational Biology director or one of the associate directors. Prerequisite: CSC 5610 and CSC 5451.

* If you have a strong background in biology, you can substitute an approved graduate course in biology or chemistry.

Adequate Progress Toward MS in Computer Science Degree

Students are expected to finish the MS degree program within seven years. Candidates for the MS degree may not get credit for a course taken longer than seven years before the date on which the degree is to be granted. A student may petition for an acceptance of a graduate course that was taken seven or more years prior to potential graduation.

Students who do not enroll for any course work relevant to computer science in a given semester (summer semesters excluded) must supply the Department of Computer Science and Engineering with a written

statement describing the reasons for the inactivity. This statement must be received by the department by the eighth week of that semester. The department shall regard the failure to supply such a statement as demonstrating a lack of interest in continuing in the program. Students who are inactive for three consecutive semesters (summer semesters excluded) can be removed from the program.

Thesis defense is to be completed by the ninth week of the semester of graduation.

PhD CSIS Program

Program co-directors: Bogdan Chlebus (CSE) and Mike Mannino (Business School)

Web site: www.csisphd.cudenver.edu

The Department of Computer Science and Engineering (CSE) and the Business School offer a joint doctor of philosophy degree program in computer science and information systems (CSIS). The program targets students with a master's-level education in either computer science or information systems who seek research training that combines CS and IS along with strong industry interaction. The joint PhD program provides training for academic positions, industrial research positions and senior consulting positions. The specific goals of the program complement these general goals:

- create a pool of graduates with CSIS research training who are qualified for academic and nonacademic careers
- meet student demand for advanced training in CSIS with accommodations for full-time and part-time students
- promote interdisciplinary research between CSE and the Business School
- enhance technology transfer between CSIS academic units and Front Range technology businesses through joint research, student internships, faculty externships and committee participation

ADMISSION

Prospective students apply to either the Department of Computer Science and Engineering (CSE) or the Business School. Applicants who pass the initial screening are then reviewed by a joint committee (consisting of the two co-directors of the program) for the final admittance decision.

Admission criteria include GPA (undergraduate and graduate), standardized test scores (GMAT or GRE), letters of recommendation, prior achievements in academia and industry, an application portfolio essay describing an applicant's motivation and an initial plan for doctoral study. The application portfolio is important to gauge an applicant's motivation for research training.

Students without a master's degree in either computer science or information systems will need to take additional course work sufficient to complete the requirements of a master's degree in one of the two areas.

PROGRAM ORGANIZATION

Supervision of the PhD Program

The PhD program is supervised by the two program co-directors. The duties of the co-directors include scheduling of doctoral courses, setting program policies subject to approval of business and CSE faculty, working with advisors ensure compliance with the program guidelines, resolving disputes, measuring performance of the program over time and providing the final decision on admittance of students.

Advisor

Upon entering the program, each student chooses an advisor to provide mentoring and guidance throughout the program and work with the student to prepare a program of study. The advisor will also work with the student in the preparation of the first-year and second-year papers. Requests to change advisors must be approved by the program co-directors, and this happens in very rare circumstances.

Doctoral Committee

The advisor and four other members form a doctoral committee. To foster interdisciplinary work, students can have their doctoral research co-supervised by two faculty members from CSE and the Business School. There is at least one faculty member from CSE and at least one from business. One of the committee members is a representative of industry. At least one faculty committee member is from outside CSE and business. If the student has difficulty finding an industry representative, the advisor and the program co-directors help identify an industry representative.

PROGRAM COMPONENTS

Plan of Study

A list of course work and other requirements for the degree should be prepared with the advisor and then submitted to the co-directors for approval. The successful completion of all work indicated on the plan of study is an important prerequisite for the conferring of the degree. A plan of study should be submitted for approval by the end of the first semester of the program. The current plan of study should be updated before the beginning of the second year of the program and submitted for re-approval by the co-directors.

First- and Second-Year Papers

Students prepare papers during their second and third years. For part-time students, the timing might be longer in which case a prior approval by the advisor is required. The papers should be of high quality to ensure publication in conference proceedings or journals. The advisor serves as a mentor to help the student complete these papers, and each paper is submitted for approval to the advisor. An industry representative may also be used as an evaluator.

Comprehensive Exam

After completing the required course work, each student will take a written comprehensive exam that requires integration of computer science and information systems knowledge. The program co-directors will solicit questions from faculty, schedule the examination and coordinate with faculty to grade the exam. The exam will normally take place over one day, about eight hours.

Dissertation Proposal

As the first phase of the dissertation, each student should prepare a proposal that will be evaluated by the doctoral committee. A proposal should be ready for review at least one semester before the expected completion date of the degree. The proposal is submitted for review and approval by the doctoral committee. An oral presentation of the dissertation proposal before the doctoral committee is required for approval. An approved proposal is then submitted to the co-directors of the program for final approval.

Dissertation Completion

Once the dissertation proposal is approved, each student prepares and submits a dissertation. The dissertation is defended before the doctoral committee in a public meeting. Final approval for the dissertation is given by a vote of the dissertation committee after the public defense.

Graduation

Upon completion of all degree requirements including the dissertation defense, the student receives the degree of doctor of philosophy. Students applying through CSE receive the PhD from the College of Engineering and Applied Sciences, while students applying through information systems receive the PhD from the Business School.

Electrical Engineering

Acting Chair: Renjeng Su
Program Assistant: Helen Frey
Office: North Classroom 2615
Telephone: 303-556-2872
Fax: 303-556-2383

FACULTY

Professors: Gary Leininger, PhD, State University of New York, Buffalo; Titsa Papanтони, PhD, University of Southern California, Professional Engineer (PE)—Greek Chamber of Professional Engineers and Texas; Renjeng Su, PhD, Washington University
Associate Professors: Jan Bialasiewicz, PhD, DSc, Silesian Technical University, Poland, PE—Colorado; Hamid Fardi, PhD, University of Colorado; Miloje Radenković, University of Belgrade, Yugoslavia
Senior Instructors: Brian Atkinson, MS, University of Colorado; Robert Grabbe, MS, University of Colorado
Professor Adjunct: Carl Johnk, University of Illinois at Urbana-Champaign

Modern electrical engineering is a very broad and diverse field. As a profession, it rivals all other engineering disciplines in its impact on society. Never before has there been such a challenge and opportunity of electrical engineering to serve mankind. Today's electrical engineers are involved in the development of technology, materials and products to improve the quality of life. They are concerned with the generation and transmission of power, the control and utilization of natural and synthetic resources, the communication of data and information and the intelligent use of computers in consumer as well as industrial products and processes. Systems in electrical engineering range in size from microprocessors through megawatt energy conversion systems to global audio and video communication networks.

At UCDHSC, the electrical engineering curriculum prepares students for careers in product design, manufacturing, research, development, operation and plant engineering, technical sales and application engineering. The goal is to educate and inspire students to achieve their maximum career potential.

MISSION STATEMENT

We provide graduate programs and an ABET-accredited undergraduate program that are accessible to a diverse group of students—students of different racial and cultural backgrounds, full-time students as well as those who have considerable work and family commitments outside their academic learning, and students with a wide variety of work experiences.

UNDERGRADUATE PROGRAM OBJECTIVES

Objectives of the bachelor of science in electrical engineering are to develop graduates:

- who are immediately productive engineers and can advance their careers on different professional tracks in the engineering industry
- who can pursue graduate education in engineering or other fields such as business, medicine and law

These objectives are consistent with the mission of the University of Colorado at Denver and Health Sciences Center, congruent with the goals of the College of Engineering and Applied Science and reflective of the mission of the Department of Electrical Engineering.

UNDERGRADUATE CURRICULUM

Entering students begin their program with a solid foundation in mathematics, physics, chemistry and computers. Social science, humanities and communication courses provide a diverse background. Intensive courses follow in the theory and laboratory application of digital logic and electrical circuits, electromagnetic fields, electronics, computer engineering and digital hardware design, linear systems, controls, electrical machines and power systems, and microprocessors.

Throughout the entire course of study, students reinforce their understanding of theory through laboratory experience and extensive design projects. A strong background is provided in all of the major fields of electrical engineering: circuits and electronics, microcomputers, signal and image processing, communications, autonomous and robotic systems, power and energy conversion, and automatic control systems and instrumentation. Ethics is an integral part of the curriculum. During the senior year, advanced undergraduate-level courses in different specialty areas, design projects and professional electives allow the student to explore areas of special interest.

Students should supplement this information about the curriculum by consulting a copy of the "E E Advisement Guide," which may be obtained in the Department of Electrical Engineering office located in North Classroom 2615. The "E E Advisement Guide" contains the latest information concerning the curriculum as well as guidelines and procedures with which each student should be familiar. To be awarded the bachelor of science in electrical engineering (BSEE), a student must satisfactorily complete 128 semester hours, satisfy all university graduation requirements and maintain at least a 2.0 GPA in all electrical engineering and computer science courses attempted. Appointments to see any of the departmental advisors may be made by calling 303-556-2872.

Typical Curriculum for BS (Electrical Engineering)

FRESHMAN YEAR

<i>First Semester</i>	<i>Semester Hours</i>
MATH 1401. Analytical Geometry and Calculus I	4
CHEM 1130. Engineering General Chemistry	5
ENGL 1020. Core Composition I (<i>see note 1</i>)	3
E E 1201. Intro to Electrical Engineering	1
E E 1510. Logic Design	3
Total	16
<i>Second Semester</i>	
MATH 2411. Analytical Geometry and Calculus II	4
PHYS 2311. General Physics I	4
PHYS 2321. General Physics Laboratory I	1
C SC 1320. Computing with "C"	3
E E 2531. Logic Laboratory	1
Core Curriculum Elective (<i>see note 1</i>)	3
Total	16

SOPHOMORE YEAR

<i>First Semester</i>	<i>Semester Hours</i>
MATH 2421. Calculus and Analytical Geometry III	4
MATH 3195. Linear Algebra/Differential Equations	4
PHYS 2331. General Physics II	4
E E 2132. Circuit Analysis I	3
ENGL 2030. Core Composition II (<i>see note 1</i>)	3
Total	18
<i>Second Semester</i>	
E E 2142. Circuit Analysis II	3
E E 2552. Sophomore Circuits Laboratory	1
E E 2651. Introduction to Computer Engineering	3
Core Curriculum Electives (<i>see note 1</i>)	6
Total	13

JUNIOR YEAR

<i>First Semester</i>	<i>Semester Hours</i>
E E 3133. Electromagnetic Fields	3
E E 3215. Electronics I	3
E E 3316. Linear Systems	3
E E 3651. Digital Hardware Design	3
E E 3715. Electronics Laboratory	1
Core Curriculum Elective (<i>see note 1</i>)	3
Total	16

<i>Second Semester</i>	<i>Semester Hours</i>
E E 3164. Energy Conversion	3
E E 3225. Electronics II	3
E E 3701. Computer Architecture and RTOS	3
E E 3724. Power Laboratory	1
E E 3735. Junior Laboratory	1
E E 3817. Engineering Probability and Statistics	3
Core Curriculum Elective (<i>see note 1</i>)	3
Total	17

SENIOR YEAR

<i>First Semester</i>	
E E 4309. Senior Design Project I	3
Professional Elective (<i>see note 3</i>)	3
Engineering Science Elective (<i>see note 4</i>)	3
E E Specialty and Laboratory (<i>see note 5</i>)	4
E E Specialty Course	3
Total	16

<i>Second Semester</i>	
E E 4319. Senior Design Project II (<i>see note 3</i>)	3
Professional Elective (<i>see note 4</i>)	3
E E Specialty and Laboratory (<i>see note 6</i>)	4
E E Specialty (<i>see note 6</i>)	3
Core Curriculum Elective (<i>see note 1</i>)	3
Total	16

Notes for BS (Electrical Engineering)

The particular curriculum to be satisfied by each student is the one published in the catalog current at the time of his/her 30-hour senior checkout. A graduation agreement should be requested by each student *after* completing registration for his/her last semester. Additional information is contained in the “E E Advisement Guide.” Students should also refer to the section in this catalog on “Academic Policies of the College of Engineering and Applied Science.”

1. Common core requirements of the College of Engineering and Applied Science are outlined in the section titled “Undergraduate Core Curriculum in Engineering” in this catalog or in the “E E Advisement Guide.” In the communication area, students must pass ENGL 1020. Core Composition I, with a C or better prior to taking E E 2142. Circuit Analysis II, and E E 2552. Sophomore Circuits Laboratory.
2. All electrical engineering students must satisfactorily complete E E 4309. Senior Design Project I and E E 4319. Senior Design Project II in consecutive semesters.
3. Professional electives may be selected from an approved list of upper division or graduate-level courses or cooperative education. The electrical engineering advisor must be consulted prior to the selection of these electives.
4. The engineering science elective may be satisfied by taking ENGR 3012. Thermodynamics.
5. Seventeen semester hours of electrical engineering elective and specialty courses in association with the laboratories are required. Students are required to take at least two laboratories out of the following six groups. Theory components are either prerequisites or corequisites to the laboratory components. The theory component (without the laboratory) may be taken as a specialty course.

E E 4136. Control Systems Analysis	3
E E 4276. Digital Control Systems	3
E E 4406. Control Systems Laboratory	1
E E 4225. Advanced Electronics	3
E E 4435. Advanced Electronics Laboratory	1
E E 4247. Communication Theory	3

<i>Semester Hours</i>	
E E 4248. Digital Communication Systems	3
E E 4467. Communication Laboratory	1
E E 4133. Advanced Electromagnetic Fields	3
E E 4423. Microwave Laboratory	1
E E 4501. Microprocessor-based Design	3
E E 4521. Microprocessor Laboratory	1
E E 4511. Hardware-Software Interface Design	3
E E 4561. Hardware-Software Laboratory	1

Other courses available (without any laboratory component) as electrical engineering specialty courses include the following:

E E 4174. Industrial Power Electronics	3
E E 4184. Power Systems Analysis	3
E E 4555. VLSI Circuit Simulation	3

Computer Engineering Option

Students can add a computer engineering emphasis to their electrical engineering degree program by making the following changes in the curriculum described above:

JUNIOR YEAR

First Semester

Substitute E E 3651. Digital Hardware Design for E E 3817. Engineering Probability and Statistics.

Second Semester

Substitute E E 3817. Engineering Probability and Statistics, E E 3701. Computer Architecture and RTOS (real time operating system) for E E 3651. Digital Hardware Design, E E 3724. Power Laboratory and a humanities and social sciences course.

SENIOR YEAR

First Semester

Choose E E 4501. Microprocessor-based Design and E E 4521. Microprocessor Laboratory as one electrical engineering specialty and laboratory selection.

Second Semester

Choose E E 4511. Hardware-Software Interface Design, E E 4561. Hardware-Software Laboratory and a humanities and social sciences elective as professional elective and electrical engineering specialty and laboratory selections.

GRADUATE

The Department of Electrical Engineering offers graduate programs with the following areas of emphasis: systems and controls; signal and image processing; optics and communication systems; electrical power, machines and energy systems; microelectronics, VLSI and simulation; and computer engineering. The department offers graduate programs leading to the degrees of master of science in electrical engineering and master of engineering.

Requirements for Admission

Requests for applications for graduate study in electrical engineering should be addressed to Department of Electrical Engineering, UCDHSC, Campus Box 110, P.O. Box 173364, Denver, CO 80217-3364.

Applicants who are not citizens or permanent residents of the United States should make application through the Office of Admissions, Campus Box 167, P.O. Box 173364, Denver, CO 80217-3364. All applicants for admission need to submit complete credentials as outlined in the instruction sheet that accompanies the application materials.

Master of Science Program

The master of science (MS) program offers two plans, thesis (Plan I) and master's project (Plan II). In each, the student must complete 30 graduate semester hours. To satisfy the breadth requirement, two courses outside the area of specialization are required and two mathematics courses are recommended. Plan I requires a minimum of 24 semester hours of graduate course work and 6 semester hours of MS thesis work. Plan II requires a minimum of 27 semester hours of graduate course work and 3 semester hours of MS project. A minimum of 21 graduate semester hours must be earned through the electrical engineering department at UCDHSC. Candidates with a BS degree from UCDHSC can count 6 electrical engineering UCDHSC graduate credits toward both undergraduate and graduate degrees if their undergraduate GPA is at least 3.0. Double counting applies only to credits earned with a B- or better grade.

Master of Engineering Program

The master of engineering (MEng) degree program is broad based and is designed especially for that person who wants to further his/her education in more than just electrical engineering. A minimum of 30 semester hours of academic work is required for the MEng degree. At least 15 of these hours must be in electrical engineering courses at the 5000-level or above. At least 15 semester hours must be taken in the Department of Electrical Engineering at UCDHSC. As many as 15 semester hours may be taken outside of engineering. The student who wishes to enter the master of engineering program should apply to the electrical engineering department in the same manner as a master of science applicant.

Mechanical Engineering

Chair: Samuel W. J. Welch

Program Assistant: Petrina M. Morgan

Office: North Classroom, 3502

Telephone: 303-556-8516

Fax: 303-556-6371

Web site: www.cudenver.edu/engineer/mechanical/

FACULTY

Professors: Peter E. Jenkins, PhD, Purdue, MBA, Pepperdine, Professional Engineer (PE)—Texas; J. Kenneth Ortega, PhD, University of Colorado; John A. Trapp, PhD, University of California at Berkeley

Associate Professors: Ronald A. L. Rorrer, PhD, Virginia Polytechnic Institute and State University, PE—Colorado; L. Rafael Sanchez, PhD, Michigan Technological University; Samuel W. J. Welch, PhD, University of Colorado

Assistant Professors: Mohsen Tadi, PhD, Virginia Polytechnic Institute and State University; Sean E. Wright, PhD, University of Victoria

Senior Instructor: Joseph F. Cullen, Jr., MS, University of Colorado

Professor Emeritus: James Gerdeen, PhD, Stanford University

MISSION STATEMENT

The mission of the Department of Mechanical Engineering is to contribute to the economic development of the state of Colorado and the Denver metropolitan area by providing high-quality bachelor's and master's programs (BS, MS/ME) in mechanical engineering for a diverse group of working students.

EDUCATIONAL OBJECTIVES

The program offered by the Department of Mechanical Engineering of the University of Colorado at Denver and Health Sciences Center can be completed in the afternoon and evening hours to accommodate both working and traditional students. The department seeks to

graduate a diverse population of students with bachelor's and master's degrees, enabling them to:

- be employed by a diverse group of industries, research laboratories and educational institutions
- pursue careers in traditional engineering, interdisciplinary areas, research and education
- pursue postgraduate education and advanced degrees

UNDERGRADUATE

The mechanical engineer is concerned with satisfying the needs of society using a combination of material, human and economic resources. Mechanical engineering covers a wide spectrum of activities in the engineering profession. These activities include the conversion and transmission of energy and associated power processes; the kinematic, dynamic, strength and wear considerations, as well as economic aspects of the development, design, and use of materials, machines and processes; and the analysis, synthesis and control of entire engineering systems.

The mechanical engineering curriculum begins with a strong emphasis on mathematics, physics and chemistry. It continues with a concentration in engineering sciences, including solid and fluid mechanics; thermodynamics, heat and mass transport; materials; and systems analysis and control. It concludes with laboratory and design courses that demonstrate the ways in which scientific knowledge is applied in the design and development of useful devices and manufacturing processes.

The mechanical engineering program may be roughly subdivided into two-year groupings. In the first two years, the program emphasizes the fundamentals of mathematics and basic science that are essential for an understanding of most branches of engineering. In the last two years of the program, the curriculum emphasizes engineering science and design and provides technical electives in the following areas:

- thermodynamics
- heat transfer
- fluid mechanics
- solid mechanics
- power
- bioengineering
- dynamics and controls
- computer-aided design and manufacturing
- thermomechanical systems
- composite materials

To be awarded the BS (ME), a student must complete a minimum of 128 semester hours of course work, must satisfy all university graduation requirements, and maintain at least a 2.0 in all mechanical engineering courses. All students are required to set up an appointment with the senior check-out advisor before registering for the last 30 hours of their degree program. The last 30 hours must be earned as a degree student in the College of Engineering at UCDHSC.

Typical Curriculum for BS (Mechanical Engineering—see note 5)

FRESHMAN YEAR

<i>First Semester</i>	<i>Semester Hours</i>
MATH 1401. Calculus I	4
CHEM 1130. Engineering General Chemistry	5
ENGR 1025. Engineering Graphics and Computer-Aided Design ...	3
ENGL 1020. Core Composition I (<i>see note 2</i>)	3
Total	15
<i>Second Semester</i>	
MATH 2411. Calculus II	4
PHYS 2311. General Physics I: Calculus-Based	4
PHYS 2321. General Physics Laboratory I	1
Core Curriculum Elective (<i>see note 1</i>)	3
M E Technical Elective—lower level (<i>see note 4</i>)	3
Total	15

SOPHOMORE YEAR

<i>First Semester</i>	<i>Semester Hours</i>
MATH 2421. Calculus III	4
PHYS 2331. General Physics II: Calculus Based	4
PHYS 2341. General Physics Laboratory II	1
M E 2023. Statics (<i>see note 3</i>)	3
Core Curriculum Electives (<i>see note 1</i>)	6
Total	18
 <i>Second Semester</i>	
MATH 3195. Linear Algebra and Differential Equations	4
ENGR 3012. Thermodynamics I	3
M E 2033. Dynamics (<i>see note 3</i>)	3
M E 3030. Electric Circuits and Systems	3
M E 3032. Electric Circuits and Systems Laboratory	1
ENGL 2030. Core Composition II	3
Total	17

JUNIOR YEAR

<i>First Semester</i>	
M E 3010. Elementary Numerical Methods and Programming	3
M E 3021. Introduction to Fluid Mechanics	3
M E 3022. Thermodynamics II	3
M E 3027. Measurements	3
M E 3043. Strength of Materials	3
M E 3028. Laboratory of Mechanical Measurements	1
Total	16
 <i>Second Semester</i>	
M E 3023. System Dynamics I: Vibrations	3
M E 3024. Introduction to Materials Science I	3
M E 3031. Fluids/Thermal Laboratory	1
M E 3034. Properties of Engineering Materials Laboratory	1
M E 3035. Design of Mechanical Elements	3
M E 3042. Heat Transfer	3
M E 3065. Intermediate Dynamics	3
Total	17

SENIOR YEAR

<i>First Semester</i>	
M E 3145. Manufacturing Process Design	3
M E 4023. System Dynamics II: Controls	3
M E 4035. Senior Design I	3
M E Technical Electives	3
Core Curriculum Elective (<i>see note 1</i>)	3
Total	15
 <i>Second Semester</i>	
M E 4045. Senior Design II	3
M E Technical Electives	6
Core Curriculum Electives (<i>see note 1</i>)	6
Total	15

Notes for BS (Mechanical Engineering)

Students should check with departmental advisors to determine their degree requirements. The particular curriculum to be satisfied by each student is the one published in the catalog *current* at the time of their 30-hour senior checkout. For additional information, see the departmental advisor.

Students should refer to the section in this chapter on “Academic Policies” of the College of Engineering and Applied Science. In addition to planning for sequences of courses based on prerequisites, students should plan to complete sophomore-level courses before taking junior-level courses and should have completed their junior-level mechanical

engineering courses before starting their senior-level mechanical engineering electives. All students should see their advisors at least once each semester.

1. Common core requirements of the College of Engineering and Applied Science. Refer to the “Undergraduate Core Curriculum in Engineering” in this catalog or to the “Common Core Requirements” guide available from your advisor for further information.
2. The communication requirements include ENGL 1020. Core Composition I and ENGL 2030. Core Composition II.
3. C E 2121 and 3111 may be substituted for M E 2023 and 2033.
4. Not all courses may be offered every semester. Students should check the current *Schedule Planner*.
5. Students enrolled prior to fall 2006 may choose either the new core curriculum or the old core curriculum.

GRADUATE

The Department of Mechanical Engineering offers graduate courses, a master of science degree program and a master of engineering program. The PhD in mechanical engineering is offered through the Department of Mechanical Engineering, University of Colorado at Boulder. The areas of research interest in which a student may undertake studies at the downtown Denver campus include manufacturing processes, fluid mechanics, solid mechanics, heat transfer, bioengineering, thermodynamics, composite materials and mechanical design.

Master of Science Degree Requirements

At the MS degree level, students may choose between two plans, with each plan totaling 30 semester hours. Students following Plan I take 24 hours of formal course work plus 6 semester hours of thesis. Students following Plan II take 30 hours of formal course work. Students in either plan may choose one of three options. In the first two options, the student may choose to specialize in either thermal sciences or mechanics. The third option is the general mechanical engineering option.

The thermal science option requires 12 semester hours of analytical methods, numerical methods, fluid mechanics and thermodynamics. The student then selects 9 semester hours of course work in approved electives from a selection of thermal science electives. The mechanics option requires 12 semester hours of course work in analytical methods, numerical methods, elasticity and dynamics. The student then selects 9 semester hours of course work in approved electives from a selection of mechanics electives. For students following Plan I, the thermal science and mechanics options both allow the student to pick one approved elective, not necessarily in the chosen specialty. For students following Plan II, the thermal science and mechanics options both allow the student to pick three approved electives, not necessarily in the chosen specialty.

The general mechanical engineering option requires the student to take 18 semester hours of required courses in analytical methods, numerical methods, fluid mechanics, thermodynamics, elasticity and dynamics. For students following Plan I, the general mechanical engineering option allows the student to pick two approved electives, while for students following Plan II, the general mechanical engineering option allows the student to pick four approved electives.

Master of Engineering Degree

The master of engineering (MEng) degree program is an interdisciplinary degree program that allows students to combine advanced engineering course work with graduate-level non-engineering courses, such as business administration, social sciences, biological sciences or public administration. The requirements for admission are the same as those for the master of science degree. A minimum of 30 semester hours of academic work are required for the MEng degree. At least 15 of these hours must be at the 5000-level or above in mechanical engineering. A maximum of 15 semester hours may be taken outside of engineering. In addition to course work, a written report is required in the MEng program.

Concurrent Bachelor's/Master's Degrees

Students wishing to obtain a BS degree with a major in mechanical engineering and either the MS or the MEng degree in mechanical engineering may do so with up to six semester hours of 5000-level or above courses applying to both degrees. The 5000-level courses must meet the degree requirements for the graduate degree sought and must be suitable technical electives for the BS.

This option is open only for students seeking both degrees at UCDHSC. Students must meet admission requirements to be accepted into the graduate program. Completion of two 5000-level courses does not guarantee admission into the graduate program. Please see an Engineering Student Services advisor for restrictions and guidelines.

PhD Program

The PhD in mechanical engineering is available through the Department of Mechanical Engineering at CU-Boulder. Downtown Denver campus faculty may serve as research advisors by individual arrangement.

Master of Engineering (MEng)

The master of engineering degree program is administered through the departments of engineering. The requirements for admission and for quality and quantity of academic work are essentially the same as for the master of science degree awarded in the College of Engineering and Applied Science.

The principal difference between the master of engineering degree and the master of science degree is that the master of engineering is especially intended to meet the needs of those practicing engineers who wish to follow an integrated, interdisciplinary program of studies in engineering and allied subjects related to the individual student's

professional work. Examples of such interdisciplinary programs include engineering and business administration, engineering and environmental sciences, engineering and social sciences, engineering and biological sciences, engineering and behavioral sciences, and engineering and public administration. Appropriate non-engineering course work must be available on the campus where the student attends.

The degree is especially valuable for engineers in industry. It provides a framework for such persons to work toward significant goals fitted to their particular interests. The program can include courses that are made available on videotape or on live television.

Prospective students are required to present a well-defined objective in order to be admitted to the program. In consultation with the faculty advisors, an academic program is developed to meet this objective.

An advisory committee will be appointed for all students by their department. The advisory committee guides the student is responsible for approving the individual's degree program and admission to candidacy, and approves the student's written report and the awarding of the degree.

DEGREE REQUIREMENTS

The requirements for the degree are 30 semester hours, including a written report on a creative investigation that may be related to the student's professional work. The report will be of the same general quality as that required for the master of science thesis and must be defended orally. It may be based upon work done for credit under independent study. At least 15 semester hours must be in engineering at the 5000-level or above. As many as 12 semester hours may be taken outside of engineering at the 4000-level or higher.

Additional information about the degree may be obtained from the College of Engineering and Applied Science and the department offices.

At A Glance: Health Sciences Center on the Anschutz Medical Campus

Students*

School of Medicine: 1,417

Medical Students Subtotal: 585

DPT Students Subtotal: 135

Graduate Students Subtotal: 523

MPAS Physician Asst Students Subtotal: 79

Nondegree Students Subtotal: 95

School of Dentistry: 233

Dental Students Subtotal: 192

Undergraduate Dental Hygiene Students
Subtotal: 41

School of Nursing: 692

Nursing Doctorate Students Subtotal: 3

DNP Students Subtotal: 14

MS, PhD Graduate Students Subtotal: 295

Undergraduate Students Subtotal: 376

Nondegree Students Subtotal: 4

School of Pharmacy: 555

PharmD Students Subtotal: 513

Graduate Student Subtotal: 41

Nondegree Students Subtotal: 1

Health Sciences Center Total: 2,897

Faculty*

HSC Total: 1,638

Dentistry: 53

Medicine: 1,467

Nursing: 60

Pharmacy: 58

Degree Programs

GRADUATE SCHOOL

§ Programs below are shared with the
Graduate School

SCHOOL OF DENTISTRY

Dental Surgery: DDS

Dental Hygiene: BS

SCHOOL OF MEDICINE

Analytic Health Sciences: PhD§

Biochemistry: PhD§

Biostatistics: MS§

Biophysics and Genetics: MS, PhD§

Cell and Developmental Biology: PhD§

Clinical Science: MSCS, PhD§

Experimental Pathology: PhD§

Masters in Physician Assistant Studies: MPAS

Medical Science: BS

Medicine: MD

Microbiology and Immunology: PhD§

Neuroscience: PhD§

Pharmacology: PhD§

Physical Therapy: DPT

Physiology: PhD§

Public Health: MSPH§



SCHOOL OF NURSING

Nursing: BS, MS§, PhD§, DNP

SCHOOL OF PHARMACY

Pharmaceutical Sciences: PhD§

Pharmacy : PharmD

Toxicology: PhD§

Student Organizations

Academy of Students of Pharmacy/ASP-APHA

All aBout Couples—ABC

American Association of Dental Education

American Student Dental Association

American Medical Student Association/AMSA

Asian American Pharmacy Students Association

Christian Health Fellowship

Colorado Society for Health-Systems Pharmacists

Colorado Student Nurses Association

Complementary, Alternative, and Integrative

Medicine Student Interest Group (CAIMSIG)

Cycling Team

Dental Student Council

Dental Student Fraternities: Alpha Omega,

Delta Sigma Delta

Emergency Medicine Interest Group

Graduate Student Council

Health Professionals for Social Responsibility

Keppa Epsilon—Pharmacy

Medical Student Council

Melomania—HSC Orchestra

National Community Pharmacists Association

Nutrition and Preventive Health Student

Interest Group

Oyate—Diversity Student Council

Positive Approaches to Wellness for Students

(PAWS)—use of animals/pets in therapy

Pharmacists for Christ

Pharmacy Student Council

Phi Delta Chi—School of Pharmacy

Phi Delta Epsilon—School of Medicine

Phi Lambda Sigma/Alpha Xi Chapter—

Pharmacy

Phi Rho Sigma

Prism—GLBTI and Supporters

Reproductive Health Interest Group

Rho Chi—Pharmacy Honor Society

Rural Health Network

Silver Society—Child Health Associate/

Physician Assistant Student Society

Student Academy of the American Academy
of Physician Assistants (SAAAPA)

Student American Dental Hygienists' Association

Student Interest Group in Neurology

Student National Medical Association

Student National Pharmacists Association

Student Senate—HSC Student Governance

Students for Global Health

Bragging Rights

U.S. News & World Report, America's Best

Graduate Schools: See At A Glance:

UCDHSC on page 4 in the University
chapter of this catalog.

One of the country's most selective schools
of dentistry.

Colorado's only School of Medicine.

Consistently ranked School of Nursing.

The School of Nursing instituted the first

nurse practitioner and school nurse

programs in the U.S.

Medical students collectively donate 22,000
hours of community service each year.

The School of Nursing has a 30-year history
of distance education—with more than

75% of courses available online, in

whole or in part, today.

Sidney Altman, PhD, 1989 Nobel Prize

Winner in Chemistry is an alumnus

of the Graduate School.

National Institutes of Health (NIH) Rankings

In 2005, the School of Pharmacy ranked first

in percentage of PharmD faculty with

NIH funding; second in the percentage

of PhD faculty with NIH funding; third

in the nation (among 100 pharmacy

schools) for individual awards per PhD

faculty member; and ninth in the

nation for total NIH funding.

Together with its five affiliated hospital partners,

the School of Medicine ranks fourth of

75 public medical schools in the country

for NIH research expenditures (15th of

125 among all U.S. medical schools).

*Fall 2006 end-of-term enrollment data ‡Fiscal Year 2005-2006 data

Health Professions

Undergraduate Health Careers Advisors
(downtown campus)
Charles Ferguson
303-556-4350
or
Kent Nofsinger
303-556-6218

Not sure what health specialty to enter?
Visit the Health Careers
Web Site for information,
[http://thunder1.cudenver.edu/
clas/healthcareers/](http://thunder1.cudenver.edu/clas/healthcareers/)

Graduate Advisors
See contact information
under each school in
this chapter.

Unlike most chapters in this catalog that focus on all programs for a particular school, this chapter provides information about programs within the schools and colleges that prepare students for a career in the health professions. On the downtown Denver campus, two colleges offer health-related undergraduate programs. Students who complete their prerequisites or undergraduate degrees on this campus may choose to apply to graduate and health professional programs on the Anschutz Medical Campus. Three schools on the downtown campus offer health-related graduate programs. Downtown Denver students may choose to stay and complete a master's or PhD degree on this campus or apply to programs on the Anschutz Medical Campus.

The new state-of-the-art clinical and research facilities at the Health Sciences Center on the Anschutz Medical Campus offer students unparalleled training in the health professions. Admission to these programs is very selective, and admission to the downtown Denver campus does not assure admission to Health Sciences Center programs. All programs on the Anschutz Medical Campus require incoming students to have either a bachelor's degree or minimum of 60 semester hours of undergraduate work completed before applying.

UNDERGRADUATE PROGRAMS ON THE DOWNTOWN CAMPUS

Two colleges on UCDHSC's downtown Denver campus offer health-related programs for students seeking careers in the health sciences. Admission to the downtown Denver campus, however, does not assure admission to any professional health career program. Admission to those programs is a separate, competitive process open to qualified applicants from any accredited college or university.

College of Liberal Arts and Sciences

DEPARTMENT OF BIOLOGY

Contact: Lisa Johansen
Telephone: 303-556-6250
E-mail: Lisa.Johansen@cudenver.edu
Web site: www.cudenver.edu/clas/biology/

To serve the needs of students who wish to obtain recognition for the acquisition of specialized skills in biology and to better prepare students for graduate school, health careers, and jobs in industry, the Department of Biology offers a certificate program in biotechnology.

HEALTH CAREERS

Advisor: Charles Ferguson
Telephone: 303-556-4350
Advisor: Kent Nofsinger
Telephone: 303-556-6218
Web site: [www.cudenver.edu/clas/biology/
healthCareers.html](http://www.cudenver.edu/clas/biology/healthCareers.html)

Health career advisors on the downtown campus assist in planning a course of study designed to improve your chances of success in the health career of your choice, including: dentistry and dental hygiene, medicine, medical technology, nursing, optometry, osteopathy, pharmacy, physical therapy, physician assistant, podiatry or veterinary medicine.

A comprehensive list of health career options and additional information to help you mold your academic experience to your specific goals is available on the health careers Web site.

HEALTH AND BEHAVIORAL SCIENCES

Contact for Minor: Sharry Erzinger
Telephone: 303-556-6793
Web site: www.cudenver.edu/clas/hbssc/

The health and behavioral sciences program has developed a minor in community health science that is designed to provide undergraduates with the basic intellectual and methodological tools needed to understand the societal contexts of health, healthcare and public health. Graduates with a minor in community health science will be successful in their pursuit of graduate degrees in a broad range of fields, including the biomedical sciences, social and behavioral sciences, public health, law, medicine, dentistry, pharmacy, business administration and health services research. The program is especially appropriate for students intending to pursue careers in public health, as well as the primary care specialties in medicine, nursing, or health policy and administration.

A major is not currently available, but students may complete an individually structured major (ISM) that combines course work in Health and Behavioral Science with that of related fields such as anthropology, biology, and psychology. For details see the “Individually Structured Major” section in the College of Liberal Arts and Sciences chapter of the catalog.

College of Engineering and Applied Science

Contact: Engineering Student Services (advising)
Telephone: 303-556-4768
Web site: www.cudenver.edu/engineer

The desirability of obtaining an engineering education prior to undertaking a study of medicine is increasing continually as medicine itself is evolving. A great deal of new equipment, most of it electronic, is being developed to assist the medical practitioner in treatment of patients. Bioengineering, engineering systems analysis, probability and communication theory are highly applicable to medical problems. The College of Engineering and Applied Science offers students a premedicine option.

GRADUATE PROGRAMS ON THE DOWNTOWN CAMPUS

Business School

Director: Errol L. Biggs
Telephone: 303-556-5845
E-mail: Errol.Biggs@cudenver.edu
Web site: www.cudenver.edu/Academics/Colleges/Business/Programs

The Business School offers three degree options for those interested in health administration—MBA, MS and an executive MBA. These three degree options are outlined in the Business School chapter of this catalog.

College of Engineering and Applied Science

Contact: Lynn E. Johnson
Telephone: 303-556-2372
E-mail: MEngGIS@cudenver.edu

There are numerous ways in which geographic information systems (GIS) are used throughout health care and public health, including environmental health and epidemiology, disease surveillance and health services research. The College of Engineering and Applied Science offers a master of engineering degree with a GIS option, which emphasizes quantitative methods in the development and application of GIS

technologies to a spectrum of discipline-specific settings having significant spatial dimensions.

College of Liberal Arts and Sciences

DEPARTMENT OF ANTHROPOLOGY

Graduate Director: John Brett
Telephone: 303-556-8497
Fax: 303-556-8501
Web site: www.cudenver.edu/clas/anthropology

Students may earn an MA with a research concentration in medical anthropology or pursue an integrated MA/PhD in health and behavioral sciences. Details of these programs are included in the Department of Anthropology section in the College of Liberal Arts and Sciences chapter of this catalog.

HEALTH AND BEHAVIORAL SCIENCES

Program Director: Richard Miech
Telephone: 303-556-4300
E-mail: Richard.Miech@cudenver.edu
Web site: www.cudenver.edu/clas/hbssc/

The interdisciplinary PhD program in health and behavioral sciences provides an overarching framework integrating social and behavioral science perspectives on health and health care, while allowing the student to select and fully develop a particular research interest and professional career. This program has become a leader regionally in the application of GIS to health-related research.

Depending upon a student's chosen area of concentration, the successful graduate will gain expert knowledge of:

- research design and methods
- the determinants of health and disease
- the structure and organization of healthcare systems
- behavioral choices and how to use them to enhance wellness
- the contribution of individual, social and cultural factors to health behavior
- how guided change in healthcare systems may enhance quality, efficacy and access

The significance of these skills in addressing our current healthcare crisis will insure that graduates will be in demand in a number of employment sectors, ranging from community and public health organizations to nonprofit research organizations and private healthcare settings.

PROGRAMS ON THE ANSCHUTZ MEDICAL CAMPUS

Information about Health Sciences Center programs in this chapter is for reference only. Contact individual schools and program directors for details.

Graduate School

Contact: Office of the Dean
Telephone: 303-315-7928
Web site: www.uchsc.edu/gc

Degree Programs: *Master of science programs in: biostatistics; biophysics and genetics—genetic counseling; nursing—nurse midwifery, nurse practitioner (women's health care, family, adult, geriatric and pediatric), adult clinical nurse specialist, health care informatics, nursing leadership; pediatric special needs*
Master of science in clinical science
Master of science in public health
Doctor of philosophy in: analytic health sciences—bioinformatics, biostatistics, epidemiology; biochemistry—biochemistry and molecular

Health Sciences Center Programs						
	Degree	Program length in years	Entering class	College prerequisites	Entrance exam	Application deadline
Physician Assistant Studies	Master of Physician Assistant Studies (MPAS)	3	40	Bachelor's degree and prerequisite courses	GRE	September 1 See Web site for details
Physical Therapy	Doctor of Physical Therapy (DPT)	3	40-48	Bachelor's degree, field experience, prerequisite courses	GRE	December 1
Dental Hygiene	Bachelor of Science in Dental Hygiene (BS)	2	18	60 semester hours or 90 quarter hours required courses	NA	December 1
Dentistry	Doctor of Dental Surgery (DDS)	4	50	90 semester hours or 135 quarter hours required course work	DAT	January 1
Pharmacy	Doctor of Pharmacy (PharmD)	4	130	60 semester hours and prerequisite courses	PCAT	December 1
Graduate School	Doctor of Philosophy (PhD) and Master of Science (MS)	PhD=4 to 7 MS=2 to 5	Varies	Bachelor's degree	GRE	Varies
Public Health	Master of Science in Public Health	2 to 3	30-35	Bachelor of arts or science or 90 semester hours (30 upper-division level), including required courses	GRE	February 1
Nursing grad	Doctor of Nursing Practice (DNP) Doctor of Philosophy (PhD)	4	38	59 semester hours or 90 quarter hours required courses	NA	January 1
Nursing undergrad	Bachelor of Science (BS)	5 semesters (include summer)	165	60 semester hours and prerequisite courses	NA	Priority: Aug. 31 Final: Nov. 15
Medicine	Doctor of Medicine (MD)	4	156	Bachelor's degree or at least 120 semester hours with major leading to degree and required courses	MCAT	November 1

genetics, biomolecular structure; biophysics and genetics—human medical genetics, molecular biology; cell and developmental biology—reproductive sciences; clinical sciences; experimental pathology—cancer biology; microbiology and immunology; neuroscience; nursing; pharmaceutical sciences; pharmacology; physiology—physiology and biophysics; toxicology

At the University of Colorado Health Sciences Center Graduate School, students learn to push the frontiers of human health and disease in more than a dozen basic science, clinical and nursing disciplines. In conjunction with the CU School of Medicine, the Graduate School offers a joint MD/PhD in the medical scientist training program which develops investigators with a broadly based knowledge of both basic and clinical biomedical sciences. The school's personal mentor-student emphasis provides a distinctive learning experience.

School of Dentistry

Contact: Office of Admissions and Student Affairs

Telephone: 303-724-7120

Web site: www.uchsc.edu/sod

Degree Programs: *BS in dental hygiene**, *doctor of dental surgery, international student program, orthodontics, periodontics and general practice residency programs*

In this nationally recognized, award-winning program, students graduate with the ability to offer a broad range of dental services. It is the most selective dental school in the United States—with more than

1,400 applicants annually for only 50 positions in the freshman class. In a program unique in the country, the 192 dental students, as a graduation requirement, also provide an academic year's dental clinical care to underserved populations throughout Colorado. Home to the region's only university-based dental implant center, the school pioneers research in oral cancer, salivary gland disease, neurobiology and pain control.

*prerequisite undergraduate courses and/or experience required

School of Medicine

Contact: Office of Admissions

Telephone: 303-315-7361

Web site: www.uchsc.edu/som/admissions

Degree Program: *Doctor of medicine*

The University of Colorado School of Medicine is nationally and internationally respected for its education, research, patient care and community service programs. Faculty members teach and care for patients at the University of Colorado Hospital, The Children's Hospital and other affiliated hospitals, working side by side with nearly 1,000 graduate doctors who are in training in medical specialties and generalist care at the university. In addition to providing exceptional patient care and education, the medical school's greatest achievement has been the ability to attract gifted faculty and students who bring national renown to the school. The school's physicians and research scientists have pioneered breakthrough medical advances that have become national and world models.

GRADUATE MEDICAL EDUCATION (RESIDENCY AND FELLOWSHIP PROGRAMS)

Telephone: 303-315-7424

Web site: www.uchsc.edu/gme

The University of Colorado School of Medicine and affiliated hospitals provide graduate medical education (training of residents and fellows) in more than 60 specialties and subspecialties. The Graduate Medical Education Manual, provides details about these opportunities on the Anschutz Medical Campus.

CONTINUING MEDICAL EDUCATION

Web site: www.uchsc.edu/cme/

The School of Medicine provides continuing education opportunities for physicians and other healthcare professionals worldwide. The mission is to enhance the knowledge, skills and performance of physicians and other healthcare professionals, and in the process, to improve the health care of the populations they serve.

School of Nursing

Contact: Office of Admissions

Telephone: 303-315-5592

Web site: www.uchsc.edu/nursing/education

Degree Programs: *BS in nursing, RN-BS in nursing, doctor of nursing practice, PhD in nursing*

Ranked 15th in the nation in overall excellence, the pace-setting University of Colorado School of Nursing enrolls nearly 700 undergraduate and graduate students. The philosophy that drives the school—that knowledge of human responses and natural healing processes balances technological advances and biomedical treatments and cures—shapes its programs. In 1986, the School of Nursing established the Center for Human Caring, the nation's first formal program to undertake a systematic and comprehensive study of the art and science of caring medical treatment.

School of Pharmacy

Contact: Office of Student Services

Director: Beverly Brunson

Prepharmacy Advisor: Richard Hurray

Telephone: 303-315-6100

Fax: 303-315-6111

Web site: www.uchsc.edu/sop

Degree Programs: *Doctor of pharmacy (PharmD), PhD in toxicology, PhD in pharmaceutical sciences*

As drug products become more potent, more complex and more numerous, the need for pharmacists to assume a more active role in consultation and patient counseling has increased remarkably. The University of Colorado School of Pharmacy is one of the nation's top-ranked pharmacy schools and is committed to pharmaceutical education, research and patient care. The school's more than 400 undergraduate and graduate students learn about the chemical and physical properties of medicinal agents, the biology of disease and the actions of drugs on the human body, while pursuing either a bachelor's, doctor

of pharmacy or PhD degree. The school also provides continuing education programs to pharmacists and other health practitioners throughout the state.

Child Health Associate/Physician Assistant

Contact: Office of Admissions

Telephone: 303-315-7963

E-mail: chapa-info@uchsc.edu

Web site: www.uchsc.edu/chapa

Degree Program: *MPAS, Child health associate/physician assistant program*

The child health associate/physician assistant (CHA/PA) is a primary care PA with specialized training in the care of infants, children and adolescents as well as training in the care of adult patients. Program graduates are prepared to provide comprehensive medical care to patients of all ages and practice under state and national guidelines established for all PAs. Graduates are employed in many settings including managed care organizations, community health centers, physician's offices, public health agencies, hospitals, school based adolescent clinics, emergency departments and rural and inner city health care delivery sites.

Public Health

Contact: Program Coordinator

Telephone: 303-315-8359

Web site: www.uchsc.edu/pmb/msph/index.htm

Degree Program: *MSPH, public health*

The master of science in public health program provides the training for students to enter a variety of public health careers. Students acquire knowledge, skills and practical experience that prepare them for professional activities including: epidemiological and health services research, community needs assessment, environmental and occupational health, health policy, health promotion and administration of public health programs.

Physical Therapy

Contact: Office of Admissions

Telephone: 303-372-9144

Web site: www.uchsc.edu/pt

Degree Program: *Doctor of physical therapy*

The UCDHSC Physical Therapy program graduates hold a doctor of physical therapy degree following completion of a three-year professional preparation program that includes didactic learning and extensive clinical experiences. Students are prepared to excel in the physical therapy profession and adapt to the ever-evolving healthcare environment using the expertise and clinical decision-making skills they develop in the DPT program. As part of the School of Medicine, and members of the healthcare team, our entry-level students routinely interact with other health professionals on campus and in clinical situations. Foundational elements of our curriculum include movement science, evidence-based practice, patient-centered care and the delivery of healthcare services as members of the physical therapy doctoring profession.

At A Glance: College of Liberal Arts and Sciences

Students*

5,316
Undergraduate: 4,663
Graduate: 653

Degrees Awarded 2006‡

946
Undergraduate: 754
Graduate: 192

Undergraduate Degree Programs

Anthropology (BA)
Biology (BS)
 Organismic Biology
Chemistry (BS)
Communication (BA)
Economics (BA)
English (BA)
 Creative Writing
 Film Studies
 Literature
English Writing (BA)
French (BA)
Geography (BA)
 Earth Science
 Environmental Science
 Environmental Studies
 General Geography
 Urban Studies and Planning
History (BA)
Individually Structured Major (BA)
International Studies (BA)
Mathematics (BS)
 Actuarial Science
 Applied Mathematics
 Computer Science
 Math Education
 Probability and Statistics
 Pure Mathematics
Philosophy (BA)
Physics (BS)
 Biophysics and Medical Physics
 Pure and Applied Physics
Political Science (BA)
 Public Policy
Psychology (BA, BS)
Sociology (BA)
Spanish (BA)

Minor Programs

Anthropology
Astrophysics
Biology
Chemistry



Chinese Studies
Communication
Community Health Science
Creative Writing
Economics
Educational Studies
English Literature
English Writing
Environmental Sciences
Ethics
Ethnic Studies
Film Studies
French
Geography
Geology
German
History
Law Studies
Mathematics
Online Information Design
Philosophy
Physics
Political Science
Psychology
Religious Studies
Sociology
Spanish
Technical and Professional Communication
Urban and Regional Planning
Women's and Gender Studies

Graduate Degree Programs

Anthropology (MA)
 Research concentrations: medical anthropology, archaeological studies, biological anthropology, sustainable development and political ecology
 Area concentrations: Asia, Latin America, arid American west
Applied Mathematics (MS; PhD)
Biology (MS)

Chemistry (MS)
Communication (MA)
 Concentrations: communication management, technical communication, doctoral preparation
Economics (MA)
English (MA)
 Concentrations: literature, teaching of writing, applied linguistics
Environmental Sciences (MS)
 Concentrations: air quality, ecosystems, environmental health, geospatial analysis, hazardous waste, water quality
Health and Behavioral Sciences (PhD)
History (MA)
 Topical Concentrations: gender; science, technology and medicine; public history
 Area Concentrations: United States, modern Europe, modern Britain, Latin America, Asia/Islamic world
Humanities (MH)
Integrated Sciences (MIS)
 Concentrations: applied science, computer science, mathematics
Political Science (MA)
 Concentration: politics and public policy
Psychology (MA)
 Concentration: clinical psychology
Social Science (MSS)
 Concentrations: community health science, international studies, society and environment, women's studies
Sociology (MA)
Spanish (MA)
Technical Communication (MS)
 Dual degrees: Technical Communication and Public Administration (MS/MPA), Technical Communication and Information Learning Technologies (MS/MA)

*Fall 2006 end-of-term enrollment data ‡Fiscal Year 2005-2006 data

College of Liberal Arts and Sciences

Dean
Jon Harbor

Associate Deans
Mary Coussons-Read,
Charles Ferguson, Tammy Stone

Contact

Administration Office
CU-Denver Building, 110
1250 14th Street
303-556-2557
Fax: 303-556-4861
www.cudenver.edu/clas

Undergraduate Advising Office
North Classroom 2024
303-556-2555

Mailing Address
College of Liberal Arts and Sciences
Campus Box 144
P.O. Box 173364
Denver, CO 80217-3364

Application Deadlines

Undergraduate
Fall—July 22
Spring—December 1
Summer—May 3

Graduate
Varies by department.
See individual department
sections of this chapter
for deadlines.

The beauty of an education in the liberal arts is its simultaneous diversity and specialization, its combination of breadth and depth. Students in the College of Liberal Arts and Sciences at UCDHSC specialize in a major such as chemistry, English or psychology while creating a foundation of knowledge through general education requirements. Having a broad background in the arts and sciences prepares you to begin your career or to change careers later, to pursue advanced study in a discipline or to study for a professional career such as law or medicine. We believe it also sets the stage for a rewarding and productive life overall. Pursuing a liberal arts curriculum not only increases your knowledge, it enables you to develop such skills as logical argumentation and clear expression, gain insights about relationships in nature and society, develop critical thinking and interpretive ability, solve complex problems rationally and heighten your aesthetic appreciation.

At the College of Liberal Arts and Sciences (CLAS), we coordinate undergraduate programs with our own graduate programs as well as UCDHSC's professional schools, through which you can combine technical expertise with the broad critical and analytical skills essential to complex decision making. While our dedicated faculty have outstanding academic credentials, their greatest strength is their commitment to highly motivated students representing a broad range of age and experience. Their goal is not only to teach, but to instill in our students a lifelong love for learning and respect for free and independent thinking.

Our curriculum maintains traditionally high university academic standards while providing numerous flexible learning opportunities to meet our students' varied objectives. We offer opportunities to study urban programs, confront contemporary issues, participate in off-campus internships and make use of the city's resources. Advisory committees from the community work with CLAS departments and programs, allowing cultural, historical and environmental efforts in Denver to be supported and enhanced by our academic programs.

Liberal arts and sciences undergraduates receive either a BA or BS degree. Many go on to further study in some of the best graduate and professional schools around the country, while others begin their careers in a variety of positions in industry, commerce and

government. Each area of study offers a wide variety of curricula, including traditional undergraduate major programs, interdisciplinary studies and pre-professional programs.

College of Liberal Arts and Sciences Educational Goals

The College of Liberal Arts and Sciences defines liberal education as including four major components:

1. Central elements of knowledge including:
 - a. knowledge of the diversity and significant dimensions of human culture and a specific understanding of American culture, including its political and ethnic diversity
 - b. aesthetic awareness and appreciation of the cultural contributions made to the human experience by the social sciences and humanities
 - c. an understanding of the methods of inquiry and development of theory that are the bases of knowledge in the natural and physical sciences
2. Essential skills for analysis, writing, computation, communication and decision making
3. The development of a constructive orientation toward society through the enhancement of the individual's capacity to make informed and responsible

At A Glance: College of Liberal Arts and Sciences

Certificate Programs

Undergraduate

Applied German Language Skills
(Modern Languages)
Applied Statistics (Mathematical Sciences)
Biotechnology (Biology)
Cultural Diversity Studies (Ethnic Studies)
Ethics (Philosophy)
Geographic Information Science
(Geography/Geology)
International Affairs (Political Science)
Mediation (Communication)
Online Information Design
(Communication)
Politics and Public Policy (Political Science)
Professional and Multimedia Writing
(English)
Public Relations (Communication)
Technical and Professional Communication
(Communication)

Graduate

Applied Statistics (Mathematical Sciences)
Biotechnology (Biology)
Computational Biology (Mathematical
Sciences)
Environmental Sciences
Five options: air quality, ecosystems,
environmental health, geospatial analysis,
hazardous waste and water quality
Historic Preservation (History)
Interactive Media (Communication)
Public Relations (Communication)
Teaching English to Speakers of Other
Languages (English)
Technical and Professional Communication
(Communication)
Women's Studies (Master of Social Science)

Faculty*

Full-time: 210
Lecturers: 116

Student-Faculty Ratio*

17:1

Student Organizations

Aristotle's Porch, online English community
Chemistry Club
Colorado International Forum student
organization (International Studies)
Copper Nickel, literary magazine published
by the students and faculty of UCDHSC
Math Club
Phi Alpha Theta, national professional history
society, UCDHSC chapter
Philosophy Club
Physics Club
Political Science Graduate Student Club
Pre-Law Society
Psi Chi National Honor Society, UCDHSC
chapter (Psychology);
Sigma Delta Pi, Sigma Omicrom
Chapter (National Collegiate Hispanic
Honor Society)
Sociology Student Club
Tri Beta Biological Society

Alumni*

18,830
Undergraduate: 81%
Graduate: 19%

Sample Companies Hiring Alumni

AMC Cancer Research Center
American Humane Association
Amoco Oil
Channel 7 News
Colorado Prevention Center
Colorado Senator Ken Salazar's
Washington office
Denver Museum of Nature and Science
Denver Public Schools
Harvard University
Hughes Aircraft
IBM
Invesco
IPS-Zurich
Kaiser Permanente
Lawrence Livermore Labs
Level 3 Communications
Lockheed Martin
Los Alamos Labs
Merrill Lynch
Optx Corporation
Oracle
Raytheon
StorageTek
The Children's Hospital
United States Geological Survey

Average starting salary for those working full-time in related field†

Undergraduate students = \$31,667
Graduate students = \$55,385

Bragging Rights

CLAS Facts

22 departments/programs
29% minority students
17% increase in student credit hours
over five years
On the downtown Denver campus, CLAS
makes up 59% of undergraduate students,
15% of graduate students, 44% of faculty
48% success rate for medical school
applications (five-year average)

Serving Colorado

Denver Writing Project: Rick VanDeWeghe
Chase Community Service Award:
Tony Robinson
"Dr. Colorado": Tom Noel

Students and Faculty Nationally Recognized

Harry Truman Scholar: Zara Snapp,
undergraduate
National Science Foundation Graduate
Fellow: Megan Wilson
Carnegie Foundation Teaching Award:
Charlie Ferguson
Fullbright Fellows: John Brett, Jana Everett,
Steve Koester, Deborah Thomas,
James Igoe, David Tracer
National Poetry Award: Jake York
Published in *Nature*: Mike Greene

Centers

Center for Ethics and Community
Center for Computational Biology
Center for Computational Mathematics
Center for New Directions in Politics
and Public Policy
Center for Research in Health and
Behavioral Sciences
Fourth World Center for the Study of
Indigenous Law and Politics

Advisory/Leadership Councils

Center for New Directions in Politics and
Public Policy Advisory Board
Ethnic Studies Community Advisory Board
Political Science Department Community
Advisory Board

*Fall 2006 end-of-term enrollment data †Fiscal Year 2005-2006 data ‡2005 Survey of 2003-2004 graduates one year after graduation

choices based on reflective consideration of the democratic principles of due process, civil liberties and the balance between individualism and the common good

4. The ability to apply knowledge of the arts and sciences to society's specific needs

The college works to instill in students an understanding of these components through required skills and core courses and through the knowledge and skills required by each major program in the college.

Undergraduate Programs

A complete list of major and minor programs appears in At A Glance: College of Liberal Arts and Sciences at the front of this chapter.

MAJOR DEGREE PROGRAMS

Students can earn baccalaureate degrees (including areas of emphasis indented below the major areas) in the majors listed in At A Glance at the front of this chapter.

MINOR PROGRAMS

A college minor represents a concentration of content knowledge but not to the extent afforded in a major. Minors are optional for liberal arts students but are encouraged to broaden educational experience and enhance occupational skills.

Students interested in a minor should contact the CLAS Advising Office, North Classroom, 2024, 303-556-2555, for information. Students may also contact the department directly.

DOUBLE MAJORS

Students may graduate with more than one major by completing all requirements for each major.

DOUBLE DEGREES

Students may earn two undergraduate degrees in liberal arts or from two different schools or colleges of the University of Colorado simultaneously by fulfilling all requirements for both degrees. For example, the Business School and the College of Liberal Arts and Sciences have a double-degree program leading to a BS in business administration and a BA in the student's chosen major.

The College of Liberal Arts and Sciences requires that a student complete at least 90 liberal arts credits to be granted two bachelor's degrees. Students must complete a minimum of 150 semester hours applied toward the two degrees.

Students planning one of these multiple programs should consult with the CLAS Advising Office at the earliest possible date to get approval for a double-degree program.

SECOND DEGREES

Students who have been awarded a bachelor's degree (either from the college or elsewhere) may be granted a second bachelor's degree provided that (a) all general requirements for that degree have been met; (b) the major for the second bachelor's degree is different from the major for the first; and (c) the college and major department residence requirements are satisfied. A second degree from the college requires a minimum of 30 additional semester hours of credit.

Graduate Programs

Graduate degree programs offered by the faculty of the college through the Graduate School are listed in At A Glance: College of Liberal Arts and Sciences at the front of this chapter. Many degrees provide the opportunity for students to specialize in concentrations within the discipline; these are listed below the degree title.

CERTIFICATE PROGRAMS

The college offers undergraduate and graduate certificate programs that demonstrate proficiency in a specialized field of study. These programs differ from minor programs in that certificates may cross traditional disciplinary boundaries and are awarded independently of formal graduation.

Certificate programs are open to degree-seeking students as well as those who want to enhance their professional expertise, and require the completion of three to six related courses (9-19 semester hours). The list of certificate programs in At A Glance have been approved by the college and will appear on the student's official University of Colorado transcript upon completion of all certificate requirements.

Information about certificate programs can be found in the coordinating department section of this catalog, the departmental Web sites or contact the department directly.

UNDERGRADUATE POLICIES AND PROCEDURES

Requirements for Admission

CLAS Advising Office: North Classroom, 2024

Telephone: 303-556-2555

Fax: 303-556-6277

Web site: www.cudenver.edu/clas/advising/index.htm

NEW FRESHMEN

Students planning to enter the College of Liberal Arts and Sciences must meet the requirements described in the Information for Undergraduate Students chapter of this catalog.

TRANSFER STUDENTS

Students who have attended another college or university are expected to meet general requirements for admission of transfer students as described in the Information for Undergraduate Students chapter.

Transfer students with at least 30 semester hours of transferrable credit who have been denied admission to the college by the downtown Denver campus Office of Admissions, and who have special circumstances not covered by the regular admission policies, may petition the CLAS Academic Standards Committee for provisional admission. The Academic Standards Committee requires evidence of academic performance before provisional admission is granted. Policies and procedures for the CLAS Academic Standards Committee are available through the CLAS Advising Office.

Grading Policies

The College of Liberal Arts and Sciences adheres to the University of Colorado grading policies found in the Registration and Records chapter of this catalog. The college also maintains specific grading policies for liberal arts students.

INCOMPLETE GRADES

When a student has special circumstances that make it impossible to complete course assignments, the faculty have discretion to award an incomplete grade, *IW* or *IF*. Incomplete grades are *not* awarded for poor academic performance or as a way of extending assignment deadlines. While not required, a CLAS course completion agreement form (available from the CLAS Advising Office) is strongly suggested when faculty and student agree on an incomplete grade.

To be eligible for an incomplete grade, students must:

- have successfully completed 75 percent of the course
- have special circumstances (verification is required) that preclude the student's attending class and completing graded assignments

- make arrangements to complete missing assignments with the original instructor within one academic year

Students are allowed three semesters (one year) to complete the requirements for the incomplete, after which the *IW* or *IF* reverts to a *W* or *F* grade on the student's transcript. Any request to allow a grade change after the one-year period must be petitioned to the CLAS Academic Standards Committee.

PASS/FAIL GRADING OPTION

Students may select the pass/fail grading option for most courses. In addition to downtown Denver campus policies covering the pass/fail grading option (see the Registration and Records chapter of this catalog), CLAS students must adhere to the following college pass/fail grading policies:

1. Courses in a student's major, minor and certificate may not be taken on a pass/fail basis.
2. Courses required to show proficiency may not be taken on a pass/fail basis: ENGL (core curriculum), MATH (core curriculum) and first two semesters of foreign language.
3. Courses used to satisfy the intellectual competencies section of the UCDHSC core curriculum may not be taken on a pass/fail basis.
4. Courses in the knowledge area section of the downtown Denver campus core curriculum may be taken on a pass/fail basis.
5. Students must sign up by the drop/add deadline for the semester.

REPEATED COURSES

Students may re-register for any course. Both (all) courses remain on the transcript and both (all) grades are used to calculate the student's GPA. Course credit toward graduation is counted only once for a given course no matter how many times the course is repeated.

Academic Policies

Students are referred to the Registration and Records and University Policies chapters of this catalog for a description of academic policies that apply to all undergraduate students at UCDHSC's downtown Denver campus. The policies that follow apply specifically to the College of Liberal Arts and Sciences.

ACADEMIC ADVICE AND INFORMATION

Students in the college are expected to assume responsibility for planning their academic programs in accordance with college policies and major requirements. To assist students, the college maintains the CLAS Advising Office, North Classroom, 2024, 303-556-2555. Students are assigned to a college advisor in this office according to the students' last names and must meet with this advisor upon matriculation into the college. The college advisor is responsible for advising students of college policies and requirements, and the certification of college requirements at graduation.

As soon as students have determined a major, they should meet with a major department advisor. The major department advisor will be responsible for the student's major advising and for certification of the completion of the major program at graduation.

Students planning to ultimately earn a degree from one of the professional schools should also see an advisor in that school or college.

ACADEMIC PROBATION AND SUSPENSION

Undergraduate students who maintain a minimum 2.0 cumulative GPA in all University of Colorado course work are considered in good standing. Students who fail to maintain a 2.0 cumulative GPA are subject to academic policies of probation and suspension. A student must be in good standing to graduate with a baccalaureate degree from the College of Liberal Arts and Sciences.

Details of academic probation and suspension are available in the CLAS Advising Office. These policies apply to undergraduate students majoring in the College of Liberal Arts and Sciences. Graduate students are governed by the Graduate School rules.

Probation

Students whose cumulative GPA falls below a 2.0 will be placed on academic probation. Probation is a warning to students that the minimum level of academic performance is not being maintained. Students placed on probation for the first time will be required to participate in a program designed to help them attain academic good standing as quickly as possible.

There is no restriction on the amount of time a student can remain in a probationary status. Students on probation do not have restrictions on course selection or credit hours; however, a restricted schedule to concentrate on grades is encouraged. Probationary students are returned to good standing status only when their cumulative University of Colorado GPA attains a minimum 2.0.

While on academic probation, students must attain a minimum 2.3 semester GPA. Failure to satisfy this academic requirement for continued probation will result in suspension.

Suspension

Students who fail to meet the semester GPA requirements while on probation are placed on suspension. Suspension is an official notification that a student has not maintained the required minimum grade performance and has failed to meet the required conditions for continued probation.

A student's suspension status is permanently indicated on the official University of Colorado transcript. Suspended students are returned to good standing status only when their cumulative University of Colorado GPA attains a minimum 2.0.

There is no restriction on the amount of time a student can remain in the suspension status. Students on suspension are required to register manually (Web registration precluded) each semester and only with written permission of their advisor in the CLAS Advising Office.

CLAS students on suspension are restricted to the following CU course registration options for each fall/spring semester or summer term: (1) up to two on-campus courses, and (2) CLAS courses or downtown Denver campus core courses.

While on suspension, students must attain a minimum 2.3 semester GPA. Failure to satisfy this academic requirement for suspension will result in academic dismissal.

Dismissal

Students who fail to meet the semester GPA requirements while on suspension are dismissed from the University of Colorado. Students on academic dismissal are precluded from registering anywhere in the University of Colorado system for any semester or summer term.

EARNING ACADEMIC CREDIT—SPECIAL OPTIONS

Students in the college may earn credit toward a degree for knowledge gained prior to enrollment in the college or for knowledge gained outside traditional college courses. Specific programs by which credit is awarded are described below. In addition, credit may be earned for ROTC.

General information regarding these options can be found in the "Transfer of College-Level Credit" section of the Information for Undergraduate Students chapter of this catalog. Students should contact the CLAS Advising Office for specific details of these programs. For credit in a student's major or minor, the appropriate department must be consulted.

Advanced Placement/International Baccalaureate

Students who have taken advanced courses in high school and who have earned high scores on the Advanced Placement or International Baccalaureate standardized exams may be eligible for university credit. See the Information for Undergraduate Students chapter of this catalog under “Transfer of College-level Credit” for additional information. Individual departments establish advanced placement criteria for credit. Students should contact the department advisor for specific details concerning advanced placement credit.

Credit by Examination

Students with sufficient experience and knowledge may receive credit for a specific course by taking a comprehensive examination given by the faculty. Students should consult the Registration and Records chapter of this catalog for more information.

Internships or Cooperative Education

Undergraduate students may seek credit from an employment experience that contains academic content and is sponsored by a CLAS faculty member. Internships are helpful for career exploration early in a student’s academic career or for job experience after developing academic content in the major.

Students must have a minimum 2.75 cumulative GPA in a minimum of 15 semester hours of UCDHSC course work. A maximum of 3 semester hours of internship credit per semester and 9 semester hours overall is allowed toward the 120 semester hours applied toward graduation.

Undergraduate students should contact the Career Center for details about the internship contract and faculty sponsorship requirements.

Courses in the Professional Schools and in Physical Education

Students may count up to 24 semester hours of academic course work taken outside of liberal arts, such as business, engineering, architecture, journalism and education.

Up to 8 semester hours of activity courses in physical education will count toward the 120 hours required for the degree.

Independent Study

Qualified CLAS undergraduate students who seek to further their examination of knowledge outside the structured classroom are encouraged to register for independent study. Undergraduate independent study is a nonstructured, independent research project under the sponsorship and supervision of a faculty member. Students should consult with the faculty sponsor to discuss the project and initiate the independent study contract.

To qualify for independent study credit, students must have a declared major or minor in the discipline of the independent study project and a minimum cumulative UCDHSC GPA of 2.5. Those seeking senior-level independent study must have a minimum junior standing and sufficient course work to allow independent research in the discipline.

Faculty seeking to sponsor an independent study project must have either instructor or tenure-track rank. Faculty seeking to sponsor an independent study project as part of an undergraduate honors project must be tenure-track rank.

Independent study projects are typically awarded credit on a 3:1 (4:1 in summer) basis for contact hours per week to credit hours. That is, a 3-semester-hour independent study project typically requires 9 hours of effort per week over the semester.

College Level Examination Program (CLEP)

College of Liberal Arts and Sciences students may earn university credit by examination in subject areas in which they have obtained college-level proficiency. The use of CLEP subject examinations toward major, minor or certificate requirements is subject to a separate evaluation by the faculty advisor in the department or program. To receive academic

credit from CLEP, students must present official test results to the downtown Denver campus Office of Admissions. A maximum of 30 hours of CLEP credit will count toward the degree. See the “Transfer of College-level Credit” in the Information for Undergraduate Students chapter of this catalog for additional information.

Graduation Requirements

Undergraduate students graduating from the College of Liberal Arts and Sciences must fulfill requirements for the college and for the major department. Residence requirements apply to both college and major department. A checklist of graduation requirements follows in this section.

Students are responsible for knowing the requirements for their degree and for fulfilling these requirements. Upon completion of the college and major requirements, the student will be awarded the appropriate degree.

GENERAL REQUIREMENTS

- a minimum of 120 semester hours passed
- a minimum 2.0 cumulative GPA
- a minimum of 45 semester hours of upper-division work
- a minimum of 30 semester hours with letter grades at the downtown Denver campus
- fulfillment of all college and major requirements

Note: Not more than 24 hours outside the college (for example, business and engineering) can be applied toward the 120 hours required for the bachelor’s degree.

GENERAL EDUCATION

The general education graduation requirements are established by the CLAS faculty and combine specific requirements from (1) the downtown Denver campus core curriculum, (2) the CLAS graduation requirements and (3) foreign language proficiency.

MAJOR REQUIREMENTS

In addition to completing the college requirements outlined above, students must declare a major and fulfill all requirements of the major department. Department requirements include at least 30 semester hours of work in the major with a minimum grade of *C* (2.0) and at least 16 semester hours in the major at the upper-division level with a minimum grade of *C* (2.0). The GPA in the major must be at least 2.0.

The college places a maximum number of semester hours (required plus elective courses) in the major department, discipline or program as follows:

<i>Degree</i>	<i>Maximum Hours</i>
BA	48
BS	56

The department is responsible for determining when a student has successfully completed the major requirements and for certifying the completion to the dean of the college.

DECLARATION OF MAJOR

It is important that students declare a major as early as possible in order to receive proper advising toward departmental requirements. Students in the college must declare a major by the start of their junior year (greater than 60 hours). Transfer students to the college with junior or senior standing should declare a major in their first semester at UCDHSC. Students are allowed to change their major at any time.

RESIDENCE REQUIREMENTS

A minimum number of semester hours must be earned in residence in the College of Liberal Arts and Sciences. All students have college and major residence requirements. Students should check with their major department to ascertain residence requirements for the major.

UCDHSC Core Curriculum and CLAS

Philosophy of the core: The core curriculum of the downtown Denver campus provides all foundation, while allowing students flexibility based on their individual backgrounds and specific career
 A goal of the UCDHSC Core Curriculum is to engage students in developing sensitivity to diversity and

UCDHSC CORE CURRICULUM	CLAS GRADUATION REQUIREMENTS	TOTAL
<p>INTELLECTUAL COMPETENCIES 9-10 hours total Three lower division courses to develop reading, writing and quantitative proficiency. Specific core mathematics courses may be identified by a program to satisfy requirements in the major. Competency is satisfied by a letter grade of C- or higher in each course. Pass/fail grading is not an option for core.</p> <p style="padding-left: 20px;">ENGL 1020. Core Composition I 3 3 hours ENGL 2030. Core Composition II. 3 3 hours</p> <p>One mathematics course, chosen from: MATH 1010. Mathematics for the Liberal Arts. 3 3-4 hours MATH 1070. Algebra for Social Sciences and Business 3 MATH 1080. Polynominal Calculus 3 MATH 1110. College Algebra. 3 MATH 1120. College Trigonometry 3 MATH 1130. Precalculus Mathematics 4 MATH 1401. Calculus I. 4 MATH 2411. Calculus II. 4 MATH 2421. Calculus III 4 MATH 2830. Introductory Statistics 3</p>	<p>TAKE IN ADDITION TO THE UNIVERSITY CORE</p> <p>Communicative Skills 3 hours One course in communicative skills from the following list, with a minimum grade of C-: CMMU 2050. Business and Professional Speaking . . 3 CMMU 2101. Presentational Speaking. 3 CMMU 3120. Technical Communication 3 ENGL 2154. Introduction to Creative Writing . . . 3 ENGL 3001. Critical Writing. 3 ENGL 3084. Advanced Composition 3 ENGL 3154. Technical Writing 3 ENGL 3170. Business Writing. 3 ENGL 4190. Topics in Rhetoric and Writing 3 PHIL 2441. Logic and Language 3</p>	<p>12-13 hours</p>
<p>KNOWLEDGE AREAS 19-20 hours total Specific knowledge area core courses may be identified by a program to satisfy requirements in the student's major. Restricted disciplines have courses that cross knowledge area boundaries and each core course is restricted to one specific area.</p> <p>Arts and Humanities Two lower division courses outside the knowledge area defined by the student's major. For students not majoring in either arts or humanities, one course must be from the arts and the second from the humanities.</p> <p style="padding-left: 20px;">Arts 3 hours FA 1001. Introduction to Art. 3 PMUS 1001. Music Appreciation 3 THTR 1001. Introduction to Theater 3</p> <p style="padding-left: 20px;">Humanities 3 hours ENGL 1601. Telling Tales: Narrative Art in Literature and Film . 3 ENGL 2600. Great Works in British and American Literature . 3 ETST 2155. African American History 3 FR 1000. Intro. to Cultures of the French-Speaking World . . 3 GER 1000. Germany and the Germans 3 HIST 1361. U.S. History to 1876. 3 HIST 1362. U.S. History since 1876 3 HIST 1381. Paths to the Present I. 3 HIST 1382. Paths to the Present II 3 PHIL 1012. Introduction to Philosophy: Relationship of Individual to the World 3 PHIL 1020. Intro. to Ethics and Society: The Person and the Community 3 PHIL 2441. Logic and Language. 3 RLST 1610. Introduction to Religious Studies 3 RLST 2660. World Religions. 3</p> <p>Behavioral and Social Sciences Two lower division courses outside the knowledge area defined by the student's major. For students not majoring in either the behavioral or social sciences, one course must be from the behavioral sciences and one from the social sciences.</p> <p style="padding-left: 20px;">Behavioral Sciences 3 hours ANTH 1302. Introduction to Archaeology 4 ANTH 2102. Culture and the Human Experience 3 CMMU 1011. Fundamentals of Communication 3 CMMU 1021. Fundamentals of Mass Communication. 3 PSY 1000. Introduction to Psychology I. 3 PSY 1005. Introduction to Psychology II. 3</p> <p style="padding-left: 20px;">Social Sciences 3 hours ECON 2012. Principles of Economics: Macroeconomics . . . 3 ECON 2022. Principles of Economics: Microeconomics. . . . 3</p>	<p>Foreign Language—Second semester proficiency 0-10 hours Students must demonstrate foreign language proficiency through a second-semester-level course (1020) with a minimum grade of C- (1.70), satisfactory proficiency testing or completion of a second-year (Level II) high school course with a minimum grade of C- (1.70).</p> <p style="padding-left: 20px;">. 3 hours</p> <p>Humanities 3 hours 6 hours One additional course in English literature, history, philosophy, religious studies or French, Spanish or German culture/literature.</p> <p style="padding-left: 20px;">ENGL, HIST, FR, PHIL and SPAN majors may use a course in their major to satisfy this requirement.</p> <p>Behavioral Sciences 3 hours 6 hours One additional course in psychology, communication or anthropology EXCEPT: ANTH 1303, 3301 or 3512; PSY 2220.</p> <p style="padding-left: 20px;">ANTH, CMMU and PSY majors may use a course in their major to satisfy this requirement.</p> <p>Social Sciences 3 hours 6 hours One additional course in economics, ethnic studies, geography, (continues on next page)</p>	

Graduation Requirements (current as of April 2007)

UCDHSC undergraduate students a high-quality general education based on a liberal arts goals. The core curriculum develops multiple literacies, stimulates creative thinking and utilizes technology. developing their place in an urban environment as well as in the rapidly changing global environment.

UCDHSC CORE CURRICULUM	CLAS GRADUATION REQUIREMENTS	TOTAL
<p>Social Sciences—continued</p> <p>ENVS 1342. Introduction to Environment and Society 3 ETST 2000. Introduction to Ethnic Studies 3 GEOG 1102. World Regional Geography 3 GEOG 1602. Introduction to Urban Studies. 3 GEOG 2202. Natural Hazards 3 HBSC 2001. Intro. to Community and Population Health Science 3 P SC 1001. Introduction to Political Science: The Quest for Freedom and Justice 3 P SC 1101. American Political System 3 SOC 1001. Introduction to Sociology 3 SOC 2462. Introduction to Social Psychology. 3</p> <p>Biological and Physical Sciences, Mathematics 7-8 hours One lower division biological or physical science course with a laboratory. The second lower division course may be a science course with or without a laboratory, or may be a MATH course, excluding the course used for Intellectual Competencies mathematics proficiency. Math majors must take two lab sciences.</p> <p>ANTH 1303. Introduction to Biological Anthropology. 4 BIOL 1550. Basic Biology: Ecology and the Diversity of Life . 4 BIOL 1560. Basic Biology: From Cells to Organisms 4 BIOL 2051/2071. General Biology I/Laboratory 3/1 BIOL 2061/2081. General Biology II/Laboratory. 3/1 CHEM 1474. Core Chemistry: Chemistry for the Consumer . 4 ENVS 1042. Introduction to Environmental Sciences 4 GEOG 1202. Introduction to Physical Geography. 3 GEOL 1072. Physical Geology: Surface Processes. 4 GEOL 1082. Physical Geology: Internal Processes 4 PHYS 1000. Introduction to Physics 4 PHYS 1052. General Astronomy I 4 PHYS 2010/2030. College Physics I/Laboratory. 4/1 PHYS 2020/2040. College Physics II/Laboratory 4/1 PSY 2220. Biological Basis of Behavior (no laboratory) 3 MATH (chosen from Intellectual Competencies list, excluding course applied to that requirement)</p>	<p>(continued from previous page) health/behavioral sciences, political science, sociology or ENVS 1342, EXCEPT: ENVS 1042; ETST 2155; GEOG 1202, 3232 or 3240.</p> <p>ECON, GEOG, P SC and SOC majors may use a course in their major to satisfy this requirement.</p> <p>Biological and Physical Sciences, Math 3-4 hours One additional course in biology, chemistry, geology, physics, math (except MATH 3040 and course taken for math Intellectual Competency requirement). Also allowed are ANTH 3301 and 3512; ENVS 1042; GEOG 3232 and 3240.</p> <p>BIOL, CHEM, MATH and PHYS majors may use a course in their major to satisfy this requirement.</p>	<p>10-12 hours</p>
<p>CULTURAL DIVERSITY 3 hours One upper-division cultural diversity course from an approved list of courses concentrating on race and gender issues in the U.S.</p> <p>ANTH 3142. Cultural Diversity in the Modern World 3 CMMU 3271. Communication and Diversity 3 ECON 3100. Economics of Race and Gender. 3 ENGR 3400. Technology and Culture 3 ETST 3704. Culture, Racism and Alienation 3 ETST 3794. Ethnic Diversity in American Literature 3 HIST 3345. Immigration and Ethnicity in U.S. History 3 MGMT 4100. Managing Cultural Diversity 3 PHIL 3500. Ideology and Culture: Racism and Sexism 3 P SC 3034. Race, Gender, Law and Public Policy 3 P SC 3035. Political Movements: Race and Gender 3 PSY 4485. Psychology of Cultural Diversity. 3 RLST 4000. Religion and Cultural Diversity. 3 SOC 3020. Race and Ethnicity in the U.S. 3 THTR 3611. Drama of Diversity 3</p>		<p>3 hours</p>
<p>INTERNATIONAL PERSPECTIVES 3 hours One upper-division international perspectives course from an approved list of courses concentrating on international and global issues. A semester abroad may satisfy this requirement if preapproved and in a country where the language is not the native language of the student.</p> <p>ENGR 3600. International Dimensions of Technology and Culture 3 HIST 3899. Encounters in World History. 3 P SC 3022. Introduction to Comparative Politics 3 P SC 3042. Introduction to International Relations 3</p>		<p>3 hours</p>
<p>TOTAL HOURS IN CORE 34-36</p>	<p>Total Hours of CLAS Graduation Requirements 15-26</p>	<p>49-62</p>

Students transferring to the downtown Denver campus must pay particular attention to residence requirements. Students transferring academic credit from Metropolitan State College of Denver should see the CLAS Advising Office for special consideration of residence credit.

Residence credit hours are earned from CLAS courses taught by UCDHSC faculty while the student is enrolled as a degree student in the College of Liberal Arts and Sciences.

All CLAS students must meet college residence requirements.

1. Students must earn a minimum of 30 residence semester hours.
2. For students who exceed the minimum 30-hour residence requirement, a minimum of 21 out of the last 30 semester hours applied toward graduation requirements must be in residence.
3. Departments maintain a residence requirement for the major, minor and certificates. Students should consult with a faculty advisor concerning departmental residence requirements.

GRADUATION APPLICATION

Students are required to meet with their CLAS major and minor advisors at the beginning of the semester/term in which they plan to graduate to initiate the graduation verification process. CLAS advisors will distribute graduation applications to students who qualify, and then approve their Intent to Graduate online application. The deadline for filing a graduation application with the CLAS Advising Office is the published last day to drop/add courses in each semester. Failure to submit the Intent to Graduate and graduation application with the CLAS Advising Office will result in delayed graduation.

Academic Honors

COLLEGE HONORS

A student who performs superlatively in course work in the college will be awarded a bachelor's degree accompanied by the statement *with distinction*. To be eligible for graduation with distinction, a student must have completed a minimum of 45 semester hours at the University of Colorado (on any CU campus), including the final semester, with a GPA of at least 3.75. The 45 semester hours must be completed in the student's junior and senior years. A maximum of 6 semester hours may be completed with a grade of *P* (on *P/F* option) and included in the 45 semester hours.

DEPARTMENTAL HONORS

Departments in the college offer programs through which students can qualify for Latin honors: *cum laude*, *magna cum laude* or *summa cum laude*. Determination of the level of honors is made by the department. Detailed information can be obtained from the CLAS Advising Office or from the individual department.

DEAN'S LIST

Each semester, the college publishes and displays a Dean's List honoring students who demonstrate high scholastic achievement. To earn a place on the list, students must achieve a 3.75 GPA in all CU hours taken during the semester, including a GPA of at least 3.75 in all CLAS courses. To be eligible for the Dean's List, students must also complete, for letter grades, a minimum of 9 semester hours (6 semester hours in the summer session) in structured CLAS courses, excluding independent study, cooperative education and internships, by the end of the semester.

GRADUATE POLICIES AND PROCEDURES

Admission to Graduate Programs

Each graduate program defines its own admission standards and procedures based upon the general Graduate School guidelines. The criteria for admission shall be based on a combination of the following: minimum 2.5 GPA, standardized examinations, prior professional

experience, portfolios or other indicators. Regular admission to master's programs requires the completion of a bachelor's degree or master's degree from an accredited college or university at the time of matriculation or demonstration of the completion of work equivalent to that required of these degrees as specified by UCDHSC.

Students are admitted as regular or provisional students. Students receiving provisional admission are subject to certain requirements set out by their programs for a probationary period, not to exceed two years. The requirements may be more stringent, but provisional students must complete each semester's course work with a GPA of 3.0 or higher on all work taken.

International students must meet all requirements for regular admission as well as the requirements of the UCDHSC Office of International Education. These include: documentation in English or a certified English translation of the completion of a bachelor's degree, master's degree or the equivalent at the time of matriculation as evaluated by International Admissions; financial documents required by the UCDHSC Office of Admissions; a certified English translation of all records and references not in English; TOEFL scores above 500. See the International Education chapter of this catalog for more information.

TRANSFER CREDITS

Up to 9 hours can be transferred in from another graduate program (including hours taken at UCDHSC as a nondegree student with a grade of *B-* or better) and applied toward a CLAS master's degree. Courses taken while still an undergraduate student may be counted as pre-admission credits, but may not exceed 15 and cannot have been applied toward the undergraduate degree. Only courses numbered 5000 and above or classified as graduate level can be transferred. Up to 18 transfer semester hours or semester hours taken as a nondegree student may be applied toward a PhD degree. Courses taken more than 10 years prior to admission must be revalidated by the department or program.

RE-ADMISSION

If less than one calendar year has passed since a student in good standing was last enrolled in courses at UCDHSC, a student must only notify the program. If a student does not register for three consecutive terms, he/she needs to be re-admitted. This requires the student to submit Part I of the graduate admission form to their department or program; they may also have to pay the application fee. Those who have not been active for more than four years must complete the full application process.

PhD students may apply for a time extension or leave of absence as long as the total time to complete the degree does not exceed 10 years. Up to one year of an approved leave of absence may be taken without reapplying to the program upon return.

CHANGING DEGREE PROGRAMS

Students changing degree programs must be admitted by the new department. They must provide all items required of students applying for the first time, but may petition the program to which they were originally admitted to release their initial application materials to the new department. Any transfer of courses to the new degree program is at the discretion of the new department or program.

Advisors

Students should consult with their faculty advisors early and often. Each graduate program has a faculty coordinator who should be consulted about program requirements. This may be the same person as a student's faculty advisor. While students are strongly encouraged to meet with their faculty advisor every semester, they *must* meet with their faculty advisor and/or faculty coordinator at the beginning of their last semester to verify that all degree requirements have been met and to have their candidacy form approved and signed.

Graduate Courses

All courses that count toward a graduate degree must be approved by the degree-granting graduate program. At least 30 hours must be considered graduate rank (taught by graduate faculty). Eighteen hours are required at 5000-level or above with the remainder subject to departmental approval. Courses below the 4000-level can only be applied if taken beyond the 30-hour graduate minimum.

Students may use courses offered through the continuing and professional education program in the pursuit of graduate study only if they obtain proper academic approval from the graduate program.

Graduate students may take up to a total of 9 independent study credits under the direct supervision of a faculty member and with the approval of the CLAS graduate dean. However, it is important that students check with their programs concerning the maximum number of independent study credit hours that may count toward their degree, as this number may vary. The minimum UCDHSC GPA required to register for independent study credits is 3.0, and students must be admitted to a CLAS degree program. Each independent study project may be taken for 1-3 credits. Students use the special processing form to outline the project and how the grade is determined, which then must be approved by the supervising faculty member and CLAS graduate dean.

Graduate-level internship credit may be earned in some programs. Students must be admitted to a CLAS degree program, have completed a minimum of 6 semester hours and have a minimum 3.0 GPA. A maximum of 6 hours of internship credit is allowed, except where specified by the program (i.e., nonthesis clinical psychology).

Minimum GPA

A minimum cumulative GPA of 3.0 in courses applied to a degree program is required. Grades of *C* or better are accepted for most master's degree programs; however, some programs have more stringent grade requirements. Doctoral minimum grade is *B-*. Courses applied to a graduate degree may not be taken pass/fail.

Probation

If their cumulative GPA falls below 3.0 or they receive a grade lower than a *C*, the student will be placed on academic probation by the CLAS graduate dean. In the two semesters following placement on probation, the student's course work GPA must be at least 3.0, only in courses applicable to the degree and all grades at or above a *B* or the student will be suspended. At the end of two semesters after being placed on probation, the student must raise his/her cumulative GPA to 3.0 or he/she will be suspended. A student may petition the CLAS graduate dean for an extension of the probationary period in extenuating circumstances.

Incomplete Grades

When a student has special circumstances that make it impossible to complete course assignments, faculty members have discretion to award an incomplete grade, *IW* or *IF*. Incomplete grades are *not* awarded for poor academic performance or as a way of extending assignment deadlines. While not required, a CLAS course completion agreement form (available from the CLAS Advising Office) is strongly suggested when faculty and student agree on an incomplete grade.

To be eligible for an incomplete grade, students must:

- have successfully completed 75 percent of the course
- have special circumstances (verification may be required) that preclude the student from attending class and completing graded assignments
- make arrangements to complete missing assignments with the original instructor

Students are allowed three semesters (one year) to complete the requirements for the incomplete, after which the *IW* or *IF* reverts to a *W* or *F* grade on the student's transcript. Any request to allow a grade

change after the one-year period must be petitioned to the CLAS Academic Standards Committee.

Thesis/Project/Dissertation

Master's programs can be either thesis plan or nonthesis plan; nonthesis plans may include a project or report. No more than 6 thesis credits can be applied toward a master's program. Students may register for one or more thesis or project credits each semester up to the maximum.

For doctoral programs, a minimum of 5 hours and maximum of 10 hours of dissertation credit may be registered for in any semester. Students must receive approval from the dean of the Graduate School or college graduate dean to register for fewer than 10 dissertation hours. Doctoral candidates must be registered for dissertation credit each fall and spring semester following successful completion of the comprehensive examination. Students on leave of absence, approved by the program and filed with the Graduate School, do not have to register for dissertation credits.

A student does not have to register for thesis or dissertation credits after a successful final examination and thesis defense even if the final version of the thesis/dissertation and the record of the final examination are submitted to the Graduate School at a later date.

THESIS/DISSERTATION PROCEDURES

The thesis/dissertation must comply with specifications outlined in "Directions for Preparing Master's and Doctoral Theses," which can be downloaded from the CLAS Web site at <http://thunder1.cudenver.edu/clas/advising/grad/thesisGuidelines.html> and have received a preliminary thesis format approval from the Graduate School. The student's faculty committee must approve the final draft of the thesis, three copies of which must be filed with the Graduate School before graduation. The thesis binding fee must be paid when the thesis is submitted to the Graduate School.

RESEARCH PROTOCOL

Students doing research that involves gathering data from human subjects must have their research protocol approved by the Human Research Committee. Students doing research that uses animals in any form must have their research protocol approved by the Institutional Animal Care and Use Committee.

Graduation Application

Graduate students in a master's degree program initiate the graduation process through the CLAS Administration Office, CU-Denver Building 110. Doctoral candidates initiate the graduation process through the Graduate School, Lawrence Street Center, Suite 300. Both master's and doctoral candidates must follow deadline dates published in the online CLAS Graduate Advising Web site and on sheets available from departmental graduate advisors, the CLAS Administration Office or the Graduate School.

All graduate students must submit their Intent to Graduate online application the semester they intend to graduate, an application for admission to candidacy and a request for graduate examination/thesis defense.

ADMISSION TO CANDIDACY

The application for admission to candidacy form is available in the CLAS Administration Office, the Graduate School, the student's program office or online at the CLAS Graduate Advising site. This application must be signed by the student's advisor and the program coordinator, certifying that the student's work is satisfactory and that the program outlined in the application meets the requirements set for the student.

A student on probation is not eligible to be awarded a degree until he/she is removed from probation. A student with provisional admission status must be changed to regular admission status before admission to candidacy.

INTENT TO GRADUATE

Students must submit their Intent to Graduate online by the published deadline for the semester they expect to graduate. If the degree is not completed, they must resubmit the Intent to Graduate each subsequent semester until graduation. Failure to submit the Intent to Graduate will result in delayed graduation.

DEADLINES

The Graduate School deadlines (to file the application for admission to candidacy and Intent to Graduate, schedule and hold the comprehensive exam or thesis/project defense, submit thesis for format review and turn in the final thesis) are published each semester and are available from the CLAS Administration Office, departmental graduate advisors and the Graduate School. Deadlines and forms are also posted on the CLAS Graduate Advising Web site at: <http://thunder1.cudenver.edu/clas/advising/grad/graduation.html>. It is the student's responsibility to know and to adhere to these deadlines.

COMPREHENSIVE EXAMINATION OR THESIS/PROJECT/DISSERTATION DEFENSE

Students must be registered when they take the comprehensive examination or defend the thesis or project. This can be accomplished by registering to take a regular course, independent study/thesis/project credits or through candidate for degree registration. The examination may be oral, written or both.

The master's examination must be given by a committee of three members of the graduate faculty, all of whom sign an exam report form signifying that the student has passed the exam or defense. The committee chair must be a regular member of the downtown Denver campus graduate faculty, and the other members must hold at least a special graduate faculty appointment. PhD dissertation defense committees include four graduate faculty members, one of whom is from outside the primary department, and must unanimously pass the examination.

The record of the thesis defense must be approved by the student's faculty committee and filed with the CLAS Administration Office before graduation. In programs where the project/report defense counts as the comprehensive exam, this requirement applies to projects/reports as well.

A student who fails the comprehensive final examination or defense may retake the examination only once.

Time Limits

Master's degree students have a maximum of seven years from the date of the start of course work after admission to the program to complete all degree requirements. This limit can be extended by a leave of absence approved by the student's graduate program.

Doctoral students have eight years from the date of the start of course work after admission to complete all degree requirements for a PhD (10 years with approved leave of absence).

Individual graduate programs may have time limits that are more stringent.

Residency Requirements

A minimum of three semesters of work must be completed at UCDHSC.

ACADEMIC ETHICS AND PETITIONS

Academic Ethics

As members of the UCDHSC academic community, faculty and students accept the responsibility to maintain the highest standards of intellectual honesty and ethical conduct in all forms of academic work. While most violations center around cheating or plagiarism, the

UCDHSC Academic Honor Code on the downtown Denver campus is more comprehensive and includes the following categories: plagiarism, cheating, fabrication and falsification, multiple submission, misuse of academic materials, and complicity in academic dishonesty.

The CLAS Academic Ethics Committee, composed of faculty, students and staff, is charged with establishing academic ethics policies and, when necessary, evaluating ethics charges against students or faculty. Faculty and students should be familiar with the Academic Honor Code for the downtown Denver campus and the CLAS Academic Ethics Bylaws, available from the CLAS Advising Office, North Classroom, 2024, and online at the CLAS advising Web site.

Faculty who charge student(s) with a violation of the Academic Honor Code may lower a student's grade without review. Faculty bringing such charges are required to notify the student in writing. Students charged with an ethics violation continue in the class and may appeal the faculty decision to the CLAS Academic Ethics Committee. Students charged with a violation of the Academic Honor Code are encouraged to meet with an advisor in the CLAS Advising Office to review their rights and obtain assistance with procedures.

Petitioning for Exceptions to Standing Academic Policy

The CLAS Academic Standards Committee is responsible for the administration of the academic policies of the college as established by the faculty. This committee constitutes the bridge between the faculty in its legislative capacity and the students upon whom the legislation comes to bear. The committee is empowered to grant waivers of exemptions from and exceptions to the academic policies of the college. Students wishing to submit a petition to the committee should meet with the advising staff first to discuss the petition.

Students in the College of Liberal Arts and Sciences may appeal a grade. Every attempt is made to resolve grade disputes at the department level. However, unresolved grade issues may be appealed to the CLAS Academic Standards Committee and initiated through the CLAS Advising Office, North Classroom 2024, 303-556-2555. Details of the grade appeal policies are available in the CLAS Advising Office.

The Office of the Registrar establishes deadlines each semester for registering, adding courses, dropping courses, selecting the pass/fail option and withdrawing from the university. These deadlines are clearly identified on the Registrar's Web site at www.cudenver.edu/Registrar; click on Academic Calendar in the left column. Students seeking to waive these deadlines must petition the associate dean of the college. Instructions for deadline petitions are available from the CLAS Advising Office.

The Graduate Council reviews grievances related to procedural issues for graduate students that cannot be resolved at the college level.

PREPARATION FOR PROFESSIONS

Completion of the undergraduate curriculum of the College of Liberal Arts and Sciences can prepare students for a number of careers in the professions. See below for information on preparation for those professions most frequently asked about by students in the college. Students seeking information about other professions should contact the CLAS Advising Office, North Classroom, 2024, 303-556-2555.

Law

Students intending to enter a school of law may major in any field while completing the bachelor's degree, since law schools do not typically specify course work entrance requirements. More important to law schools are methods of study, critical thinking and communication skills.

Students interested in law school should consider the interdisciplinary minor in law studies (see "Law Studies" in the CLAS departmental descriptions). For further information, contact the CLAS Advising Office or one of the faculty advisors identified in the law studies minor.

Health Careers

The college has a faculty health careers advisor to assist students in preparing for careers in the following:

- dentistry
- medicine
- osteopathy
- veterinary medicine

Course programs also have been developed within the college to prepare students for the following specific careers within the general area of health sciences:

- child health associate
- dental hygiene
- medical technology
- nursing
- optometry
- pharmacy
- physical therapy
- physician assistant
- podiatry

Because the prerequisites for these health career programs are continually changing, students interested in pursuing one of these careers should contact the health careers advisor at 303-556-4350 for current requirements and for advising. See the Health Professions chapter of this catalog for further information.

Education

Liberal arts students seeking certification for teaching at the primary or secondary level must complete a baccalaureate degree plus approximately 40 semester hours of professional education from the School of Education and Human Development required for licensure.

Liberal arts students interested in a K–12 teaching career are encouraged to participate in the educational studies minor program or the K–12 teacher licensure program in collaboration with the School of Education and Human Development. See the “Educational Studies/Teacher Licensure” section in the CLAS departmental descriptions.

COLLEGEWIDE INTERDISCIPLINARY PROGRAMS

Most of the individual departments represented in the College of Liberal Arts and Sciences have numerous links with other disciplines; consequently, many faculty members encourage students to take courses in related disciplines. Students will often find opportunities to explore relationships among different disciplines while studying *within* traditional disciplines.

The college also has several established interdisciplinary programs leading to full undergraduate degrees, minors, certificates and graduate degrees. A brief description of each program follows; additional information can be found in their respective listings under the degree program descriptions.

Environmental sciences (minor, graduate certificate and MS degree) combines environmental courses from the social sciences, physical sciences, engineering, humanities and statistics. See “Geography and Environmental Sciences.”

The ethnic studies minor enables students to combine diversity courses from many social science and humanities disciplines.

The individually structured major (ISM) provides liberal arts students the opportunity to create their own interdisciplinary major centered around an academic or career theme.

The international studies major affords students the opportunity to learn about diverse cultures as they acquire the methodological tools to analyze the world from different academic disciplines. Study abroad experiences are strongly encouraged in this major.

Students interested in combining curricula in the arts, communication, history, literature, philosophy and theatre at the graduate level may be

interested in the master of humanities (MH) degree.

The master of integrated sciences (MIS) degree enables students to take courses in the sciences focusing on three options: applied science, computer science and mathematics.

Students in the master of social science (MSS) program develop their own interdisciplinary course of study in the social sciences (anthropology, economics, geography, history, political science, psychology and sociology), as well as related disciplines (such as English, philosophy, education, public affairs and architecture).

The minor in religious studies gives students the opportunity to study religious traditions through such interrelated disciplines as anthropology, literature, philosophy and psychology.

CENTER FOR COMPUTATIONAL BIOLOGY

Director: Stephen Billups

Telephone: 303-556-8897

The Center for Computational Biology is a multicampus center aimed at catalyzing interdisciplinary research and developing educational programs in computational biology throughout the University of Colorado system. The center brings together faculty and students from a variety of fields, including mathematics, computer science and the biosciences, to engage in interdisciplinary research aimed at advancing biological discovery through the development and application of computational tools and mathematical models and techniques. The center leads the development of new courses and educational programs for CU students. While coordinating degree programs at all levels, the CCB offers its own certificate in computational biology, a 15-semester-hour graduate certificate program that can be completed independently or in conjunction with the MS in applied mathematics. The certificate focuses on retraining a Colorado workforce that will be able to contribute to the economic growth resulting from new biotechnology companies. This includes a broad base of educational activities, such as internships, that form partnerships with companies and laboratories. All programs led by CCB initiative integrate education with research; students are introduced to research as part of their education.

Joint Degree Programs BA/MPA

The College of Liberal Arts and Sciences, in cooperation with the School of Public Affairs, offers students the opportunity to complete both a bachelor's degree and master's degree in five years rather than the usual six years. The program combines undergraduate general education and major studies with a specialized curriculum in public affairs and strives to develop intellectual and professional skills in a coordinated manner. Participating major programs in CLAS include communication, economics, political science and sociology, as well as others.

Students in the BA/MPA program must fulfill all of the graduation requirements for the College of Liberal Arts and Sciences; maintain a 3.5 undergraduate GPA in CLAS and have completed 75 percent of their undergraduate program to be eligible for admission; and enroll formally in the programs through the CLAS Advising Office. Students admitted to the program begin taking graduate-level courses in public administration during their senior year. These courses will count toward the bachelor's degree as electives. For further information, contact the CLAS Advising Office, 303-556-2555.

Women's and Gender Studies

Undergraduate Contacts: Marjorie Levine-Clark, 303-556-2896;

Gillian Silverman, 303-556-4529

Graduate Contact: Myra Bookman, 303-556-2496

Women's and gender studies are interdisciplinary programs that focus on gender issues in the humanities, natural sciences, and social sciences. At the graduate level, a women's studies certificate is available in the master of social science degree program.

At the undergraduate level, a women's and gender studies (WGST) minor is available. The following requirements (totaling 21 credits) must be completed for this minor:

1. Introduction to Women's Studies (ENGL 3400/HIST 3611).
This course uses literary and historical materials to investigate the meanings of gender and feminism since the 18th century in the U.S. and Britain.
2. WGST-related courses at the 3000 level or above (12 credits).
Students should take at least two courses in the arts and humanities and two in the social sciences. Three credits may be taken as independent study.
3. Service-learning component (3 credits). A WGST-related internship working in the community.
4. Senior project in Women's and Gender Studies (3 credits).
Research or creative work project done under the supervision of a faculty member on an independent study basis. The project should attempt to integrate the perspectives and approaches of more than one discipline.

TRANSFER POLICY

At least 10 credits of work (including the senior project) must be completed at UCDHSC in order to receive a minor in WGST.

WRITING CENTER

Director: Justin Bain

Office: Central Classroom, 206

Telephone: 303-556-4845

Web site: www.cudenver.edu/writing/

The Writing Center is operated by CLAS to assist members of the entire campus community—students, faculty, staff and alumni—in becoming stronger and more effective writers. Trained consultants work with our clients in one-on-one sessions at all stages of the writing process, from idea development through research to polished product. Computers are available for your use in the center. Online consultations as well as scheduled appointments and walk-in visits are available. For more information, see our listing in the Campus Life chapter of this catalog.

DEGREE PROGRAMS

ANTHROPOLOGY

Chair: Stephen Koester

Program Assistant: Connie Turner

Office: Administration Building, 270

Undergraduate Advisor: Christopher Beekman

Graduate Director: John Brett

Telephone: 303-556-3554

Fax: 303-556-8501

Web site: www.cudenver.edu/clas/anthropology/

Faculty

Professors: Stephen Koester, PhD, University of Colorado;

Lorna G. Moore, PhD, University of Michigan

Associate Professors: Tammy Stone, PhD, Arizona State University;

David Tracer, PhD, University of Michigan

Assistant Professors: Christopher Beekman, PhD, Vanderbilt

University; John Brett, PhD, University of California at San

Francisco and Berkeley; James Igoe, PhD, Boston University;

Charles Musiba, PhD, University of Chicago

Adjunct Faculty: David Ruppert, PhD, University of Arizona;

Jean Scandlyn, PhD, Columbia University; Sue Woods, PhD,

University of Colorado

Undergraduate Program

Anthropology is the study of human origins and evolution, the present conditions of human life and the prospects for the future. It considers human beings as biological and social entities and seeks to explain both diversities and commonalities of peoples and cultures. For undergraduates, anthropology provides a rich overview of human life. It also introduces them to a variety of skills and practical research methods anthropologists apply in laboratory and field studies of the ecological constraints on human existence, the cultural bases of individual and organizational behavior and the problems and circumstances relating to the maintenance of today's healthy, productive human action in general.

Anthropological training provides entry to a variety of careers in archaeology, museology, education, community service, public administration, public health, international affairs and business. The specific skills it provides are useful to students of environmental design, city planning, community development, the medical and nursing professions and allied health sciences, law, public affairs and secondary education.

GENERAL REQUIREMENTS FOR THE MAJOR

Students majoring in anthropology for the BA degree must declare such by the time they have completed 60 semester hours. Majors must complete a minimum of 40 semester hours in anthropology with a grade of C (2.0) or better in each course. At least 24 hours must be at the upper-division level and a minimum of 21 semester hours must be taken from downtown Denver campus faculty. (Note that all upper-division courses have lower-division prerequisites.)

<i>Required anthropology courses</i>	<i>Semester Hours</i>
ANTH 1302. Introduction to Archaeology	4
ANTH 1303. Introduction to Biological Anthropology	4
ANTH 2102. Culture and the Human Experience	3

Choose three:

ANTH 3101. Foundations of Cultural Anthropology	3
ANTH 3121. Language and Communication	3
ANTH 3301. World Prehistory	3
ANTH 3512. Human Evolution	3

Recommended courses

ANTH 4050. Quantitative Methods in Anthropology	3
ANTH 4810. Integrating Anthropology	3
Total	20

The department now offers an accelerated joint BA/MA degree option. See "Plans of Study" in the "Graduate" section for details.

REQUIREMENTS FOR DEPARTMENTAL HONORS

Students wishing to graduate with departmental honors in anthropology must have a cumulative GPA of at least 3.5 with a 3.7 minimum GPA in anthropology for *cum laude* (3.8 for *magna cum laude* and 3.9 for *summa cum laude*), as well as prepare an honors thesis of high quality. They must also take ANTH 4810. Integrating Anthropology. Interested students should inquire in the department no later than two semesters before graduation.

REQUIREMENTS FOR THE MINOR

A minimum of 18 semester hours in anthropology must be completed with an average of C (2.0) or better. Nine of the 18 hours must be upper division and 9 hours must be taken from downtown Denver campus faculty. At least three of the following courses must be taken:

Required Courses

Choose three:

ANTH 1302. Introduction to Archaeology	4
ANTH 1303. Introduction to Biological Anthropology	4
ANTH 2102. Culture and the Human Experience	3
ANTH 3101. Foundations of Cultural Anthropology	3

Semester Hours

ANTH 3121. Language and Communication	3
ANTH 3301. World Prehistory	3
ANTH 3512. Human Evolution	3

Graduate

The unique intellectual challenge of anthropology is to integrate knowledge from many disciplines for a global understanding of cultural and biological diversity in the past and the present. Individual courses in cultural and biological anthropology and archaeology cut across lines of the humanities and social and natural sciences. Because of this integrative perspective on the human condition—and the training provided in objectively assessing cultural patterning and social interaction—anthropology graduates have a versatile base for career development. In particular, the training you'll receive in the department provides entry to careers in archaeology, education, community service, development, international affairs and business, public administration and public health. The specific skills gained are also useful to students of city planning, community development, environmental design, law, the health professions (including medicine and nursing), public affairs and secondary education.

SPECIALTIES AND TRACKS

UCDHSC's Department of Anthropology provides an outstanding graduate education in anthropology, giving students a broad yet thorough grounding in the three major subfields of anthropology, as well as specialized instruction in one or more research orientations and/or geographic area concentrations in which department faculty have substantial expertise. The graduate faculty in anthropology are particularly known for their research and publications in the areas of applied medical anthropology, biological anthropology, ethnicity, evaluation methods, food and nutrition, functional morphology, human ecology, political ecology and globalization, primate evolution, primate behavior, prehistoric political economy, sociopolitical evolution, Southwestern and Mexican archaeology and urban and community anthropology. Area studies emphases include Asia, Latin America and the Arid American West. Students also have opportunities to study abroad, to participate in an archaeological field school and to gain international research experience.

Topical Concentrations

- medical anthropology*
- archaeological studies
- biological anthropology
- sustainable development and political ecology

Area Concentrations

- Asia
- Latin America
- arid American West

* Students choosing to specialize in medical anthropology may also pursue an integrated MA/PhD in health and behavioral sciences, an interdisciplinary program that includes medical anthropology, as described on the following page.

PLANS OF STUDY

MA students may pursue Plan I (thesis option) or Plan II (nonthesis option).

- Plan I: 33 semester hours of course work, of which 4-6 will be allocated to a thesis (through thesis hours). The thesis may consist of a report of original research, a comprehensive evaluation of existing research or a report on an internship experience in which disciplinary theory is applied to a practical question or series of practical questions.

- Plan II: 39 hours of course work. Your plan of study, including a statement of proposed course work and thesis subject if applicable, must be submitted to and approved by your advisor by the third semester in residence.

The balance of courses (9-21 semester hours, depending on whether you pursue Plan I or II) should be used to develop the research or area concentration chosen from those available in the department. Up to 9 hours of course credit (at the 4000 level or above) may be in disciplines outside of but related to anthropology with the approval of your graduate advisor.

The Department of Anthropology offers an accelerated BA/MA degree option (Plan III) for accomplished undergraduate students. This option permits students to apply some courses taken at the undergraduate level toward meeting knowledge area requirements (research concentrations) for the MA degree. It also permits students to begin taking graduate courses (at the 5000 level or above), up to a maximum of 9 hours, while still considered by the university to be an undergraduate student. The accelerated degree option is designed to permit the full-time student to complete a full BA and MA program in anthropology in 10 semesters (assuming matriculation as a freshman and full-time residence). *The accelerated degree option is only available to students who complete or intend to complete, at least 30 semester hours from UCDHSC anthropology faculty.* Courses taken at any other institution, including common pool courses taught by MSCD faculty, cannot be applied toward completion of accelerated degree requirements. Transfer students may be required to take additional anthropology course work to qualify for the Plan III option.

Plan III students must complete the same core requirements as Plan I and Plan II students. To graduate in one year postbaccalaureate, admitted Plan III students should plan on completing at least two of the required core seminar courses during their senior undergraduate year. Students who are accepted to Plan III, but who do not eventually meet residency or minimum GPA requirements, will be transferred to Plan I or II options.

- Plan III: 30 semester hours of course work taken at the graduate (5000 or above) level, inclusive of thesis hours. The student is *encouraged* (though not required) to take at least 9 graduate-level hours while still considered an undergraduate. During the final semester of residence as a graduate student, the student must take and pass the department's comprehensive examination (described below). If a student wishes to complete a thesis, 4-6 hours of the 30 required course hours will be devoted to thesis work. Up to 3 thesis hours may be taken before the student meets requirements for the BA degree. See the department's Web site for a discussion of the relative advantages and disadvantages of pursuing the thesis option.

All graduate courses taken by students in the accelerated degree option must be completed with a grade of *B-* or better.

There are special admission and application requirements for the accelerated degree option (Plan III). Please see the "Application Process" later in this section.

Students must maintain an overall GPA of 3.0 to remain in good standing and receive a grade of *B-* or better in a course to have it count toward graduation. The Graduate School on the downtown Denver campus requires a minimum of two full years devoted to advanced study, but students are strongly discouraged from spending more than four years. Generally, three years of full-time participation are required to complete the MA degree. Most of our students attend part time and thus take slightly longer to complete their degree program. All students are required to pass a six-hour written comprehensive examination, usually taken after core course work has been completed.

Your graduate anthropology education begins by taking ANTH 5810. Integrating Anthropology, plus two core courses that together encompass contemporary theory in anthropology. These are followed by three courses in research methods and techniques, including statistics. After completing this core, you will select from among the specialized elective courses in the research and/or area concentrations described in more detail below. You will work closely with an advisor in selecting the range of courses appropriate both to a problem orientation and to your career objectives.

Tier One: A Survey of Theoretical Perspectives in Contemporary Anthropology

<i>Required in fall of first year</i>	<i>Semester Hours</i>
ANTH 5810. Integrating Anthropology.....	3
Choose two:	
ANTH 6103. Current Theory in Ethnography.....	3
ANTH 6307. Contemporary Perspectives in Archaeology*.....	3
ANTH 6503. Biological Anthropology Core I [†]	3
Total	9

Tier Two: Methods of the Discipline

All students must complete or demonstrate competence in subjects covered by the following:

ANTH 5053. Quantitative Methods in Anthropology.....	3
Choose two:	
ANTH 6063. Qualitative Research Design and Methods	3
(same as HBSC 7051-3)	
ANTH 6317. Archaeological Research Design and Analysis*.....	3
ANTH 6513. Biological Anthropology Core II [†]	3
Total	9

* *Students who wish to apply for a teaching assistantship in archaeology must have completed this course.*

[†] *Students who wish to apply for a teaching assistantship in biological anthropology must have completed this course.*

Tier Three: Research or Area Concentrations (9-21 semester hours)

You will round out your program by selecting from the diverse range of courses offered in the department according to your particular interests in anthropology, your career goals and your plans for future graduate study. A sampling of possible elective courses appears below under area concentrations. You may take courses in one or more concentrations. The courses listed are suggestions only; you must work closely with your advisor in constructing your particular program of study.

Medical Anthropology

Medical anthropology is a subdiscipline of anthropology that includes the study of all aspects of health, illness and disease in human communities and populations. It draws on all of the perspectives that distinguish anthropology as a unique discipline: the analysis of human evolution and adaptation; cultural development, expressions and variability; and historical change and continuity. Medical anthropology takes as its subject a broad range of specific topics, including the study of healthcare systems, factors that affect the distribution and determinants of disease in populations, maternal and child health, nutrition and food habits, human development, political ecology, health policy and language and communication in healthcare contexts. Faculty in the department emphasize the applied dimensions of medical anthropology, preparing students for careers in public health, healthcare and health sciences research. Courses in the department are complemented by electives in other departments (sociology, biology, psychology, history, geography) and programs on the downtown Denver campus (health administration, public affairs, education) and at the Health Sciences Center Campus (Schools of Medicine, Pharmacy and Nursing).

Students wishing to pursue doctoral-level study in medical anthropology may do so by applying to the interdisciplinary PhD in health and behavioral sciences (www.cudenver.edu/Academics/Colleges/CLAS/HBSC/default.htm) and choosing the medical anthropology emphasis. This program provides advanced, research-based training in the application of the social and behavioral sciences to health issues and leads to the doctor of philosophy (PhD) in health and behavioral sciences (HBSC).

Students have two avenues to the program, both competitive: regular admission to the HBSC program following completion of the MA in anthropology (with an emphasis in medical anthropology) or admission to the articulated anthropology/HBSC program. The articulated program

permits students to develop master’s-level expertise in anthropology and medical anthropology and, upon successful completion of the core MA requirements and the department’s comprehensive examination, to move directly into the HBSC program without going through a separate admissions process. The articulated program is designed for students with exceptional academic backgrounds. For details of admission to the articulated program, contact the program directly:

Health and Behavioral Sciences Program
 University of Colorado at Denver and Health Sciences Center
 Campus Box 188
 P.O. Box 173364
 Denver, CO 80217-3364
 303-556-4300
www.cudenver.edu/clas/hbsc

<i>Courses</i>	<i>Semester Hours</i>
ANTH 5014. Global Health Studies I: The Biocultural Basis of Health	3
ANTH 5024. Global Health Studies II: Comparative Health Systems.....	3
ANTH 5030. Ethnobiology	3
ANTH 5040. Anthropology of Food and Nutrition.....	3
ANTH 5060. Evolutionary Medicine	3
ANTH 5090. Political Economy of Drug Culture.....	3
ANTH 5150. Human Biocultural Adaptability	3
ANTH 5260. Human Reproductive Ecology	3
ANTH 5560. Human Ecology.....	3
HBSC 7310. Environmental Epidemiology.....	3

Note: Students are also strongly encouraged to take elective courses in public health, epidemiology and biostatistics, which are available in the Department of Biometrics and Preventive Medicine on the Anschutz Medical Campus. See the Health Professions chapter of this catalog for further information.

Archaeological Studies

The archaeological studies program concentrates on the study of past human societies using archaeological data collected in field and museum settings. While a quantitative and scientific approach is emphasized, the theoretical perspectives employed also draw heavily from political economy and cultural ecology. The department offers a variety of theoretical, methodological and area courses, which may be supplemented by others in the geography and environmental sciences and history departments. Internships are available in local museums and historic preservation offices in the Denver metropolitan area.

<i>Courses</i>	
ANTH 5210. Archaeology of the American Southwest	3
ANTH 5320. Archaeology of Mexico and Central America.....	3
ANTH 5330. Lithic Analysis	3
ANTH 5570. Landscape Archaeology.....	3
ANTH 5910. Field Experience in Archaeology.....	3-6
GEOG 5060. Remote Sensing I.....	3
GEOG 5080. Introduction to GIS	3
GEOG 5220. Environmental Impact Assessment	3
HIST 5231. History in Museums	3
HIST 5232. Historic Preservation.....	3
HIST 5234. Introduction to Public History	3

Biological Anthropology

The biological anthropology concentration is concerned with modern human biological diversity and the past evolutionary history that has led to such diversity. Students in this concentration develop a firm understanding of the evolutionary processes that lead to physical and behavioral variation in humans and nonhuman primates. The concentration also emphasizes the theoretical and quantitative methods used to explore and explain this variation. Students may take courses in diverse

areas including evolutionary biology, genetics, ecology, ethnobiology, epidemiology, nutrition, medical anthropology, paleoanthropology, paleontology and primatology. Because biological anthropology is multidisciplinary in nature, students are encouraged to consider courses offered outside the department.

<i>Courses</i>	<i>Semester Hours</i>
ANTH 5014. Global Health Studies I: The Biocultural Basis of Health	3
ANTH 5030. Ethnobiology	3
ANTH 5040. Anthropology of Food and Nutrition	3
ANTH 5060. Evolutionary Medicine	3
ANTH 5150. Human Biocultural Adaptability	3
ANTH 5500. Advanced Issues in Human Evolution	3
ANTH 5520. Human Biological Variation	3
ANTH 5530. Anthropological Genetics	3
ANTH 5550. Primate Comparative Anatomy	3
ANTH 5560. Human Ecology	3
ANTH 5580. Neanderthals and the Origin of Modern Humans	3
ANTH 5640. Darwinian Approach to Human Behavior	3
BIOL 5074. Human Reproductive Biology	3
BIOL 5134. Human Genetics	3
BIOL 5494. Population and Evolutionary Genetics	3
HBSC 7031. Human Ecology and Environmental Adaptation	3
HBSC 7310. Environmental Epidemiology	3

Sustainable Development and Political Ecology

This concentration provides a critical, multicultural and multidisciplinary perspective on issues of development and resource conservation, with a strong emphasis on the integration of theoretical knowledge with field-based training opportunities. Three major themes are addressed within this concentration:

- (1) the types of resource management systems present in the world and their relationship to particular ecosystems
- (2) the types of knowledge systems and ideas associated with this diverse array of resource management systems, environmental knowledge and theoretical perspectives included
- (3) the culture of institutions—ranging from small-scale NGOs to the World Bank—that design and implement conservation and development.

A central goal of this emphasis is to provide students with the information, opportunities and resources required for pursuing a wide variety of career options in conservation and/or development. In addition to offering the following courses, the department encourages students to develop a specialized skill in conjunction with other departments and schools including areas such as GIS mapping (geography), ecology (biology/anthropology), legal and policy issues (political science, School of Public Affairs), land use (geography, School of Public Affairs) and research/evaluation methodologies (anthropology).

<i>Courses</i>	<i>Semester Hours</i>
ANTH 5030. Ethnobiology	3
ANTH 5070. Culture of Development and Globalization	3
ANTH 5170. Culture and the Environment	3
ANTH 5220. Community in Global Context	3
ANTH 5450. Development and Conservation: Contemporary Issues	3
ANTH 5460. Development and Conservation: Theory and Practice	3
Other courses in consultation with faculty advisor.	

Area Studies Concentrations

You may pursue an area studies concentration in conjunction with one or more of the research concentrations described above. Such an area concentration prepares graduates for research and employment centered in or related to a particular area of the world while also allowing students in Denver to bring a valuable crosscultural perspective to all

of their course work. UCDHSC now offers many opportunities to study abroad including both long- and short-term study trips and field experiences. Area study courses in Asia, Latin America and the arid American West are offered by the department, as well as in the departments of geography and environmental sciences, history, political science and fine arts.

<i>Asian Studies Courses</i>	<i>Semester Hours</i>
ANTH 5995. Travel Study: Cultures of the Himalayas	3-9
ANTH 5995. Travel Study: Arts of Self and Society	3-9
in Contemporary China	
F A 5730. Arts of Japan	3
F A 5750. Arts of China	3
HIST 5420. Traditional China: China to 1600	3
HIST 5421. Modern China	3
HIST 5431. Modern Japan	3
P SC 5615. Seminar: Chinese Development	3

Latin American Studies Courses

ANTH 5320. Archaeology of Mexico and Central America	3
ANTH 5740. Ethnography of Mexico and Central America	3
HIST 5411. Modern Mexico	3
HIST 5412. Mexico and the United States:	3
People and Politics on the Border	3
P SC 5135. Seminar: Political Economy of Latin America	3
SPAN 5220. Mexican Literature	3

Arid American West Studies Courses

ANTH 5210. Archaeology of the American Southwest	3
ANTH 5910. Field Experience in Archaeology	3-6
HIST 5227. American West	3
HIST 5229. Colorado Historic Places	3
HIST 5230. Women in the West	3

Application Process

Application is open to holders of a BA, BS or higher degree in any field, and we welcome applications from individuals pursuing particular interests and careers, especially those related to one of the areas of concentration noted above. The departmental deadline for receipt of all application materials is **February 15** for admission in the following fall.

Acceptance to the program is competitive and based on:

- an undergraduate record of good quality (3.0 GPA or higher for all undergraduate studies)
- prior training in anthropology
- GRE scores (verbal, analytic and quantitative)
- three letters of recommendation
- a statement of the applicant's purpose in pursuing the degree
- two copies of transcripts from all undergraduate/graduate institutions attended

If you have no prior anthropology training, we encourage you to gain the necessary background as a nondegree student before applying to the graduate program. Prior training required in anthropology corresponds to that required for the minor, consisting of approximately 18 semester hours and including introductory courses in biological/physical anthropology, cultural anthropology and archaeology. Students with exceptional qualifications may be admitted without prior anthropology training but will be required to make up deficiencies without graduate credit during the course of their graduate study.

Accelerated BA/MA Option application:

Students may apply for the Plan III option when the following *minimum* criteria are met. Please note that admission is not automatic but is competitive, based on a review of the application, statement of purpose, transcripts and letters of recommendation. Minimum criteria are:

- 60 semester hours of undergraduate course work at UCDHSC (i.e., junior-level standing)
- 24 semester hours of anthropology course work, and be enrolled in

and intend to complete a minimum of 30 semester hours from UCDHSC faculty in anthropology by the end of the semester in which application is made

- an undergraduate record of good quality (overall minimum GPA of 3.25; minimum GPA of 3.5 in anthropology)

To apply, students must complete an application available in the Department of Anthropology; prepare statement of purpose or essay describing academic interests, objectives and career goals; and submit letters of recommendation from at least two UCDHSC anthropology faculty.

Financial Aid

The department offers limited tuition assistance, teaching assistantships and research assistantships for graduate students on a semester-by-semester basis. Appointment is competitive and is typically based on a student's academic credentials, GRE scores and preparation in anthropology. Contact the department for details. For information on grants, federal work-study programs, scholarships and loans, contact the UCDHSC financial aid office.

BIOLOGY

Chair: Leo P. Bruederle

Assistant Chair: Timberley M. Roane

Program Assistant: Barbara Schmidt

Administrative Assistant: Jacki Craig

Undergraduate Major Advisors: Leo P. Bruederle, Kimberley F. Regier

Health Careers Advisors: Charles A. Ferguson, Kent Nofsinger

Graduate Coordinator: Timberley M. Roane

Lab Coordinator: James Salmen

Office: North Classroom, 3014

Telephone: 303-556-8440

Fax: 303-556-4352

Web site: www.cudenver.edu/clas/biology/

Faculty

Professors: Bradley J. Stith, PhD, Washington State University;

Diana F. Tomback, PhD, University of California, Santa Barbara

Associate Professors: Leo P. Bruederle, PhD, Rutgers, The State University at New Brunswick; Greg Cronin, PhD, University of North Carolina at Chapel Hill; Charles A. Ferguson, PhD, University of Colorado; Timberley M. Roane, PhD, University of Arizona

Assistant Professors: Michele Engel, PhD, University of California, Los Angeles; Michael J. Greene, PhD, Oregon State University; Lisa Johansen, PhD, University of Alabama at Birmingham

Instructors: Tod Duncan, PhD, University College, London (U.K.); Cheri A. Jones, PhD, University of Florida; Kent Nofsinger, MD, University of Kansas School of Medicine; Kimberly F. Regier, MA, University of Colorado

Adjunct Faculty: Marc L. Goalstone

Emeritus Faculty: Gerald Audesirk, PhD, California Institute of Technology; Teresa E. Audesirk, PhD, University of Southern California; Georgia E. Lesh-Laurie, PhD, Case Western Reserve University

Undergraduate

The study of biology introduces students to the diversity of life, the chemical processes and adaptations shared by species and the interaction of species with their environment. By studying the differing fields of biology, the student begins to appreciate the characteristics of life and the remarkable evolutionary history leading to the present forms, and to understand the advances in biological technology that are transforming our society. Knowledge of the interrelationships between populations

and their habitats leads to respect, concern and a sense of responsibility for our environment.

The biology curriculum is designed to provide a firm foundation in the life sciences. As such, graduates are well prepared for graduate study in biology, professional schools in the health careers, a variety of biologically oriented jobs in government and industry, teaching at various educational levels, and, as with any liberal arts major, for life itself. Students planning on a teaching career should consult the School of Education & Human Development for information on teacher licensure.

REQUIREMENTS FOR THE MAJOR

Biology students must declare their major by the time they have taken 60 semester hours. A minimum of 36 hours of biology must be completed, of which 15 hours are at the upper-division level and taken in residence with UCDHSC downtown Denver campus biology faculty. Included in the 36 hours are 22 semester hours of biology core courses, required of all majors. At least 14 hours of upper-division biology elective courses beyond the core are required to fulfill the remaining hours, including one 4000-level course. A maximum of 6 semester hours of independent study (BIOL 3840/4840) **or** a combined maximum total of 6 hours of independent study (3 hours) and internship/cooperative education (BIOL 3939) (3 hours) can be counted toward the 14 hours of upper-division electives in biology. The minimum grade in each UCDHSC biology course is C- (1.7). However, a GPA of 2.5 in biology courses taken at UCDHSC is required to graduate. To ensure a proper background for the study of biology, majors are required to pass 31 hours of course work in ancillary disciplines, including two semesters of general chemistry laboratory, for which the minimum grade is C- (1.7). MATH 2830 and MATH 4830 may substitute for Calculus I (MATH 1401). The following biology and ancillary courses are required and must be taken for a letter grade:

<i>Biology Core Courses</i>	<i>Semester Hours</i>
BIOL 2051. General Biology I	3
BIOL 2071. General Biology Laboratory I	1
BIOL 2061. General Biology II	3
BIOL 2081. General Biology Laboratory II	1
BIOL 3411. Principles of Ecology	
—or—	
BIOL 3412. Fundamentals of Applied Ecology	3
BIOL 3611. General Cell Biology	3
BIOL 3832. General Genetics	4
One of the following structure/function courses:	
BIOL 3225. Human Physiology	4
BIOL 3244. Human Anatomy	4
BIOL 3654. General Microbiology	4
BIOL 4335. Plant Science	4
Total biology core	22

<i>Biology elective courses</i> (3000 or 4000 level)	14
Total biology (including biology core and electives)	36

Ancillary Core Courses

CHEM 2031. General Chemistry I	3
CHEM 2038. General Chemistry Laboratory I	1
CHEM 2061. General Chemistry II	3
CHEM 2068. General Chemistry Laboratory II	2
CHEM 3411. Organic Chemistry I	4
CHEM 3421. Organic Chemistry II	
—or—	
CHEM 3810. Biochemistry	4
MATH 1401. Calculus I	4
PHYS 2010. College Physics I	4
PHYS 2030. College Physics Laboratory I	1
PHYS 2020. College Physics II	4
PHYS 2040. College Physics Laboratory II	1
Total ancillary core	31

The following courses will **not** count toward the BS in biology:

- BIOL 1136. Human Biology
- BIOL 1550. Basic Biology: Ecology and Diversity of Life
- BIOL 1560. Basic Biology: From Cells to Organisms

ADDITIONAL INFORMATION

Students with transfer credits in biology from other institutions should consult an undergraduate major advisor in the department for transfer credit and/or proper placement. Transfer credit from community college courses will not typically fulfill the requirements for upper-division credit hours or electives. However, students who have taken both semesters of anatomy and physiology at a community college *may* be given credit for having satisfied the structure/ function requirement for the major. Biology students seeking credit through AP (Advanced Placement), CLEP (College Level Examination Program) and/or IB (International Baccalaureate, Diploma Programme) should refer to the transfer table in the Information for Undergraduate Students chapter of this catalog, as well as consult an undergraduate major advisor in the department for proper placement.

Biochemistry as a Biology Elective. Students who have taken both semesters of organic chemistry (CHEM 3411 and CHEM 3421) may use either biochemistry (CHEM 3810) or 4 hours of the general biochemistry series (CHEM 4810 and 4820 combined) as one of their required upper-division biology electives.

Departmental Honors. Departmental honors will be awarded to students based on their GPA in classes taken from downtown Denver campus faculty. The following minimum GPA must be met both for all courses taken at UCDHSC (overall GPA) and for biology courses alone (biology GPA): *cum laude*, 3.5; *magna cum laude*, 3.7; *summa cum laude*, 3.9.

Organismic Track. The organismic track was developed for biology majors interested in an integrative and holistic background in biology, which includes the diversity of organisms, how they evolved, how they function and how they interact with their environment. In addition to the core requirements for the biology major, students are expected to select one course from each of four knowledge areas when completing their upper-division electives. These areas are: (1) molecular biology and heredity, (2) cell biology, (3) diversity of form and function and (4) ecology and evolution. This track is particularly valuable for students who want to pursue advanced degrees in the biological sciences or want to teach biology. Interested students should contact an undergraduate major advisor in the department for additional information and guidelines.

Biology Research Scholars. The biology faculty encourages students to pursue research as part of their undergraduate education. Students who excel in both course work and research will be recognized as UCDHSC Biology Research Scholars. To qualify as Biology Research Scholars, students must fulfill all of the following requirements: (1) achieve a minimum GPA of 3.5 in courses taken from downtown Denver campus faculty; (2) participate in a research project consisting of a minimum of 6 semester hours of independent study, taken over at least two semesters; (3) write a paper describing the rationale, methodology and results of their research; and (4) present a seminar or poster based on their research. Students who wish to become involved in research should contact Dr. Michele Engel no later than their junior year.

REQUIREMENTS FOR THE MINOR

For a biology minor, students must pass all biology core requirements (22 hours), including a minimum of 9 hours from downtown Denver campus biology faculty, with a grade of *C* (2.0) or better, as well as CHEM 2031, 2038, 2061 and 2068 with a minimum passing grade of *D-*.

BIOTECHNOLOGY CERTIFICATE

To serve the needs of students who wish to obtain recognition for the acquisition of specialized skills in biology and to prepare students for graduate school, health careers and jobs in industry, the Department of Biology offers a certificate program in biotechnology. Upon completion of the required courses (17 to 18 semester hours), including independent study or internship, the student will be awarded a certificate and receive the biotechnology certificate on their transcript. The certificate may be completed in addition to an undergraduate or graduate degree or as a stand-alone certificate. A complete description of the biotechnology certificate can be found on the biology Web site: www.cudenver.edu/cas/biology/bioTechCert.html.

Graduate

The master's program in biology is designed to prepare graduates for research and teaching positions, employment in business and industry, advanced training as secondary school science teachers and for graduate work at the doctoral level. The MS in biology may be obtained with an emphasis in ecology, genetics, plant systematics, evolutionary biology, neurobiology, microbiology, animal behavior, cell biology or molecular biology.

REQUIREMENTS FOR ADMISSION

Applicants must hold a baccalaureate degree from an accredited college or university, awarded within the preceding nine years. Students whose biology degree was awarded 10 or more years prior to entrance to the UCDHSC program will be expected to retake or show competence in the biology core courses. Successful applicants generally have earned an overall GPA of 3.0 or better. Most applicants have an undergraduate major in biology. Students entering the master's program in biology must have completed the equivalent of a minor in biology (see above); although a deficit of one course is allowed, this must be completed within the first semester of entering the master's program and will not apply toward the degree. The GRE (general test only) is required of all applicants, with scores above the 50th percentile required on all parts. Applications, which must include the biology supplemental form, are submitted directly to the biology graduate coordinator on the downtown Denver campus.

DEGREE REQUIREMENTS

All course work taken within the Department of Biology and applied toward the degree must be 5000 level or above. With the advisor's and/or graduate committee's approval, a maximum of 6 semester hours of course work at the 4000 level taken outside the department may be applied toward the degree. At least 18 semester hours must be taken from faculty in the Department of Biology at UCDHSC. Two types of degree plans are offered:

Plan I (with thesis) requires 30 semester hours including required thesis hours and two semesters of BIOL 6655 (1 semester hour each).

Plan II (without thesis) requires 32 semester hours including two semesters of BIOL 6655 (1 semester hour each).

There is no core of required courses. A course plan is developed by the student and major professor and approved by the student's graduate committee.

ADDITIONAL INFORMATION

The student is referred to the biology department Web site or to the biology master's degree program brochure, available in the admission office or the biology department. Specific questions relating to the student's background and specific program needs should be directed to the biology graduate coordinator.

CHEMISTRY

Chair: Mark Anderson
Program Assistant: Laura Cuellar
Office: North Classroom, 3002
Telephone: 303-556-4885
Fax: 303-556-4776
Web site: www.cudenver.edu/chemistry

Faculty

Professors: Larry G. Anderson, PhD, Indiana University; Robert Damrauer, PhD, Massachusetts Institute of Technology; Douglas Dyckes, PhD, Case Western Reserve University; James H. Hageman, PhD, University of California, Los Angeles; John A. Lanning, PhD, University of Tennessee
Associate Professors: Mark Anderson, PhD, University of Wisconsin; Doris R. Kimbrough, PhD, Cornell University; Xiaotai Wang, PhD, University of Virginia
Assistant Professor: Hai Lin, PhD, University of Science and Technology of China
Instructors: Priscilla Burrow Crocker, PhD, University of Colorado; Marc Donsky, PhD, University of California, Berkeley; Lisa Lanning, PhD, University of Vermont; Michael Travers, PhD, University of Colorado

Undergraduate

Why study chemistry? A practical reason is that our highly technical society faces many problems that can be solved through an understanding of the science of chemistry and its methods of solving problems. A more intangible reason is that chemistry is central to a variety of other disciplines and that many problems ultimately will have chemical solutions.

At the undergraduate level, students can prepare for:

- (1) careers in chemical and medical laboratories
- (2) careers in nursing, medical technology, dental hygiene and other health-oriented fields
- (3) post-baccalaureate programs in chemistry, biology, biochemistry, medicine, physical therapy and dentistry.

At the graduate level, an MS degree program is offered. Students with MS degrees have job opportunities in research and technical laboratory services. In addition, flexible programs can be designed to combine chemical knowledge and skills with other interests of the MS-level student (e.g., biology or environmental science).

REQUIREMENTS FOR MAJOR

Students must declare their major by the time they have completed 60 semester hours. The chemistry major requires 45 semester hours in chemistry. Transfer students must take at least 14 upper-division chemistry hours, including CHEM 4128, 4518 or 4538, in residency at the downtown Denver campus. A student who has declared a chemistry major at UCDHSC may not take additional chemistry courses outside of the department for the purpose of applying those credits toward meeting the requirements of the major without prior written approval of the undergraduate advisor. Normally, no more than 3 additional hours of transfer credits will be allowed. The minimum grade in chemistry courses is C- (1.7) and a minimum chemistry GPA of 2.0 is required in chemistry and ancillary required courses. All majors must successfully complete the following core:

Traditional Chemistry Major

<i>Required Chemistry Courses</i>	<i>Semester Hours</i>
CHEM 2031. General Chemistry I	3
CHEM 2038. General Chemistry Laboratory I	1
CHEM 2061. General Chemistry II	3
CHEM 2068. General Chemistry Laboratory II	2
CHEM 3011. Inorganic Chemistry	3

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Semester Hours

CHEM 3111. Analytical Chemistry	3
CHEM 3118. Analytical Chemistry Laboratory	2
CHEM 3411. Organic Chemistry I	4
CHEM 3418. Organic Chemistry Laboratory I	1
CHEM 3491. Honors Organic Chemistry II	4
CHEM 3498. Honors Organic Chemistry Laboratory II	2
CHEM 4121. Instrumental Analysis	3
CHEM 4128. Instrumental Analysis Laboratory	2
CHEM 4511. Physical Chemistry I	3
CHEM 4518. Physical Chemistry I Laboratory	2
CHEM 4521. Physical Chemistry II	3
CHEM 4538. Physical Chemistry II Laboratory	2
And one of the following two courses:	
CHEM 3018. Inorganic Chemistry Laboratory	2
CHEM 4828. Biochemistry Laboratory	2
Total	45

Required Ancillary Courses

MATH 1401. Calculus I	4
MATH 2411. Calculus II	4
MATH 3511. Mathematics of Chemistry	4
PHYS 2311. General Physics I	4
PHYS 2321. General Physics Laboratory I	1
PHYS 2331. General Physics II	4
PHYS 2341. General Physics Laboratory II	1
Total	22

Recommended Electives:

CHEM 3018. Inorganic Chemistry Laboratory	2
CHEM 3810. Biochemistry	4
—or—	
CHEM 4810. General Biochemistry I	3
CHEM 4700. Environmental Chemistry	3
CHEM 4820. General Biochemistry II	3
Any CHEM 5000-level lecture class	
Total	14-16

Students interested in the chemistry major should consult regularly with a chemistry advisor. A complete description of the chemistry major's program may be obtained in the Department of Chemistry office or department Web site.

Qualified majors are strongly urged to participate in independent study or departmental honors programs.

Students planning chemistry as a career should be familiar with the recommendations of the American Chemical Society for the professional training of chemists. For ACS certification, students are required to take inorganic laboratory and at least one semester of biochemistry. No course with a grade of less than C (3.0) can be applied toward ACS certification. Students should check with a chemistry advisor for details. The downtown Denver campus maintains an ACS chapter of student affiliates.

BS-MS PROGRAM

Please see the graduate section later in this section for details.

DEPARTMENTAL HONORS

Qualified students are encouraged to participate in the chemistry honors program. Three levels of honors are awarded by the downtown Denver campus. To earn *cum laude* honors in chemistry, a student must satisfy one of the following criteria: (1) an overall GPA of 3.2 or better and a chemistry GPA of 3.5 or better; or (2) an overall GPA of 3.2, a chemistry GPA of 3.2 or better, and six hours of CHEM 4840. Independent Study spread over a minimum of two semesters. To earn *magna cum laude* or *summa cum laude* honors in chemistry, a student must satisfy each of the following criteria: an overall GPA of 3.2 or better, a chemistry GPA of 3.5 or better, six hours of CHEM 4840. Independent Study spread over a minimum of two semesters with a GPA of 3.1 or

better and presentation of a thesis on the independent study research to a faculty advisory committee. The committee decides if *magna cum laude* or *summa cum laude* honors are to be awarded.

REQUIREMENTS FOR MINOR

The objective of the chemistry minor is to provide broad introductory course work and laboratory experience to science majors without the more technical mathematical and chemical prerequisites required of the chemistry major. The chemistry minor is open to all CLAS students and should prove beneficial for science majors, pre-professional health science majors and students seeking science education certification.

There are course work and grade requirements that must be satisfied to obtain a chemistry minor. Students must take a minimum of 20 semester hours of chemistry courses with a minimum of 10 upper-division chemistry hours. Upper-division course work must include three of the six subdisciplines that comprise chemistry: analytical, biochemistry, inorganic, organic, physical and environmental chemistry. All chemistry minor courses must be taken for a letter grade rather than with the pass/fail grading option. A minimum 2.0 GPA in the chemistry minor courses must be earned. To satisfy the department residency requirement, a minimum of 7 upper-division hours of chemistry must be taken at the downtown Denver campus. A complete description of the chemistry minor may be obtained in the department office or Web site.

Graduate

The MS degree offered at the downtown Denver campus is a broad-based chemistry degree that allows students to take courses and do research in the following basic fields: analytical, biochemistry, inorganic, organic, physical or environmental chemistry.

The MS program is available to both full- and part-time students. The chemistry faculty strive to ensure that students receive excellent advising and supervision of work. Students enrolled in the program have an opportunity to be appointed as laboratory teaching assistants. Research activities on the part of the chemistry faculty provide opportunities for graduate students to obtain research assistantships.

REQUIREMENTS FOR ADMISSION

Students must meet the downtown Denver campus Graduate School admission requirements with specific chemistry requirements as follows:

- undergraduate GPA of at least 2.75
- undergraduate major in chemistry essentially equivalent to the one offered at UCDHSC (see the undergraduate requirements), including two semesters of organic, analytical and physical chemistry with laboratories and one semester of inorganic chemistry. No student will be admitted to the graduate program who is not within two classes of meeting the undergraduate requirements
- GRE examination is recommended, as is the advanced chemistry GRE examination
- International students have additional admission requirements concerning immigration status, proof of financial responsibility and acceptable TOEFL scores
- Failure to meet the full admission standards may lead to provisional admission

Prospective students are encouraged to contact the graduate program director or visit the chemistry department Web site for additional details concerning the chemistry program, admission procedures, financial assistance and faculty research interests.

GENERAL PROGRAM REQUIREMENTS

At the heart of the graduate program is a set of four core graduate courses in the fields of analytical, inorganic, organic and physical chemistry. A student must qualify in order to register for any core graduate class, either by passing a qualifying examination in that field or by passing the equivalent undergraduate class in that area at UCDHSC with a grade of *B* (3.0) or better. All entering students are required to qualify

in all four core fields. The qualifying requirements must be completed during the first year in the graduate program. Individual core classes may have additional prerequisites.

Depending on the program option that she/he selects, a student will be required to pass either three (Plan I) or all four (Plan II) of the graduate core courses with no grade in a core course below *B-* (2.67).

The remaining course work for the degree will consist of regular graduate offerings in chemistry, a limited number of which may be substituted by approved classes in related fields. In particular, students interested in interdisciplinary areas, such as biochemistry or environmental chemistry, are encouraged to take cognate courses outside the chemistry department. The chemistry graduate program director must approve in advance any graduate class taken outside the department that is to count toward the degree. All students are required to annually submit an updated program plan for approval and to have their progress evaluated by the graduate program director.

SPECIFIC DEGREE REQUIREMENTS

There are two options for obtaining a master's degree from the downtown Denver campus Department of Chemistry: Plan I, the thesis option, and Plan II, the course work emphasis option. All students must complete at least 3 semester hours of Master's Report (CHEM 6960). A student is allowed to participate in the thesis option only after the successful completion of the master's report with the proposed advisor, and upon the mutual agreement of both the student and advisor that the student is prepared to work on a master's thesis. Students who select the course work emphasis option may petition to have up to 3 additional semester hours of master's report research substitute for an equivalent number of course work hours.

Plan I. Thesis Option

Plan I is a research-oriented program involving a minimum of 30 semester hours with the following requirements:

- 21-23 semester hours of formal course work, including three of the four graduate core courses.
- 4-6 semester hours of CHEM 6950. Master's Thesis research; successful completion of the thesis research includes the presentation of the results at a departmental seminar.
- 3 semester hours of CHEM 6960. Master's Report research
- a grade of *C* (2.0) or better in all courses completed: *B-* (2.67) or better in all core courses
- a cumulative GPA of 3.0 or better in all courses taken as a graduate student
- an acceptable formal thesis consistent with the guidelines of the Graduate School
- successful oral defense of the master's thesis before a committee of at least three graduate faculty members, two of whom must be tenure-track faculty members in the chemistry department
- compliance with all Graduate School rules, available from the Graduate School or CLAS Graduate Advising Web site
- all work must be completed within seven years of completion of the first graduate class in the department

Plan I thesis research must be conducted under the direct supervision of a tenure-track faculty member of the downtown Denver campus Department of Chemistry. Plan I students must take a minimum of 15 semester hours of formal course work in chemistry at the 5000 level or above. Students may petition the graduate program director in advance for permission to take one or two courses at the graduate level outside of chemistry that would count toward the requirements for an MS in chemistry.

Plan II. Course Work Emphasis Option

Plan II is a course work-oriented program involving a minimum of 33 semester hours with the following requirements:

- 27-30 semester hours of formal course work, including all four graduate core courses

- at least 3 (but not more than 6) semester hours of CHEM 6960. Master's Report research
- a grade of C (2.0) or better in all courses completed; B- (2.67) or better in all core courses
- a cumulative GPA of 3.0 or better in all courses taken as a graduate student
- a final research report
- presentation of the research project in a final seminar
- successful defense of the project before a committee of at least three graduate faculty members, one of whom must be a tenure-track faculty member in the chemistry department
- compliance with all Graduate School rules, available from the Graduate School or CLAS Graduate Advising Web site
- all work must be completed within seven years of completion of the first graduate class in the department

A Plan II student may petition the graduate program director to substitute up to 3 semester hours of master's report (CHEM 6960) research, beyond the required minimum, for an equivalent number of semester hours of formal course work. Approval will be perfunctory for research performed with the support and under the direct supervision of a faculty member in the Department of Chemistry on the downtown Denver campus. Plan II students must take a minimum of 24 semester hours of formal course work in chemistry at the 5000 level or above. Students may petition the graduate program director in advance for permission to take up to two courses at the graduate level outside of chemistry that would count toward the requirements for an MS in chemistry.

BS-MS PROGRAM

While students are completing a BS degree in chemistry, they may also complete some of the requirements for an MS degree in chemistry under the following guidelines:

1. The student must apply and be accepted for participation in the BS-MS program prior to completion of the BS degree and be advised by both the undergraduate and graduate advisors.
2. Up to 9 semester hours of graduate-level course work may be taken as an undergraduate and applied toward the MS degree. This course work may not be applied toward the BS degree or ACS certification requirements for the BS degree.
3. Up to 3 semester hours of independent study (research) may be applied toward the graduate degree if that research is expanded and continued for a portion of the master's thesis research. This requires approval of the student's graduate research advisor in chemistry, the chemistry graduate program director and the CLAS associate dean for graduate studies.
4. The chemistry department will waive the requirement for qualifying examinations in each area of chemistry for which the student has completed the undergraduate sequence of courses and laboratories at the downtown Denver campus with grades of B or better for each course.
5. The student must apply for and be admitted to the graduate program in chemistry beginning the semester immediately following completion of the BS degree in chemistry at the downtown Denver campus.

This program allows undergraduate students who have begun their research as undergraduates to complete up to 12 semester hours (with approval of the graduate dean) toward the 30 semester hours required for a Plan I MS degree in chemistry while they are still completing their BS degree. This makes it possible for students to complete an MS degree in chemistry in only one year beyond the BS degree in chemistry. Students entering the program through the BS-MS program option must fulfill all of the requirements of the Plan I or Plan II graduate programs.

CHINESE STUDIES MINOR

Director: Stephen C. Thomas

Faculty Advisors: Ji Chen, Lawrence Street Center, 390K, 303-556-6611; Stephen C. Thomas, King Center, 520, 303-556-5259

Office: Political Science, King Center 520

Telephone: 303-556-5259

Web site: www.cudenver.edu/clas/polisci/chinesestudies.html

This innovative program offers specialized study of China through course work in the related disciplines of language, anthropology, history, geography, literature and political science. China's economic and political presence is increasingly prominent in the United States. According to a recent national survey, Chinese is the fastest-growing foreign language in American colleges and universities. UCDHSC is uniquely positioned to make use of its location as the cultural, economic and political center of the Rocky Mountain region and of its diverse, well-trained and highly qualified faculty to offer a course of interdisciplinary studies related to China.

The increasing prominence of China in world affairs has made knowledge of Chinese language and cultures a valuable asset in numerous fields. Today, career opportunities abound for Chinese studies graduates in government, international business, banking and financial services, law, medicine, journalism and graduate study in sinology. The breadth of the program's course offerings, coupled with the resources of the faculty, ensures that its graduates will be especially well prepared for any of these professional pursuits.

The program in Chinese studies offers a host of study abroad opportunities throughout the academic year and every summer. UCDHSC has on-going programs in Beijing and Taipei, as well as an association with Yunnan University in Kunming. Study abroad programs of five weeks to one year in length may be arranged, and program faculty can help students enroll in intensive Chinese language programs in Taiwan or on the mainland. Students pursuing the minor in Chinese language and area studies are encouraged to complete the program with a period of residence and study in China.

Requirements for the Minor

The minor requires a total of 21 semester hours. A minimum of 15 semester hours must be taken from downtown Denver campus faculty. All courses must be completed with a grade of C (2.0) or better.

<i>Required Courses</i>	<i>Semester Hours</i>
CHIN 1010. Beginning Chinese I	5
CNST 1000.* China and the Chinese	3
CNST 4000.* Senior Seminar in Chinese Studies	3
Total	11

**Note:* CNST 1000 should be taken toward the beginning of the minor, and CNST 4000 should be taken toward the completion of required course work. Note that students must take a minimum of 5 semester hours of Chinese language courses.

An additional 10 hours of course work should be selected from the following list of courses:

<i>Additional Courses</i>	
ANTH 4000. Food in China and Beyond	3
ANTH 4995. Travel Study: The Arts of Self and Society in Contemporary China	3
CHIN 1020. Beginning Chinese II	5
CHIN 2110. Second Year Chinese I	5
CHIN 2120. Second Year Chinese II	5
F A 4750. Arts of China	3
GEOG 3160. Geography of China	3
HIST 4420. Traditional China: China to 1600	3
HIST 4421. Modern China	3
P SC 4186. East Asia in World Affairs	3
P SC 4615. Politics and Government of China	3
P SC 4726. Russian and Chinese Foreign Policy	3

	<i>Semester Hours</i>
PHIL 3666. Asian Philosophies and Religions	3
PHIL 3981. Chinese Philosophy	3
Total.....	10

* New courses may not appear in the course description section of this catalog. Contact the department for further information.

COMMUNICATION

Chair: Brenda J. Allen
Program Assistant: Sally Thee
Graduate Advisor: Sonja Foss
Undergraduate Advisor: Wanda Lakota
Internship Coordinator: Suzanne Stromberg
Director of Technical Communication Program: James F. Stratman
Office: Plaza Building, 102
Telephone: 303-556-2591
Fax: 303-556-6018
Web site: www.cudenver.edu/clas/communication/

Faculty

Professors: Brenda J. Allen, PhD, Howard University; Sonja K. Foss, PhD, Northwestern University
Associate Professors: Michael Monsour, PhD, University of Illinois-Champaign; James F. Stratman, PhD, Carnegie-Mellon University; Barbara Walkosz, PhD, University of Arizona
Assistant Professors: Filipp A. Sapienza, PhD, Rensselaer Polytechnic Institute; Omar Swartz, PhD, Purdue University and JD, Duke University
Instructors: Deborah V. Burgess, MS, University of Denver; James Hightshoe, PhD, University of Denver; Wanda Lakota, MA, University of Denver; Diann Logan, MA, University of Colorado at Denver; Kathleen Pounders, MA, University of Colorado at Denver; Suzanne Stromberg, MA, Regent University; e.j. Yoder, PhD, University of Denver

Students wishing to study communication may choose to complete a bachelor of arts in communication. The communication curriculum is designed to create a learning environment in which students develop the skills, knowledge and abilities necessary to use communication to create a more civil and humane world.

Communication is a discipline concerned with the study of messages in the contexts of human relationships. Courses examine the nature, use and role of messages among individuals and within small groups, organizations and society in whatever form they assume—oral, nonverbal, written, visual, mediated and technological. The curriculum provides a balance of theory-based knowledge of communication and practical skills.

Undergraduate

REQUIREMENTS FOR ADMISSION

Undergraduates must declare their intention to major in communication by the time they have completed 60 semester hours and apply to the communication department to be accepted as a major. Students must be classified as sophomore status (30 hours or more) to apply to be a communication major.

REQUIREMENTS FOR MAJOR

The communication major requires that students take a total of 39 hours of course work in communication, 18 of which must be taken in residence at the downtown Denver campus. At least 21 of the 39 hours must be upper division. Students must achieve a C– (1.7) or higher to receive credit for a course in the major and a minimum GPA of 2.0 in their communication courses.

	<i>Semester Hours</i>
<i>Communication Core Courses</i>	
CMMU 1011. Fundamentals of Communication	3
CMMU 1021. Fundamentals of Mass Communication	3
CMMU 2041. Interpersonal Communication	3
CMMU 2101. Presentational Speaking	
—or—	
CMMU 2050. Business and Professional Speaking	3
Total.....	12

In addition to the four communication core courses, students are required to complete two courses from each of four skill areas for a total of 24 hours, bringing the number of hours to 36. Students are also required to choose one upper-division communication elective course from departmental offerings to complete the total number of 39 hours needed for a communication degree. The four skill areas are: creation of community, communication within systems, analysis of communication and production of communication. For more information, see the faculty advisor and the department’s Web site.

MINOR IN COMMUNICATION

Knowledge in an area of study such as business, biology or sociology means little unless it can be communicated effectively. The minor in communication is designed to provide students who are not communication majors with knowledge and skills in communication that are useful in any discipline or profession.

The minor in communication requires 18 semester hours, with 15 hours of required courses and 3 hours of electives.

Core Courses

CMMU 1011. Fundamentals of Communication.....	3
CMMU 2041. Interpersonal Communication	3
CMMU 2101. Presentational Speaking.....	3
CMMU 4151. Group Communication	3
CMMU 4200. Persuasion	3
Total.....	15

Elective Courses (3 semester hours)

In addition to the five courses specified above, students must take one upper-division course (3000 level or above) to be selected with the aid of the undergraduate advisor in communication.

Grade and Residency Requirements for Minors

A grade of C– or better must be earned in each course completed as part of the minor. No more than 6 of the semester hours for the minor may be transferred from another university.

MINOR IN TECHNICAL AND PROFESSIONAL COMMUNICATION

The minor in technical and professional communication complements many majors in the arts, sciences, business and engineering in today’s global, high-tech economy. Students who pursue this minor take a combination of core and elective classes that provide an overview of the technical communication field while allowing them to specialize in an area of interest such as user interface design and analysis, Web design and multimedia design.

This minor requires 18 semester hours (six courses), with 12 hours of required courses and 6 hours of electives. Students who complete this minor may not also complete the minor in online information design shown below, nor may such students complete a major or minor in communication.

Core Courses

CMMU 2800. Technology for Workplace Communication.....	3
CMMU 3120. Technical Communication.....	3
CMMU 4805. Graphics.....	3
CMMU 4290. Web Design	
—or—	
CMMU 4300. Multimedia Authoring	3

<i>Electives</i>	<i>Semester Hours</i>
Students must complete 6 semester hours (two courses) from the following four elective choices:	
CMMU 4130. User Interface Design and Analysis	3
CMMU 4605. Rhetorical Theory for Technical Communication . . .	3
CMMU 4760. Computer-Mediated Communication	3
CMMU 4830. Visual Principles in Technical Communication	3
Total	18

MINOR IN ONLINE INFORMATION DESIGN

The minor in online information design is designed for students who wish to learn the principles of design and production for interactive technologies such as Web design, multimedia and online information design. This minor provides students with knowledge and skills in online information design that are applicable to many disciplines and professions. Much of communication and information design includes several media, and students who wish to be information literate need to understand the principles to design and produce communications using these technologies. The minor combines a theoretical approach to the principles of good design with production of these communication products so that students have a balanced perspective on online information design. Students who major in communication may not minor in technical and professional communication, nor may such students complete a minor in communication.

The minor requires 18 semester hours (six courses), with 15 hours of required courses and 3 hours of electives. Students who complete this minor may not also complete the minor in technical and professional communication shown above.

Required Courses

CMMU 2800. Technology for Workplace Communication	3
CMMU 3120. Technical Communication	3
CMMU 4130. User Interface Design and Analysis	3
CMMU 4290. Web Design	3
CMMU 4300. Multimedia Authoring	3

Electives

Choose one:	
CMMU 4320. Content Management	3
CMMU 4510. Usability Testing	3
Total	18

Undergraduate Certificates

GRADE AND RESIDENCY REQUIREMENTS FOR CERTIFICATES

A grade of *B* or better must be earned in each course completed as part of a certificate (*B-* is not acceptable). All semester hours for a certificate must be earned at the downtown Denver campus.

UNDERGRADUATE CERTIFICATE IN MEDIATION

Mediation is an area of knowledge and skills concerned with the communication processes involved in helping others solve their conflicts in mutually beneficial ways. The area of mediation through communication provides opportunities for the development of communication skills and knowledge by professionals in public, legal, political, governmental, corporate and not-for-profit contexts.

The undergraduate certificate in mediation is designed for communication majors and others outside the major who desire to enter the field of alternative dispute resolution with the skills, knowledge and abilities to aid others in the productive management or resolution of their conflicts. It is also useful for non-degree-seeking working professionals without bachelor's degrees who plan to enter or re-enter the workplace and want to acquire the knowledge and skills necessary to market themselves as mediation specialists.

Certificate Requirements

The undergraduate certificate in mediation requires 12 semester hours (four courses).

<i>Core Courses</i>	<i>Semester Hours</i>
CMMU 4262. Mediation	3

Students must choose three courses from the following (those who take both classes take one elective rather than two; those who take only one class must select two electives):

Additional Courses

CMMU 4255. Negotiations and Bargaining	3
CMMU 4260. Communication and Conflict	3

Electives

Choose one:	
CMMU 4015. Communication and Civility	3
CMMU 4140. Argumentation	3
CMMU 4151. Group Communication	3
CMMU 4215. Ethics in Communication	3
CMMU 4681. Communication Issues in Trial Court Practices and Processes	3
CMMU 4710. Topics: Managing Difficult Dialogues	3
Total	12

A maximum of one course other than the above may be substituted, with the approval of the department.

UNDERGRADUATE CERTIFICATE IN PUBLIC RELATIONS

Public relations is a management function that establishes and maintains mutually beneficial relationships between an organization and the publics on whom its success or failure depends. Virtually every kind of institution—for-profit and nonprofit alike—recognizes the need for dialogue with the groups of people who can and will influence its future. The undergraduate certificate in public relations is designed to provide students with the principles and theories that guide the work of public relations practitioners in a variety of contexts including private industry, government and nonprofit settings.

The undergraduate certificate in public relations is designed for undergraduate communication majors who wish to demonstrate to potential employers that they possess skills and knowledge in the area of public relations. It also is useful for non-degree-seeking working professionals without bachelor's degrees who plan to enter or re-enter the workplace and who want to acquire the knowledge and skills necessary to employ principles of public relations in their professional environments.

Certificate Requirements

The undergraduate certificate in public relations requires 12 semester hours (four courses).

<i>Core Courses</i>	<i>Semester Hours</i>
CMMU 4635. Principles of Public Relations	3

Additional Courses

Choose three:	
CMMU 3620. Television Production	3
CMMU 3680. Mass Communication Skills	3
CMMU 4140. Argumentation	3
CMMU 4200. Persuasion	3
CMMU 4240. Organizational Communication	3
CMMU 4290. Web Design	3
CMMU 4300. Multimedia Authoring	3
CMMU 4665. Principles of Advertising	3
CMMU 4682. Political Communication	3
CMMU 4805. Graphics	3
Total	12

UNDERGRADUATE CERTIFICATE IN TECHNICAL AND PROFESSIONAL COMMUNICATION

The undergraduate certificate in technical and professional communication is designed for working adults who are employed or seeking employment in the field of technical communication, one of the fastest-growing sectors in today's global, high-tech economy. Students pursuing the certificate receive state-of-the-art training in the core skills demanded by the profession including technical writing, technical editing and graphic design. The certificate also allows students to choose courses from a wide range of specialized areas within technical communication such as software documentation, multimedia authoring, health risk communication, usability testing and Web design. The undergraduate certificate in technical and professional communication is designed for working professionals who are pursuing a bachelor's degree in communication and who would like to enhance or upgrade their skills in the area of technical communication. It is also useful for non-degree-seeking working professionals without bachelor's degrees who plan to enter or re-enter the workplace and who want to acquire the knowledge and skills necessary to work on technical documentation projects.

Certificate Requirements

The undergraduate certificate in technical and professional communication requires 12 semester hours (four courses). The requirements described below only apply to students who completed and submitted a certificate application on August 1, 2005 or later. Students who applied prior to this date must complete the previous certificate requirements that were in effect at the time they signed and submitted the application.

<i>Required Core</i>	<i>Semester Hours</i>
CMMU 2800-3. Technology for Workplace Communication	3
CMMU 3120-3. Technical Communication.	3
<i>Electives</i>	
Choose two:	
CMMU 4120. Writing Technical Reports	3
CMMU 4760. Computer-Mediated Communication	3
CMMU 4805. Graphics	3
CMMU 4830. Visual Principles in Technical Communication	3
Total	12

UNDERGRADUATE CERTIFICATE IN ONLINE INFORMATION DESIGN

The undergraduate certificate in online information design is designed for working adults who wish to learn the principles of design and production for the interactive technologies such as Web design, multimedia and online information design. Much of communication and information design includes several media, and professionals such as technical communicators, instructional designers and communication specialists who wish to be information literate need to understand the principles to design and produce communications using these technologies. This certificate combines a theoretical approach to the principles of good design with the production of these communication products so that students have a balanced perspective of interactive media.

The undergraduate certificate in online information design is designed for working professionals who are pursuing a bachelor's degree in communication and who would like to enhance or upgrade their skills in the area of information design and computer-based communication. It is also useful for non-degree-seeking working professionals without bachelor's degrees who plan to enter or re-enter the workplace and who want to apply expertise in online multimedia and documentation in their professions.

Certificate Requirements

The requirements described below only apply to students who completed and submitted a certificate application form on August 1, 2005 or later. Students who applied prior to this date must complete the previous certificate requirements in effect at the time they signed and submitted the application. The undergraduate certificate in online information design requires 12 semester hours (four courses).

Students must complete the following four courses:

Required Courses

CMMU 4130. User Interface Design and Analysis	3
CMMU 4290. Web Design	3
CMMU 4300. Multimedia Authoring	3
CMMU 4320. Content Management	3
Total	9

ACADEMIC HONORS

Academic honors are conferred at graduation on students whose achievements are above those required for the bachelor's degree. Three levels of honors are available to students. *Cum laude* honors may be earned by communication majors with a cumulative GPA of 3.0 and a GPA of 3.5 in 30 hours of communication courses. *Magna cum laude* and *summa cum laude* honors require the completion of a semester-long project during the senior year. Additional information about academic honors may be obtained from the undergraduate advisor in communication.

UNDERGRADUATE INTERNSHIPS

Internships are opportunities for students to work in communication-related positions in the community and receive academic credit for that work. They provide a way for students to maximize their communication background and their understanding of concepts, theories, models and frameworks within the communication discipline.

To qualify to register for internships in communication, undergraduate students must be communication majors and have a cumulative GPA of 2.75.

Students typically receive 3 hours of academic credit for a one-semester internship in which they work between 15 and 30 hours a week. Communication majors may complete up to six hours of internship credit (CMMU 3939).

For further information about internships, contact the Career Center in Tivoli Student Union, Suite 260, 303-556-2250.

Graduate

The department offers a master of arts in communication, a master of science in technical communication, a dual degree master of science in technical communication and master of public administration, and a dual degree master of science in technical communication and information and learning technologies.

GRADE REQUIREMENTS

Students must maintain a GPA of 3.0 or higher across all courses applied to a graduate degree or to a graduate certificate.

COURSE TRANSFER POLICY

A maximum of 6 semester hours of relevant graduate course work may be transferred from another university. Students cannot receive credit for transferred courses in which less than a B grade was earned. Course work transferred from another university must be approved by the director of the MA program or the director of the technical communication program.

TIME LIMITS FOR COMPLETION OF DEGREE

Students have seven years from the date of the beginning of their course work to complete all requirements for a master's degree in communication.

MASTER OF ARTS IN COMMUNICATION

The master of arts in communication is a generalist degree designed to enhance students' intellectual and professional growth through the understanding and practice of effective communication.

Degree Requirements

Students have two options for completing the MA degree in communication: the professional track and the academic track.

Professional Track

The professional track requires the completion of 36 hours of graduate course work (5000 level or above). As explained below, students have the option of taking 6 hours of 4000-level courses. In this situation, a student will take 30 hours of graduate credit and 6 hours of 4000-level (undergraduate) course work. The requirements for course work are as follows:

<i>Required Course</i>	<i>Semester Hours</i>
CMMU 6013. Introduction to Graduate Work in Communication (recommended to be taken the first semester of graduate course work; offered only in the fall semester)	3

Methods Courses

Most methods courses are offered every other year.

Choose two:

CMMU 5011. Research Methods: Quantitative	3
CMMU 5022. Critical Analysis of Communication	3
CMMU 5221. Research Methods: Qualitative	3
CMMU 6205. Empirical Research Methods for Communication and Technical Communication	3
Total	9

Graduate Seminars (12 semester hours)

In addition to the above core requirements, students must take four graduate seminars from the Department of Communication. Graduate seminars are 5000- or 6000-level courses.

Electives (15 semester hours)

Students must complete five electives. A minimum of three of these electives must be at the 5000 or 6000 level; the remaining two may be at the 4000 level. At least three of the five electives must be communication courses; the remaining two electives may be taken from outside of the Department of Communication. Students whose bachelor's degrees are not in communication are required to take two additional courses. These courses do not count toward the 36 semester hours required for the degree; they are taken in addition to those 36 hours.

CMMU 4031. Perspectives on Communication	3
CMMU 4200. Persuasion	3

Students must receive a grade of *B* or higher in all courses that are applied to the MA degree.

Academic Track

The academic track is distinguished from the professional track in that it requires the completion of a substantial academic writing project or projects. The academic track requires the completion of 37 hours of graduate course work. At least 31 of these hours must be at the 5000 or 6000 level; 6 hours (two courses) may be at the 4000 level. The requirements for course work are as follows:

CMMU 6013. Introduction to Graduate Work in Communication (recommended to be taken the first semester of graduate course work; offered only in the fall semester)	3
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Methods Courses

Most methods courses are offered every other year.

Choose two:

CMMU 5011. Research Methods: Quantitative	3
CMMU 5022. Critical Analysis of Communication	3
CMMU 5221. Research Methods: Qualitative	3
CMMU 6205. Empirical Research Methods for Communication and Technical Communication	3
Total	9

Graduate Seminars (12 semester hours)

In addition to the above core requirements, students must take four graduate seminars from the communication department. Graduate seminars are 5000- or 6000-level courses. The three courses must be approved by the student's advisor.

Electives (12 semester hours)

Students must complete four electives: A minimum of two of these electives must be at the 5000 or 6000 level; the remaining two may be at the 4000 level. At least two of the electives must be communication courses; the remaining two may be taken from outside the communication department. Students whose bachelor's degrees are not in communication are required to take two additional courses. These courses do not count toward the 37 semester hours required for the degree; they are taken in addition to those 37 hours.

	<i>Semester Hours</i>
CMMU 4031. Perspectives on Communication	3
CMMU 4200. Persuasion	3

Thesis (4 semester hours)

Students must complete a thesis for 4 semester hours.

Students must receive a grade of *B* or higher in all courses that are applied to the MA degree.

Options for Specialization

The communication department has developed three options for students who wish to create an area of focus or specialization within the MA degree—communication management, technical communication and doctoral preparation. Students may choose to develop one of these options as they select their electives or they may earn a general degree by selecting electives across the three areas of specialization. Any of the options may be pursued by students in the professional track; the doctoral preparation specialization is recommended for students in the academic track.

Communication Management

Communication management is an area of knowledge and skills concerned with the processes involved in managing communication—creating, accessing and delivering communication services within organizational contexts. The area of communication management provides opportunities for the development of communication skills and knowledge by professionals in public, corporate and not-for-profit organizations. Anyone who must manage communication resources for an organization—including account executives, multimedia professionals, human resource specialists and trainers—can advance their career through a specialty in communication management.

Technical Communication

Technical communication is the field concerned with creating documents (electronic as well as paper) that integrate words and images in ways that help individuals achieve their specific goals for using documents at work, school and home. Technical communication is the act of bringing together prose, graphics (including illustration, photography, video and quantitative displays), typography and page design for purposes of instruction, explanation, persuasion and decision making. A specialty in technical communication is available for students who want to develop their skills in technical communication but who also want the breadth available from course work in many areas of communication.

Students who develop a specialty in technical communication also may choose to receive a graduate certificate in technical and professional communication (9 hours) or a graduate certificate in interactive media (12 hours), or both.

Doctoral Preparation

The specialty in doctoral preparation is for students who plan to pursue a PhD after completion of their MA degree. Individuals who earn

a PhD typically engage in teaching and research as university professors, but the degree also may be pursued to increase marketability in the corporate world in areas such as consulting and training.

Application Procedures for U.S. Citizens

Students must submit the following materials to apply for admission to the MA program:

- letter of application explaining career plans and reason for interest in the degree
- graduate admission application
- application for graduate admission — part II
- three letters of recommendation (those writing the recommendations must use the Request for Recommendation form and their own letterhead stationery)
- two official transcripts from every college or university attended
- resume or *vita*
- writing sample
- GRE scores
- \$50 application fee (nonrefundable)

Application forms are available from the communication department program assistant or the department’s Web site.

The deadline for application for the fall semester is April 1, for spring semester October 1. All application materials should be sent to:

Program Assistant
 University of Colorado at Denver and Health Sciences Center
 Department of Communication
 Campus Box 176; P. O. Box 173364
 Denver, CO 80217-3364

Application Procedures for International Students

Students who are not U.S. citizens should begin the process of application to the MA program in communication by contacting the Office of International Education at UCDHSC. This office will assist students in compiling their application materials, which then are submitted to the communication department. International students should not apply to the communication department directly. See the International Education chapter of this catalog for further information.

MASTER OF SCIENCE IN TECHNICAL COMMUNICATION

The master of science in technical communication degree is designed to meet the growing need for communication experts in technical fields. It prepares specialists to design and test creative solutions to the communication problems facing business, government, education and industry. Through a balance of theory, research and practice, the degree prepares students for new careers or enhances their present positions as information developers, information designers, Web design and multimedia specialists, writers, editors, document designers, publications managers or usability testing specialists.

The technical communication field is interdisciplinary, drawing upon fields such as cognitive and social psychology, graphic design, linguistics, rhetoric and computer and decision science. Equal emphasis is placed on the design of technical communication products, the testing of the products developed and analysis of the social contexts in which the products are used.

Although writing is emphasized in the core courses for the degree, students receive training in a full range of modalities including oral and interpersonal communication, visual design, computer-mediated communication and multimedia. The course work focuses on the critical thinking and analysis skills necessary for informed technical communication design, decision making and problem solving. The program strikes a balance between the analytic skills needed to develop technical information and the design and rhetorical skills needed to present that information to audiences with diverse backgrounds and needs.

Degree Requirements

Students must complete a total of 36 semester hours. Additionally, all students must pass a comprehensive written and oral examination at the end of the program.

<i>Level 1 Required Courses</i>	<i>Semester Hours</i>
CMMU 5405. Technical Communication: Writing	3
CMMU 5505. Technical Communication: Editing	3
CMMU 5830. Visual Principles in Technical Communication	3
Total	9

It is recommended that students complete all three of these courses before they enroll in any of the Level 2 courses shown below.

<i>Level 2 Required Courses</i>	
<i>Communication and Language Theory Area</i>	
CMMU 5605. Rhetorical Theory for Technical Communication	3
—plus—	
CMMU 5240. Organizational Communication	3
—or—	
CMMU 5760. Computer-Mediated Communication	3
Total	6

It is recommended that students complete both courses for the communication and language theory area before they enroll in either of the research methods courses shown below.

<i>Research Methods Area</i>	
CMMU 5510. Usability Testing	3
CMMU 6205. Empirical Research Methods for Communication and Technical Communication	3
Total	6

Internal Electives (12 semester hours)

Students must take 12 hours in technical communication (internal) electives. See the department’s Web site for course choices.

External Electives (3 semester hours)

Students must choose one elective course outside the technical communication program. The course may be selected from any other graduate degree program on the UCDHSC downtown Denver campus. Before registering for this elective, students should discuss their choice with the technical communication program director to assure that the course fits the student’s professional goals.

Nondegree Status

Students admitted under nondegree status may take courses in the technical communication program to find out what the program is like before formally applying for admission. If students apply and are accepted to the program after completing these credits, up to 9 nondegree credits will be counted toward the degree total. Students who want to sample the program in nondegree status should consult with the director of the technical communication program about course choices. Nondegree admission is achieved by submitting an application for nondegree admission to the UCDHSC admissions office.

Application Procedures for U.S. Citizens

Students must submit the following materials to apply for admission to the MS program:

- Letter of application explaining career plans and reason for interest in the degree. Nonresident students seeking the tuition reduction available from the Western Interstate Commission for Higher Education (WICHE) must indicate in this letter that they are applying for the WICHE tuition benefit.
- graduate admission application
- application for graduate admission — part II
- four letters of recommendation (those writing the recommendations must use the Request for Recommendation form and their own letterhead stationery)

- two official transcripts from every college or university attended
- resume or *vita*
- writing sample (preferably something written on the job)
- GRE scores
- \$50 application fee (nonrefundable)

Application forms are available from the communication department program assistant or the department's Web site.

There is no deadline for application; students may apply for admission to the MS program in technical communication at any time. All application materials should be sent to:

Program Assistant
 University of Colorado at Denver and Health Sciences Center
 Department of Communication
 Campus Box 176; P.O. Box 173364
 Denver, CO 80217-3364

Application Procedures for International Students

Students who are not U.S. citizens should begin the process of application to the MS program in technical communication by contacting the Office of International Education at UCDHSC. This office will assist students in compiling their application materials, which then are submitted to the communication department. International students should not apply to the communication department directly. See the International Education chapter of this catalog for further information.

Tuition Benefits for Nonresident Students

Because the MS in technical communication program is part of the Western Regional Graduate Program of the Western Interstate Commission for Higher Education (WICHE), students from 13 Western states may enroll in the program at in-state tuition rates. Students from the following states are eligible for this benefit: Alaska, Arizona, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington and Wyoming. To receive WICHE benefits, students must indicate in their letter of application that they are applying for the WICHE tuition benefit.

DUAL DEGREE MASTER OF SCIENCE IN TECHNICAL COMMUNICATION AND MASTER OF PUBLIC ADMINISTRATION

Contact Information

Additional information about this dual degree program may be obtained from the following faculty in the technical communication program and the public administration program:

Contact: James Stratman, Department of Communication
Office: Plaza Building, 102-F
Telephone: 303-556-2884
E-mail: James.Stratman@cudenver.edu

Contact : Lloyd Burton, Graduate School of Public Affairs
Office: Lawrence Street Center, 500-V
Telephone: 303-556-5980
E-mail: Lloyd.Burton@cudenver.edu

Managing government and nonprofit organizations and implementing policy usually require advanced communication analysis, design and decision-making ability. For this reason, some students may wish to pursue a dual master's degree in technical communication and public administration. The Department of Communication of the College of Liberal Arts and Sciences and the School of Public Affairs jointly sponsor a dual degree program leading to the simultaneous earning of master of public administration (MPA) and master of science in technical communication degrees. This program is designed for students interested in the development, operation and management of communication and information systems in government and nonprofit organizations.

An advantage of pursuing the dual degree is that students do not need

to complete both master's programs in their entirety. Instead, certain course credits from each program are applied simultaneously toward the total credits needed for each degree. The master's program in public administration accepts (as elective credits) up to 12 semester hours of required course work in technical communication toward the total required for the degree. Conversely, the master's program in technical communication accepts up to 9 semester hours in required courses in public administration toward the total required for the degree. Thus, although students seeking both degrees separately would need to complete 69 total credits, under the dual degree program that total is reduced to 51 credits (or about 74 percent of the combined total).

Degree Requirements

The dual degree in technical communication and public administration requires the completion of 27 semester hours in technical communication and 24 semester hours in public administration. Students must also successfully complete the comprehensive examination for each degree separately. Students should consult the advisor in the MPA program for the requirements for the public administration portion of the degree. Information is also available at the MPA Web site: www.cudenver.edu/Academics/Colleges/GSPA/CurrentStudents/MasterOfPublicAdministration/MPA+Dual+degree+program+agreements.html.

<i>Level 1 Required Courses</i>	<i>Semester Hours</i>
CMMU 5405. Technical Communication: Writing	3
CMMU 5505. Technical Communication: Editing	3
CMMU 5830. Visual Principles in Technical Communication	3
Total	9

Students should complete all three of these courses before they enroll in any of the Level 2 courses shown below.

<i>Level 2 Required Courses</i>	
<i>Communication and Language Theory Area</i>	
CMMU 5605. Rhetorical Theory for Technical Communication	3
—plus—	
CMMU 5240. Organizational Communication	3
—or—	
CMMU 5760. Computer-Mediated Communication	3
Total	6

Students should complete both courses for the communication and language theory area before they enroll in any of the research methods courses shown below.

<i>Research Methods Area</i>	
CMMU 5510. Usability Testing	3
CMMU 6205. Empirical Research Methods for Communication and Technical Communication	3
Total	6

Internal Electives (6 semester hours)

Students must take 6 credits in technical communication (internal) electives. See the department's Web site for course choices.

Nondegree Status

Students admitted under nondegree status may take courses offered in one or both programs. If students apply and are accepted to the dual degree program after completing these credits, up to 9 nondegree credits will be counted toward the dual degree total (if the courses are applicable for the dual degree). Nondegree admission is achieved by submitting an application for nondegree admission to the UCDHSC admissions office. However, students who have already accumulated 12 or more credits in either program's courses would not be eligible to apply for the dual degree. Once admitted to the dual degree program, students should, as far as is practicable, take public administration and technical communication courses concurrently by consulting with each program's director.

Application Procedures for U.S. Citizens

Students who wish to pursue the dual degree in technical communication and public administration must indicate in writing their intention to pursue this option at the time they apply to the downtown Denver campus Graduate School. These students must apply separately to meet the admission requirements of and be accepted by each program.

Dual degree students must pursue the MPA and MS in technical communication degrees concurrently; they may not begin taking courses in one program and later decide to apply to the other program to pursue the dual degree.

Students must submit the following materials to apply for admission to the MS in technical communication program for the dual degree:

- letter of application explaining career plans and reason for interest in the dual degree
- graduate admission application
- application for graduate admission—part II
- four letters of recommendation (those writing the recommendations must use the Request for Recommendation form and their own letterhead stationery)
- two official transcripts from every college or university attended
- resume or *vita*
- writing sample (preferably something written on the job)
- GRE scores
- \$50 application fee (nonrefundable)

The application forms are available from the communication department program assistant or the department's Web site.

There is no deadline for application; students may apply for admission to the MS in technical communication program at any time. All application materials should be sent to:

Program Assistant
 University of Colorado at Denver and Health Sciences Center
 Department of Communication
 Campus Box 176; P. O. Box 173364
 Denver, CO 80217-3364

Application Procedures for International Students

Students who are not citizens of the United States should begin the process of application to the MS program in technical communication by contacting the Office of International Education. This office will assist students in compiling their application materials, which then are submitted to the communication department. International students should not apply to the communication department directly. See the International Education chapter of this catalog for further information.

DUAL DEGREE MASTER OF SCIENCE IN TECHNICAL COMMUNICATION AND INFORMATION AND LEARNING TECHNOLOGIES

Contact Information

Contact: James Stratman, Department of Communication
Office: Plaza Building, 102-F
Telephone: 303-556-2884
E-mail: James.Stratman@cudenver.edu

Contact: Brent Wilson, School of Education
Office: North Classroom, 5030-C
Telephone: 303-556-4363
E-mail: Brent.Wilson@cudenver.edu

With the rapid and continuing evolution of the information technology field, the academic and professional disciplines of instructional design and technical communication are now inextricably joined. Almost invariably, users of technology are also users of instruction, and the theories and methodologies for testing instruction overlap to a significant degree with those required for testing other kinds of technical communication and computer interfaces. The marketplace increasingly demands graduates

who possess both instructional design and technical communication expertise and, more importantly, who know how one relates to the other.

Given this development, the Department of Communication of the College of Liberal Arts and Sciences and the Information and Learning Technologies Program in the School of Education & Human Development jointly sponsor a dual master's degree program. This program enables students simultaneously to earn a master of arts in information and learning technologies and a master of science in technical communication.

An advantage of pursuing the dual degree is that students do not need to complete both master's programs in their entirety. Instead, certain course credits from each program are applied simultaneously toward the total credits needed for each degree. The MA program in information and learning technologies accepts (as elective credits) up to 9 credits of required course work in technical communication toward the total required for the degree. Conversely, the MS in technical communication program accepts up to 9 credits in required courses in information and learning technologies toward the total required for the degree. Thus, students seeking both degrees separately would need to complete up to 72 total credits. Under the dual degree program, however, that total is reduced by 25 percent to 54 credits or 18 fewer total credits.

Degree Requirements

The dual master's degree in technical communication and information and learning technologies requires the completion of 27 semester hours in technical communication and 27 semester hours in information and learning technologies. Each program administers comprehensive exams involving professional portfolios and other forms of assessment. Students must successfully complete comprehensive exams for each degree program separately. Requirements for the information and learning technologies portion of the degree are shown on the MA in information and learning technologies Web site at www.cudenver.edu/ilt/id_and_adult_learning/programs/dual_ma_comm.htm.

Prospective students should also consult the advisor in this program if they have questions about information and learning technologies requirements.

<i>Level 1 Required Courses</i>	<i>Semester Hours</i>
CMMU 5405. Technical Communication: Writing	3
CMMU 5505. Technical Communication: Editing	3
CMMU 5830. Visual Principles in Technical Communication	<u>3</u>
Total	9

Students should complete all three of these courses before they enroll in any of the Level 2 courses shown below.

<i>Level 2 Required Courses</i>	
<i>Communication and Language Theory Area</i>	
CMMU 5605. Rhetorical Theory for Technical Communication	3
—plus—	
CMMU 5240. Organizational Communication	3
—or—	
CMMU 5760. Computer-Mediated Communication	<u>3</u>
Total	6

Students should complete both courses for the communication and language theory area before they enroll in any of the research methods courses shown below.

<i>Research Methods Area</i>	
CMMU 5510-3. Usability Testing	3
CMMU 6205. Empirical Research Methods for Communication and Technical Communication	<u>3</u>
Total	6

Internal Electives (6 semester hours)

Students must take 6 credits in technical communication (internal) electives. See the department's Web site for course choices.

Nondegree Status

Students admitted under nondegree status may take courses offered in one or both programs. If students apply and are accepted to the dual degree program after completing these credits, up to 9 nondegree credits will be counted toward the dual degree total (if the courses are applicable for the dual degree). Nondegree admission is achieved by submitting an application for nondegree admission to the UCDHSC admissions office. However, students who have already accumulated 12 or more credits in either program's courses would not be eligible to apply for the dual degree. Once admitted to the dual degree program, students should, as far as is practicable, take information and learning technologies and technical communication courses concurrently by consulting with each program's director.

Application Procedures for U.S. Citizens

Students who wish to pursue the dual degree in technical communication and information learning technologies must indicate in writing their intention to pursue this option to the Graduate School at the time they apply.

Admission to both programs: Students must apply separately to each program, meet the admission requirements of each program and be accepted by each program. If one program accepts a student for the dual degree but the other program does not, then the student will not be accepted for the dual degree. In their letters of application to each program, students must clearly indicate their intention to pursue the dual degree. To learn about admission requirements to the information and learning technologies program, visit this site: www.cudenver.edu/Academics/Colleges/School+of+Education/Program+Admissions/default.htm.

Students must submit the following materials to apply for the MS in technical communication portion of the dual degree:

- letter of application explaining career plans and reason for interest in the dual degree
- application for admission—part I and part II
- four letters of recommendation (those writing the recommendations must use the Request for Recommendation form and their own letterhead stationery)
- two official transcripts from every college or university attended
- resume or *vita*
- writing sample (preferably something written on the job)
- GRE scores
- \$50 application fee (nonrefundable)

Application forms are available from the communication department program assistant or the department's Web site.

There is no deadline; students may apply to the MS program in technical communication at any time. All application materials should be sent to:

Program Assistant
University of Colorado at Denver and Health Sciences Center
Department of Communication
P.O. Box 173364
Campus Box 176
Denver, CO 80217-3364

Application Procedures for International Students

Students who are not citizens or permanent residents of the United States should begin the process of application to the MS program in technical communication by contacting the Office of International Education. This office will assist students in compiling their application materials, which then are submitted to the communication department. International students should not apply to the communication department directly. See the International Education chapter of this catalog for further information.

GRADUATE CERTIFICATE IN PUBLIC RELATIONS

Public relations is a management function that establishes and maintains mutually beneficial relationships between an organization and the publics on whom its success or failure depends. Virtually every kind of institution—for-profit and not-for-profit alike—recognizes the need for dialogue with the groups of people who can and will influence its future. The graduate certificate in public relations is designed to provide students with the principles and theories that guide the work of public relations practitioners in a variety of contexts including private industry, government and nonprofit settings.

The graduate certificate in public relations is for working professionals who already have earned bachelor's degrees but who would like to enhance or upgrade their skills in the area of public relations. These individuals complete the certificate as nondegree students; those who decide to enroll in the MA program in communication following completion of the certificate may transfer 9 hours of credits earned for the certificate to the master's degree. For students already enrolled in a master's program in communication, the certificate can be completed as part of or in addition to the course work required for the master's degree. Students who have completed the undergraduate certificate in public relations are not eligible to complete this certificate.

Certificate Requirements

The graduate certificate in public relations requires four courses (12 semester hours). Students who have not had a previous course in public relations must complete:

<i>Required Course</i>	<i>Semester Hours</i>
CMMU 5635. Principles of Public Relations	3
<i>Elective Courses</i>	
Students choose three or four, depending on whether they already have had a course equivalent to CMMU 5635:	
CMMU 5240. Organizational Communication	3
CMMU 5290. Web Design.	3
CMMU 5300. Multimedia Authoring	3
CMMU 5665. Principles of Advertising	3
CMMU 5805. Graphics.	3
CMMU 5830. Visual Principles in Technical Communication	3
Total	12

Students may be allowed to take courses other than those on this list to fulfill the requirements for the certificate if those courses better fit their professional goals. Requests for approval for different courses should be made in writing to the MA program director.

Grade and Residency Requirements

A grade of *B* must be earned in each course completed as part of the certificate; all courses must be taken at the downtown Denver campus.

GRADUATE CERTIFICATE IN TECHNICAL AND PROFESSIONAL COMMUNICATION

The graduate certificate in technical and professional communication is designed for working adults who are employed or seeking employment in the field of technical communication, one of the fastest-growing sectors in today's global, high-tech economy. Students pursuing the certificate receive state-of-the-art training in the core skills demanded by the profession including technical writing, technical editing and graphic design. The certificate also allows students to choose courses from a wide range of specialized areas within technical communication, such as software documentation (online and hard copy), multimedia authoring, health risk communication, usability testing and Web design.

The graduate certificate in technical and professional communication is designed for working professionals who already have earned bachelor's degrees but who would like to enhance or upgrade their skills in the area of technical communication. These individuals complete the certificate as nondegree students; those who decide to enroll in the MA program

in communication or the MS program in technical communication following completion of the certificate may transfer all 9 hours of credits earned for the certificate to the master's degree. For students already enrolled in a master's program in communication or technical communication, the certificate can be completed as part of or in addition to the course work required for the master's degree.

Certificate Requirements

The graduate certificate in technical and professional communication requires 9 semester hours (three courses), with 6 hours of required courses and 3 hours of electives.

<i>Required Courses</i>	<i>Semester Hours</i>
CMMU 5405. Technical Communication: Writing —or—	
CMMU 5505. Technical Communication: Editing	3
CMMU 5830. Visual Principles in Technical Communication	3
Total	6

Elective Courses

Any course in the area of technical communication at the 5000 level or above. 3

Grade and Residency Requirements

A grade of *B* must be earned in each course completed as part of the certificate; all courses must be taken at the downtown Denver campus.

GRADUATE CERTIFICATE IN INTERACTIVE MEDIA

The graduate certificate in interactive media is designed for working adults who wish to learn the principles of design and production for the interactive technologies such as Web design, multimedia and online information design. Much of communication and information design includes several media, and professionals such as technical communicators, instructional designers and communication specialists who wish to be information literate need to understand the principles for design and production of communications using these technologies. This certificate combines a theoretical approach to the principles of good design with the production of these communication products so that students have a balanced perspective of interactive media.

The graduate certificate in interactive media is designed for working professionals who already have earned bachelor's degrees but who would like to enhance or upgrade their skills in the area of interactive media. These individuals complete the certificate as nondegree students; those who decide to enroll in the MA program in communication or the MS program in technical communication following completion of the certificate may transfer 9 hours of credits earned for the certificate to the master's degree. For students already enrolled in a master's program in communication, the certificate can be completed as part of or in addition to the course work required for the master's degree.

Certificate Requirements

The graduate certificate in interactive media requires 12 semester hours (four courses), with 6 semester hours of required courses and 6 hours of electives.

Core Courses

Choose two:

CMMU 5290. Web Design	3
CMMU 5300. Multimedia Authoring	3
CMMU 5310. Advanced Multimedia Authoring	3
CMMU 5340. Advanced Web Design	3

Elective Courses

Choose two:

CMMU 5130. User Interface Design and Analysis	3
CMMU 5320. Content Management	3

Semester Hours

CMMU 5510. Usability Testing	3
CMMU 5755. Universal Internet Usability	3
CMMU 5760. Computer-Mediated Communication	3
Total	12

Grade and Residency Requirements

A grade of *B* must be earned in each course completed as part of the certificate; all courses must be taken at the downtown Denver campus.

ECONOMICS

Chair: Laura Argys

Program Assistant: Christine Lukvec

Office: Lawrence Street Center, 460

Telephone: 303-556-4413

Fax: 303-556-3547

Web site: <http://econ.cudenver.edu>

Faculty

Professors: Laura M. Argys, PhD, University of Colorado; Mei-Chu W. Hsiao, PhD, University of Rochester; Steven G. Medema, PhD, Michigan State University; H. Naci Mocan, PhD, City University of New York; W. James Smith, PhD, University of Colorado; Buhong Zheng, PhD, West Virginia University

Associate Professors: Steven R. Beckman, PhD, University of California, Davis; Brian Duncan, PhD, University of California at Santa Barbara; Daniel I. Rees, PhD, Cornell University

Economics is the science of decision making. The rigorous and general approach that characterizes economics lends itself to a remarkably wide field of practical application. Economists are noted for major contributions in a number of fields including government policy, taxation, law, regulation, political economy, international trade and finance, international and U.S. development, marketing, environmental studies, medical policy, portfolio management and banking. The broad and rigorous training of economics majors accounts for their significant demand in virtually every industry and government agency. Economics provides excellent preparation for advanced graduate study as well. Recent studies indicate that economics is a preferred degree for prestigious MBA programs and law schools.

Undergraduate

REQUIREMENTS FOR MAJOR

Students majoring in economics for the BA degree must declare such by the time they have completed 60 semester hours, and complete a minimum of 40 semester hours in economics. The minimum grade in each UCDHSC economics course is a *C-* (1.7), except that one *D-* in one economics elective is allowed. A GPA of 2.5 in economics courses taken at UCDHSC is required to graduate. No pass/fail grades may count toward the major.

Required Economics Courses

ECON 2012. Principles of Economics: Macroeconomics	3
ECON 2022. Principles of Economics: Microeconomics	3
ECON 3801. Introduction to Mathematical Economics	3
ECON 3811. Statistics with Computer Applications	4
ECON 4071. Intermediate Microeconomic Theory	3
ECON 4081. Intermediate Macroeconomic Theory	3
ECON 4091. History of Economic Thought	3
ECON 4811. Introduction to Econometrics	3
Total	25

Elective Economics Courses (15 semester hours)

Any five 3-semester hour courses taken in economics may satisfy this requirement, other than internships and independent studies which require the approval of the department chair.

<i>Elective</i>	<i>Semester Hours</i>
Political science course	3

Suggested courses include but are not limited to P SC 1101, American Political System, P SC 3022, Introduction to Comparative Politics.

Graduating seniors must submit the three best papers that the student wrote in any three separate courses taken in the Department of Economics at UCDHSC for the outcomes assessment of the economics program. The three papers should be handed in at one time in a folder to the economics office, before the first day of the month in which the student plans to graduate.

At least six of the major courses (18 semester hours), including at least three courses out of ECON 3801, 4071, 4081, 4091 and 4811, must be taken from economics faculty on the downtown Denver campus. Once a student has enrolled at UCDHSC, no courses in the major may be taken outside the downtown Denver campus economics department without permission from the undergraduate advisor. No math is formally required, except for the college algebra prerequisite for ECON 3811. Students desiring a recommendation to a graduate school in economics, however, should consult with economics faculty regarding additional mathematics courses.

REQUIREMENTS FOR ECONOMICS MINOR

Students minoring in economics must complete a minimum of 15 semester hours in economics. All course work must be completed at the downtown Denver campus, or the Department of Economics reserves the right to test the student's competence in the material covered. No grade below C- will be counted toward the minor requirements.

<i>Courses</i>	
ECON 2012. Principles of Economics: Macroeconomics	3
ECON 2022. Principles of Economics: Microeconomics	3
—plus—	
Three upper-division electives in economics	9
Total	15

(ECON 3100, Economics of Race and Gender is acceptable)

At least two upper-division courses must **not** overlap with courses required in the student's major program.

HONORS IN ECONOMICS

Students wishing to earn departmental honors in economics should consult with their advisor no later than the beginning of their senior year.

Cum laude will be awarded to students who complete an economics major with a 3.5 GPA in all upper-division (3000+) courses in economics taken at UCDHSC, with a minimum of eight such courses, and either two additional electives in economics beyond those required for the major, taken at the 4000 or higher level, or an acceptable honors thesis. The thesis must be approved by a three-member committee of department faculty and will include a presentation of the results to that committee. Students should register for the thesis, using ECON 4850 as the course number, as a 3-semester hour independent study, in addition to the regular requirements for the major.

Magna cum laude will be awarded to students who complete an economics major with a 3.7 GPA in all upper-division (3000+) courses in economics taken at UCDHSC, with a minimum of eight courses, and who complete an acceptable honors thesis.

Summa cum laude will be awarded to students who complete an economics major with a 3.88 GPA in all upper-division (3000+) courses in economics taken at UCDHSC, with a minimum of eight courses, and who complete an outstanding honors thesis.

In order to be recognized in the graduation program as "Honors Pending," a draft of the thesis must be submitted to the chair of the committee four weeks prior to the end of the semester. The oral presentation and other requirements must be completed one week before graduation.

In order to be recognized in the graduation program with the specific honors degree being conferred, e.g., *summa magna*, etc., students must turn in the completed final copy of the honors thesis four weeks prior to the end of the semester, along with meeting other requirements by the week before graduation. Otherwise, recognition will come with the diploma after graduation.

Students who do not have an advisor should contact the department for assignment to an advisor. Students should meet with their advisor at least twice a year.

Graduate

The MA program in economics at UCDHSC is directed toward two groups: (1) those who look on the MA as a key to career development in business or government service, and (2) those who desire to go on to pursue the PhD in economics or related fields.

The strong quantitative emphasis of the department's MA program is ideally suited for the pursuit of both these goals. Students are steeped in econometric theory and its applications from the beginning of the program, receiving broad exposure both to the tools of econometric analysis and the application of these tools to a wide range of economic phenomena. The applications involve extensive exposure to the professional literature in various applied fields and a research seminar in which each student will undertake a sophisticated applied research project under faculty supervision.

Students are allowed a great deal of flexibility in choosing their elective courses. Possibilities include advanced quantitative courses in economics, advanced field courses in economics (e.g., money and banking, international economics) business courses and advanced mathematics courses (which are particularly useful for those who wish to pursue the PhD in economics). All of this is intended to give students the opportunity to complement their extensive quantitative training with additional knowledge and skills that will best enhance their prospects upon graduation.

REQUIREMENTS FOR ADMISSION

- general requirements of the Graduate School (including a 2.5 undergraduate cumulative GPA)
- three letters of recommendation
- 15 semester hours of undergraduate economics (including theory and quantitative methods); variations to be discussed with graduate advisor
- acceptable GRE scores
- two official transcripts from all colleges attended
- international students must submit TOEFL scores

DEGREE REQUIREMENTS

The MA degree requires the completion of 30 semester hours of course work, of which 21 hours are core requirements. Each student's plan will be worked out in conjunction with the graduate advisor.

<i>Core Requirements</i>	<i>Semester Hours</i>
(Each of these courses must be completed with a grade of B- or better.)	
ECON 5073. Microeconomic Theory	3
ECON 5083. Macroeconomic Theory	3
ECON 5803. Mathematical Economics	3
ECON 5813. Econometrics I	3
ECON 5823. Econometrics II	3
ECON 6053. Seminar in Applied Economics	3
ECON 6073. Research Seminar	3
Total	21

<i>Electives</i>	
Three elective courses	9

EDUCATIONAL STUDIES/TEACHER LICENSURE

Educational Studies Minor

The preparation of high-quality K–12 teachers is dependent on both content knowledge and teaching methodologies. The College of Liberal Arts and Sciences in cooperation with the School of Education & Human Development offers an educational studies minor to assist undergraduate students preparing for Colorado teacher licensure after receiving the baccalaureate degree.

The CLAS educational studies minor is flexible in design and individually tailored for each student to complete all undergraduate content requirements required for teacher licensure in Colorado. The educational studies minor requires course work in psychology and human development, democratic schooling principles, a K–12 internship and undergraduate course work required for licensure outside college and major requirements.

The educational studies minor is open to all downtown Denver campus undergraduate students. For more information, students should contact the CLAS Advising Office, North Classroom, 2024, 303-556-2555.

K–12 Teacher Licensure

UCDHSC offers an undergraduate teacher licensure program through a collaboration between the College of Liberal Arts and Sciences and the School of Education & Human Development. Students in the undergraduate licensure program earn (1) a broad knowledge background and content specialization in the College of Liberal Arts and Sciences, and (2) pedagogy principles and classroom experience in the Initial Professional Teacher Education (IPTE) program through the School of Education & Human Development. When students have satisfactorily completed requirements, they simultaneously earn their baccalaureate degree, BA or BS, and teacher licensure for the state of Colorado.

The downtown Denver campus undergraduate teacher licensure program offers licensure in the following areas with the allowed liberal arts majors:

- Elementary Education Licensure
 - BA — Individually Structured Major
- Secondary English Licensure
 - BA — English Literature
- Secondary Foreign Language Licensure
 - BA — French
 - BA — Spanish
- Secondary Social Sciences Licensure
 - BA — History
 - BA — Political Science
- Secondary Mathematics Licensure
 - BS — Mathematics

Students seeking undergraduate K–12 teacher licensure begin in the College of Liberal Arts and Sciences to complete the UCDHSC core curriculum, content course work for both the major and licensure and an education internship. Admission to the IPTE licensure program in the School of Education & Human Development is competitive, and requires students to do the following:

- attain a minimum 2.75 cumulative undergraduate GPA
- complete 150 hours of supervised experience with children through an approved internship
- complete all general education requirements
- complete all course work in the major
- complete all IPTE admission requirements

Interested students should contact the CLAS Advising Office, North Classroom 2024, 303-556-2555, and ask to speak to an academic advisor about undergraduate teacher licensure.

Further information can be found in the IPTE description in the School of Education & Human Development section of this catalog.

ENGLISH

Chair: Nancy Ciccone

Program Assistant: Scott Sherter

Administrative Assistant: Elaine Beemer

Office: 1015 9th Street Park

Telephone: 303-556-8304

Fax: 303-556-2959

Web site: www.cudenver.edu/clas/english/

Faculty

Professors: Susan Linville, PhD, University of Colorado; Bradford K. Mudge, PhD, University of Texas, Austin

Associate Professors: Joanne Addison, PhD, Purdue University; Pompa Banerjee, PhD, University of Massachusetts; Nancy Ciccone, PhD, University of California, Berkeley; Colleen Donnelly, PhD, University of Washington; Jeffrey Franklin, PhD, University of Florida; Richard VanDeWeghe, PhD, Michigan State University; Catherine A. Wiley, PhD, University of Wisconsin, Madison; Cynthia Wong, PhD, University of Wisconsin, Milwaukee; Ian Ying, PhD, University of Arizona; Jake York, MFA, PhD, Cornell University

Assistant Professors: Michelle Comstock, PhD, Purdue University; Jennifer S. Davis, MFA, University of Alabama; Philip Joseph, PhD, State University of New York, Buffalo; Gillian Silverman, PhD, Duke University; Amy Vidali, PhD, University of Washington

English majors learn to acquire and synthesize information and to present their ideas and opinions skillfully. They find employment in fields in which the sophisticated use of language is necessary for achievement and advancement. Many graduates go on to postgraduate study, not only in writing, film studies and literature, but to schools of medicine, law, education, journalism and business.

Undergraduate

An undergraduate wishing to major in English must declare a major and track by the time they have completed 60 semester hours and may choose one of two majors: literature or writing. The literature major allows a student to choose from one of three options: literature, creative writing or film studies. Students interested in a double major must choose one option in literature as well as the writing major and are required to complete 21 different courses (63 hours).

BA IN ENGLISH WITH SECONDARY TEACHER LICENSURE

Students seeking secondary English teacher licensure may pursue a BA in English with a restricted literature option. This enables them to complete their English literature major as well as fulfill requirements for licensure at the undergraduate level. Call 303-556-3790 for more information.

ENGLISH MAJOR

The course of study offered by the Department of English is designed to develop a student's ability to read literature responsibly and imaginatively, to foster an understanding and appreciation of our literary inheritance and to provide the historical perspective from which to evaluate contemporary writing. Careful study of the use of the English language also should help a student to resist the misuse and corruption of language in politics, the media and elsewhere. Students who complete the program in English are expected to have mastered the ability to express their ideas in clear and succinct prose.

Requirements for the English Major

Students majoring in English must present a total of 39 hours in the literature, film and/or creative writing options (excluding ENGL 1010,

1020 and 2030), of which 27 hours must be earned in upper-division courses. None of the required 39 hours may be taken on a pass/fail basis. Only courses completed with a grade of C (2.0) or above may be counted toward the major. At least 15 upper-division hours of the student's work in English must be taken from English faculty on the downtown Denver campus. Students planning to major in English literature must consult with an advisor as soon as possible. Students must choose one of the three options.

Literature Option

Required Courses	Semester Hours
ENGL 1400. Introduction to Literary Studies	3
ENGL 3001. Critical Writing	3
Total	6

Option-Specific Distribution Requirements

Before the Mid-Nineteenth Century

Choose three:

ENGL 3330-3350. Topics in Literature (before 1850)*	3
ENGL 3520. Religious Narratives	3
ENGL 3661. Shakespeare	3
ENGL 3700. American Literature to the Civil War	3
ENGL 4000. Studies of Major Authors*	3
ENGL 4080. History of the English Language	3
—or—	
ENGL 4400. Old English I	3
ENGL 4200. History of the English Novel I	3
ENGL 4500. Medieval Literature	3
ENGL 4510. Whores and Saints: Medieval Women	3
ENGL 4520. English Renaissance	3
ENGL 4530. Milton	3
ENGL 4540. Restoration and 18th Century	3
ENGL 4560. English Romanticism	3
ENGL 4730. Chaucer's Canterbury Tales	3
—or—	
ENGL 4731. Chaucer's Early Poetry	3
Total	9

After the Mid-Nineteenth Century

Choose four:

ENGL 3160. Language Theory	3
ENGL 3300-3324. Topics in Film*	3
ENGL 3330-3350. Topics in Literature (after 1850)*	3
ENGL 3750. American Literature, from the Civil War	3
ENGL 4000. Studies of Major Authors (after 1850)*	3
ENGL 4166. History of American Poetry	3
ENGL 4210. History of the English Novel II	3
ENGL 4220. African-American Literature	3
ENGL 4230. The American Novel	3
ENGL 4235. Faulkner	3
ENGL 4236. The American Short Story	3
ENGL 4250. Twentieth Century Fiction	3
—or—	
ENGL 4460. Contemporary World Literature	3
—or—	
ENGL 4600. Modern British and Irish Literature	3
ENGL 4300. History of British Drama (can also be counted as Before the Mid-Nineteenth Century)	3
—or—	
ENGL 4350. History of American Drama	3
ENGL 4320. History of Poetry in English (can also be counted as Before the Mid-Nineteenth Century)	3
ENGL 4580. The Victorian Age	3
Any 3000- or 4000-level ENGL course in gender, race, ethnic or international literature	3
Total	12

*Repeatable if topics differ

Required Area Electives (9 hours, any level) Semester Hours
Choose three courses in literature, film or creative writing. 9

Literary Studies Senior Capstone

ENGL 4000. Studies of Major Authors	3
—or—	
ENGL 4999. Literary Studies Senior Seminar	3
Option Total	39

Additional courses, total not to exceed 48 hours (any level).

Creative Writing Option

Students interested in pursuing careers or graduate work in creative writing should choose the creative writing option in literature.

Option-Specific Requirements

ENGL 1400. Intro. to Literary Studies	3
ENGL 1601. Telling Tales: Narrative Art in Literature and Film	3
—or—	
ENGL 2250. Introduction to Film	3
ENGL 2154. Introduction to Creative Writing	3
ENGL 3001. Critical Writing	3
Total	12

Advanced Course Work

Complete all courses in either poetry or fiction.

Poetry

ENGL 3020. Poetry Workshop	3
ENGL 4025. Advanced Poetry Workshop	3
ENGL 4080. History of the English Language	3
—or—	
ENGL 4160. Poetics	3
ENGL 4166. History of American Poetry	3
—or—	
ENGL 4320. History of Poetry in English	3
Total	12

Fiction

ENGL 3050. Fiction Workshop	3
ENGL 4055. Advanced Fiction Workshop	3
ENGL 4200. History of the English Novel I	3
—or—	
ENGL 4210. History of English Novel II	3
ENGL 4230. The American Novel	3
—or—	
ENGL 4236. The American Short Story	3
Total	12

Required Area Electives

Choose three:

ENGL 3160. Language Theory	3
—or—	
ENGL 4080. History of the English Language	3
ENGL 3300-3324. Topics in Film*	3
ENGL 3330-3350. Topics in Literature*	3
ENGL 3520. Religious Narratives	3
ENGL 3661. Shakespeare	3
ENGL 3700. American Literature to the Civil War	3
ENGL 3750. American Literature from Civil War	3
ENGL 4000. Studies of Major Authors*	3
ENGL 4166. History of American Poetry	3
ENGL 4200. History of the English Novel I	3
ENGL 4210. History of the English Novel II	3
ENGL 4220. African-American Literature	3
ENGL 4230. The American Novel	3
ENGL 4235. Faulkner	3
ENGL 4236. The American Short Story	3
ENGL 4250. Twentieth Century Fiction	3
—or—	

Semester Hours

ENGL 4460. Contemporary World Literature	
—or—	
ENGL 4600. Modern British and Irish Literature	3
ENGL 4300. History of British Drama	
—or—	
ENGL 4350. History of American Drama	3
ENGL 4320. History of Poetry in English	3
ENGL 4500. Medieval Literature	3
ENGL 4510. Whores and Saints: Medieval Women	3
ENGL 4520. English Renaissance	3
ENGL 4530. Milton	3
ENGL 4540. Restoration and 18th Century	3
ENGL 4560. English Romanticism	3
ENGL 4580. The Victorian Age	3
ENGL 4000. Studies of Major Authors	3
ENGL 4730. Chaucer's Canterbury Tales	3
—or—	
ENGL 4731. Chaucer's Early Poetry	3
Total	9

*Repeatable if topics differ

Choose one:

ENGL 2390. Writing the Short Script	3
ENGL 2415. Introduction to Movie Writing	3
ENGL 3020. Poetry Workshop	3
ENGL 3050. Fiction Workshop	3
ENGL 3084. Advanced Composition	3
ENGL 3154. Technical Writing	3
ENGL 3170. Business Writing	3
ENGL 3416. Magazine Writing	3
ENGL 4180. Argumentation and Logic	3
ENGL 4190. Special Topics in Rhetoric and Writing	3
ENGL 4701. Multimedia in the Community	3
Total	3

Internship or Senior Writing Project in Creative Writing or Film Studies (3 hours)

ENGL 3939. Internship	
—or—	
ENGL 4990. Senior Writing Project in Creative Writing or Film Studies	3
Option Total	39

Additional courses, total not to exceed 48 hours (any level).

Film Studies Option

The film studies option within the English major is designed to prepare students for a range of professional careers in areas such as screenwriting, film criticism, video production and the teaching of film, as well as those students who plan to pursue graduate programs in film studies. Required courses give students a strong grounding in film history, verbal and visual narrative, and the critical terms and techniques used in both film and literary analysis. Electives give students the option of emphasizing either the creative approach or the critical approach to moving-image media, or a combination of the two. The film studies option also affords students the opportunity to create video productions using state-of-the-art digital video and editing equipment and the possibility of airing their productions on cable TV. Offered in cooperation with the College of Arts & Media, the film studies option can be completed entirely on the Auraria campus.

Option-Specific Requirements

ENGL 2250. Introduction to Film	3
ENGL 3070. History of Silent Film	3
ENGL 3080. History of Sound Film	3
ENGL 4420. Film Theory and Criticism	3
Total	12

Required Area Electives

Students may take courses in all areas. 15 of the 27-hour minimum must be at the 3000/4000 level. Production courses must be taken through the College of Arts & Media. Equivalent screenwriting courses may be taken through CAM.

Critical Studies	<i>Semester Hours</i>
ENGL 1400. Introduction to Literary Studies	3
ENGL 3001. Critical Writing	3
ENGL 3075. Film Genres*	3
ENGL 3085. Film Directors*	3
ENGL 3200. From Literature to Film	3
ENGL 3300-3324. Topics in Film*	3
ENGL 4190. Special Topics in Rhetoric and Writing (film and media-focused only; e.g., Film and Rhetoric)*	3
ENGL 4701. Multimedia in the Community	3
ENGL 4770. Topics in English: Film and Literature (film and media-focused only)*	3
ENGL 4990. Senior Writing Project in Creative Writing or Film Studies (can be taken under B or C)	3
May also choose from any single approved film course offered through another department or a single 3000/4000-level literature course	3

*Repeatable if a different genre/director/topic.

Screenwriting

ENGL 2390. Writing the Short Script	3
ENGL 2415. Introduction to Movie Writing	3
ENGL 3415. Screenwriting Workshop (may repeat once)	3

Production

FILM 1051. Introduction to Video Production and Postproduction	4
FILM 2000. Film and Video Production II	3
FILM 2150. Film and Video Postproduction II	3
Total	27
Option Total	39-40

Additional courses, total not to exceed 48 hours (any level).

College Core Courses for English Majors

Students must complete the College of Liberal Arts and Sciences core curriculum requirements as specified in the CLAS Core Curriculum/ Graduation Requirements chart in the front of this chapter. Check the Web Schedule Planner for specific course offerings.

Electives

Elective hours may be selected at the student's discretion, but students are urged to work with their advisor in outlining a program in which electives and requirements support each other. Six hours earned in the cooperative education program may be counted toward the major.

ENGLISH WRITING MAJOR

Especially designed for future writers, the writing major offers a wide range of intensive writing experiences combining such areas as rhetoric, professional, general and creative writing.

Requirements for the English Writing Major

Students majoring in writing must present a total of 39 hours for the major (excluding ENGL 1010, 1020, 2030), of which 27 hours must be earned in upper-division courses. None of the required 39 hours may be taken on a pass/fail basis. Only courses completed with a grade of C (2.0) or above may be counted toward the major. At least 15 upper-division hours of the student's work in writing must be taken from the downtown Denver campus English faculty. Students planning to major in writing must consult with an advisor as soon as possible.

<i>Required Courses</i>	<i>Semester Hours</i>
ENGL 2070. Grammar, Rhetoric and Style	3
ENGL 2154. Introduction to Creative Writing	3
ENGL 3084. Advanced Composition	3
ENGL 3154. Technical Writing	
—or—	
ENGL 3170. Business Writing	3
ENGL 3160. Language Theory	
—or—	
ENGL 4080. History of English Language	3
ENGL 4180. Argumentation and Logic	3
ENGL 4190. Special Topics in Rhetoric and Writing	3
Total	21

Advanced Course Work (15 hours, 3000/4000 level)

Students pursuing a general writing degree may choose from all writing courses listed. Students pursuing a concentration in professional writing or teaching English as a second language must complete at least 9 hours in those areas.

Professional Writing Concentration

Choose at least three:

ENGL 3154. Technical Writing	3
ENGL 3170. Business Writing	3
ENGL 3416. Magazine Writing	3
ENGL 3939. Internship	3
ENGL 4190. Special Topics in Rhetoric and Writing*	3
(professional writing topic)	
ENGL 4280. Proposal and Grant Writing	3
ENGL 4701. Multimedia in the Community	3
ENGL 4995. Senior Writing Project	3
Total	9-15

*Repeatable when title/content differ.

Teaching English as a Second Language Concentration

Choose at least three:

ENGL 3160. Language Theory	3
ENGL 4601. Principles and Practices of Second Language Acquisition	3
ENGL 3939. Internship*	
—or—	
ENGL 4190. Special Topics in Rhetoric and Writing*	
—or—	
ENGL 4995. Senior Writing Project*	3
Total	9-15

*TESOL topics only

General Writing Courses

ENGL 3020. Poetry Workshop	3
ENGL 3050. Fiction Workshop	3
ENGL 3415. Screenwriting Workshop (may repeat once)	3
ENGL 3939. Internship	3
ENGL 4025. Advanced Poetry Workshop	3
ENGL 4055. Advanced Fiction Workshop	3
ENGL 4190. Special Topics in Rhetoric and Writing	3
ENGL 4800-4805. Special Topics in Creative Writing*	3
ENGL 4990. Senior Writing Project in Creative Writing or Film Studies	3
ENGL 4995. Senior Writing Project	3
Total	9-15

*Repeatable when title/content differ.

Electives (6 hours, 3000/4000-level)

Students may opt to replace two of the five required "Advanced Course Work" courses with other English 3000-4000 level courses (writing, literature, film, creative writing) and/or approved writing courses from other departments. 0-6

<i>Senior Capstone in Writing</i>	<i>Semester Hours</i>
ENGL 4990. Senior Writing Project in Creative Writing or Film Studies	
—or—	
ENGL 4991. Senior Seminar in Writing	
—or—	
ENGL 4995. Senior Writing Project	3
Major Total	39

Additional courses, total not to exceed 48 hours (any level).

Senior Writing Project in Creative Writing or Film Studies (ENGL 4990) or Senior Writing Project (ENGL 4995) are not courses *per se*, but rather an independent study in which the student undertakes a major writing project under the supervision of downtown Denver campus English faculty. The student chooses the topic while the project supervisor helps refine it, guides the research, reviews and comments on student's drafts and grades the final product. The project may derive from study in a particular course or it may be based on a topic of interest which does not stem from course work. Forms are available in the English department office and must be signed by the supervising faculty member, who will provide the student with the necessary information to enroll online.

College Core Courses for English Writing Majors

Students must complete the College of Liberal Arts and Sciences core curriculum requirements as specified in the CLAS Core Curriculum/ Graduation Requirements chart in the front of this chapter. Check the Web Schedule Planner for specific course offerings.

Electives

Elective hours may be selected at the student's discretion, but students are urged to work with their advisor in outlining a program in which electives and requirements support each other. Up to 6 hours earned in the cooperative education program may be counted toward the major.

MINORS IN THE DEPARTMENT OF ENGLISH

The Department of English also offers four separate minors. No courses taken for a minor may be counted toward an English major.

Literature Minor

This program is designed for students who are interested in the study of English literature but who have elected to major in another area. The recommended series of courses allows students to become acquainted with some of the methods of literary study and with a number of the most important literary works.

The literature minor allows students to complement their area of major study with systematic experience in literature.

Students minoring in literature must complete a total of 15 hours (excluding ENGL 1010, 1020, 2030). None of the required 15 hours may be taken pass/fail. Only courses completed with a grade of C (2.0) or better may be counted toward the minor. A minimum of 9 upper-division hours of work in the minor must be taken with downtown Denver campus English faculty.

Required Courses

ENGL 1400. Introduction to Literary Studies	3
ENGL 3001. Critical Writing	3

Electives; distribution requirements

Any three 4000-level courses, at least two of which must be from those listed as distribution requirements for the major 9
Total

Restrictions. These requirements may not be met by independent study. All upper-division courses must be taken from a member of the downtown Denver campus faculty. Only grades of C or above may be counted toward the minor in literature.

Writing Minor

The writing minor allows students to complement their area of major study with systematic experience in writing.

Students minoring in writing must complete a total of 15 hours (excluding ENGL 1010, 1020, 2030). None of the required 15 hours may be taken pass/fail. Only courses completed with a grade of C (2.0) or better may be counted toward the minor. A minimum of 9 upper-division hours of work in the minor must be taken with downtown Denver campus English faculty.

Students are encouraged to take ENGL 1020 and ENGL 2030 before beginning the minor. (ENGL 2154 and ENGL 2030 can be taken concurrently.)

<i>Required Courses</i>	<i>Semester Hours</i>
ENGL 2070. Grammar, Rhetoric and Style	3
ENGL 4180. Argumentation and Logic	3
ENGL 4190. Special Topics in Rhetoric and Writing	<u>3</u>
Total	9

<i>Distributed Course</i>	
ENGL 2154. Introduction to Creative Writing	
—or—	
ENGL 3154. Technical Writing	
—or—	
ENGL 3170. Business Writing	3

<i>Elective (3 hours):</i>	
One 3000-/4000-level writing course	<u>3</u>
Minor Total	15

Creative Writing Minor

Students who are not majoring in an English creative writing option or are not majoring in English, and who have an interest in writing poetry or fiction, may enroll in the creative writing minor. The minor gives students the opportunity to complement their area of major study with experience writing and reading poetry or fiction.

Students minoring in creative writing must complete a total of 15 hours. None of the required courses may be taken pass/fail. Only courses completed with a grade of C (2.0) or better may be counted toward the minor. All upper-division courses must be taken with downtown Denver campus English faculty. Students should take ENGL 1020 before beginning the minor.

<i>Required Courses</i>	
ENGL 1400. Introduction to Literary Studies	3
ENGL 2154. Introduction to Creative Writing	<u>3</u>
Total	6

<i>Electives (9 hours) for students interested in poetry</i>	
ENGL 3020. Poetry Workshop	3
ENGL 4025. Advanced Poetry Workshop	3
ENGL 4160. Poetics	
—or—	
ENGL 4166. History of American Poetry	
—or—	
ENGL 4320. History of Poetry in English	<u>3</u>
Total	9

<i>Electives (9 hours) for students interested in fiction</i>	
ENGL 3050. Fiction Workshop	3
ENGL 4055. Advanced Fiction Workshop	3
ENGL 4200. History of the English Novel I	
—or—	
ENGL 4210. History of the English Novel II	
—or—	
ENGL 4230. American Novel	
—or—	
ENGL 4236. American Short Story	<u>3</u>
Total	<u>9</u>
Minor Total	15

Film Studies Minor

The film studies minor offers students the opportunity to gain an informed understanding of the sophisticated medium of film, its language and history. Courses cover critical writing about cinema, creative screenwriting, the evolution of Hollywood movies, international cinema and film in its cultural context. The film studies minor makes a valuable complement to a range of undergraduate majors.

Students must complete a total of 15 hours for the film studies minor. None of the required 15 hours may be taken pass/fail. Only courses completed with a grade of C (2.0) or better may be counted toward the minor. A minimum of 9 hours must be taken with downtown Denver campus faculty. Students are strongly advised to take ENGL 2250. Introduction to Film before taking other film courses. Students are also advised to fulfill the liberal arts and sciences core curriculum writing requirements before enrolling in upper-division topics in film courses. No more than two online film studies courses can be counted toward the minor.

<i>Required Courses</i>	<i>Semester Hours</i>
ENGL 2250. Introduction to Film	3
ENGL 3070. History of Silent Film	
—or—	
ENGL 3080. History of Sound Film	<u>3</u>
Total	6

<i>Electives</i>	
Choose three:	
ENGL 2415. Introduction to Movie Writing	3
ENGL 3070. History of Silent Film	
—or—	
ENGL 3080. History of Sound Film	3
ENGL 3075. Film Genres*	3
ENGL 3085. Film Directors*	3
ENGL 3200. From Literature to Film	3
ENGL 3300-3324. Topics in Film*	3
ENGL 4420. Film Theory and Criticism	3
ENGL 4770. Topics in English: Film and Literature (film topics only)*	3
Approved film courses from another department	<u>3</u>
Total	<u>9</u>
Minor Total	15

*Repeatable with different topic or title.

DEPARTMENTAL HONORS

Latin honors may be earned by participating in the department's honors program. Students with a 3.5 GPA in English are encouraged to begin the program in their junior year. The program requires additional course work (1-3 hours) and affords students the opportunity to work individually with the professor of their choice. Detailed information is available in the English department office.

ADDITIONAL INFORMATION

For additional information on majors, options and minors, call the Department of English office at 303-556-8304 or 303-556-2584.

Graduate

MA IN ENGLISH

The department offers three options in the English MA degree. The literature option increases students' knowledge of English and American literature and also their familiarity with a variety of critical methodologies. The teaching of writing option introduces students to the theory, research and pedagogy underlying contemporary instruction in secondary and college composition. The applied linguistics option introduces students

to the principles, practices and concerns of teaching English to adults whose first language is not English.

All three options permit a minor, which consists of 6 hours of non-English or English courses at or above the 5000 level, and which are specifically approved by the appropriate director. Frequently, students pursuing one program of study will create a minor by taking some courses in another program in addition to their required courses. Students concurrently pursuing a master's in education can count up to 6 hours of education courses toward their MA in English with their English advisor's permission.

Contact the director of graduate studies for more information on these programs, 303-556-8304.

REQUIREMENTS FOR ADMISSION

Applicants for any of the programs described above must submit all application materials by either the spring, summer or fall deadline. The deadline for fall enrollment is May 25, the deadline for spring enrollment is October 25 and the deadline for summer is March 25. Complete applications for all four programs must include the following:

- a completed application from the Graduate School office on the downtown Denver campus
- two copies of all graduate and undergraduate transcripts, and for any nondegree courses previously taken
- four letters of recommendation in which the recommender specifically addresses the candidate's ability to pursue successfully the program chosen
- recent scores on the GRE, including the analytical, verbal and quantitative portions. GRE score average should be 600 or higher. Analytical writing score should be 4 or higher.
- evidence of a 3.0 GPA in previous courses
- a letter of application, in which the applicant carefully describes reasons and motivation for pursuing the program chosen, and career aspirations upon completing the degree

In addition to these requirements, applicants for the MA in literature must have successfully completed 24 semester hours in English courses (graduate or undergraduate), excluding courses in composition, creative writing or speech. At least 16 of these semester hours must be at the upper-division level.

TRANSFER OF CREDITS FROM OTHER CU CAMPUSES

Students admitted to graduate study in English may complete all of their course requirements for the MA degree at UCDHSC. Up to 9 credits (total) may be transferred from the CU-Boulder, CU-Colorado Springs or other graduate program; however, such transfer requires the written approval of the specific program coordinator. Further, work already applied toward a graduate degree received at the University of Colorado or at another institution cannot be transferred toward another graduate degree of the same level at UCDHSC. (For other rules concerning transfer of graduate credits, see the downtown Denver campus Graduate School Rules available from the Graduate School Web site.) For more information, contact the director of graduate studies at 303-556-4648.

DEGREE REQUIREMENTS

Two of the three programs above require a total of 30 semester hours. The MA in English requires 33 semester hours. Each program also has a different capstone requirement, e.g., a thesis, a comprehensive examination or a project. Prospective applicants should contact the director of graduate studies for a detailed description of these requirements, 303-556-4648.

ETHNIC STUDIES MINOR

Director: Donna Langston
Program Assistant: Jennifer Williams
Office: Lawrence Street Center, 480
Telephone: 303-556-2700
Fax: 303-556-3611
Web site: www.cudenver.edu/ethnic/

Faculty

Professor: Donna Langston, PhD, University of Washington
Assistant Professor: Paula Espinoza, PhD, University of Colorado at Boulder
Senior Instructors: Paul Encinias, Russell Endo, Dennis Green
Lecturers: Jackie Benton, Khushnur Dadabhoy, Peggy Lore, Omar Montgomery

Undergraduate

The ethnic studies minor is designed to help students majoring in the liberal arts and sciences develop a sophisticated and broad understanding of ethnicity and its role in contemporary American society. It provides students with the theories and concepts needed to comprehend and interpret relations between and among ethnic groups in the U.S. Students are better prepared to live and work in a pluralistic society when educational institutions foster a positive learning environment in which differences contained within various U.S. communities can be studied not as a social problem, as is often the case, but for their history of struggles and contributions.

The interdisciplinary nature of the ethnic studies program curriculum provides students the opportunity, through academic investigation, to develop a greater understanding of the cultural pluralism of the present-day United States and to acquire skills needed in professional and social service fields. This multidisciplinary, comparative approach to contemporary and historical research methodologies provides the basis for students to analyze the diverse social, economic, political and cultural facets of ethnic groups in the United States. Special emphasis is given to new perspectives that recover the history, creative expression and voices previously excluded by the traditional approaches to higher education.

Courses offered under the minor reflect prevailing thought in ethnic studies, draw parallels between various groups in the U.S. and link the studies of their country of origin with current and historical research on race and ethnic relations in the U.S. These courses reflect critical analyses of the dominant perspectives through which ethnic groups have been described and perceived. Also investigated are the intersections of ethnicity with structures of political, educational, gender, business and economic, social and cultural power, all of which are emphasized through the study of materials and works by and about previously excluded groups. The cultural processes through which ethnic groups have sustained or altered their cultural identities are emphasized, as well as the pressures faced by members of various ethnic groups to maintain traditional values and conform to mainstream U.S. society.

REQUIREMENTS FOR THE MINOR

The minor in ethnic studies offers students the opportunity to enhance and broaden the body of knowledge acquired in their chosen majors and to apply it in a variety of careers involving intercultural relations. Students are required to complete 18 semester hours (6 courses) in ethnic studies with a grade of C or better. These hours are to be taken with UCDHSC faculty (any exception needs to be approved by the ethnic studies advisor). At least 9 of the required 18 hours must be in courses numbered 3000 or above.

The 18 hours required for the minor must be distributed as follows:

<i>Core Course</i>	<i>Semester Hours</i>
ETST 2000. Introduction to Ethnic Studies	3

<i>Additional Courses</i>	<i>Semester Hours</i>
Select four upper- or lower-division ETST courses from the following four focal U.S. racial/ethnic groups	12
Asian Americans	
African Americans	
American Indians	
Chicanos/as and Latinos/as	
 <i>Elective</i>	
ETST elective course of your choice	3
Total	18

UNDERGRADUATE CERTIFICATE IN CULTURAL DIVERSITY STUDIES

The undergraduate certificate in cultural diversity studies is designed to appeal to undergraduate students with a background in any major. It will allow students to demonstrate to potential employers that they possess the multicultural skills and knowledge necessary to succeed in the workplace. Students will enroll in department courses that focus on the historical context in which race and culture have emerged in the United States.

This certificate is also targeted to non-degree-seeking professionals who seek to acquire multicultural knowledge and the skills necessary to ensure their success in professional environments. Students will be encouraged to think critically about race and race relations. Their expanded understandings of the implications of race and culture in work environments will ensure employers that they offer the highest quality employees opportunities in employment or advancement.

A certificate in cultural diversity studies offers students an enduring intellectual value based on classic articles, book excerpts and scholars who have shaped the study and understanding of race and ethnicity in contemporary society. Our courses provide the opportunity for students to encounter many of the greatest thinkers in race and ethnicity firsthand. Course curriculum includes carefully edited selections from the works of the most distinguished observers of race and ethnicity, past and present. Students will appreciate the broad range of coverage, the logic of course organization and the accessibility of material covered.

The undergraduate certificate in cultural diversity studies requires 12 semester hours (four courses).

<i>Required Course</i>	
ETST 2000. Introduction to Ethnic Studies	3
<i>Electives</i>	
Choose three courses from any ethnic studies department courses, including the following:	
ETST 2155. African American History	3
ETST 2294. Race and the Media	3
ETST 3254. Race and Ethnicity in the Inner City	3
ETST 3297. Social History of Asian Americans	3
ETST 3396. History of the American Indian	3
ETST 3704. Culture, Racism and Alienation	3
ETST 4558. Chicano and Latino Politics	3
Total	9
Certificate Total	12

There are crosslisted courses in a variety of departments, including communication, economics, engineering, English, film, fine arts, history, philosophy, political science, psychology, religious studies, sociology and Spanish. Any crosslisted course is acceptable. You must register for it under ETST numbers. A complete listing of department offerings and crosslisted courses can be obtained every semester from the ethnic studies department Web page or by calling our office at 303-556-2700 for a copy.

A minimum grade of B- must be earned in each of the four courses completed as part of the certificate. All credits for the certificate must be earned at the downtown Denver campus.

Additional information about the undergraduate certificate in cultural diversity studies may be obtained from ethnic studies Director Donna Langston, Lawrence Street Center, 480, 303-556-2726, Donna.Langston@cudenver.edu.

GEOGRAPHY AND ENVIRONMENTAL SCIENCES

Chairs: Frederick B. Chambers and Brian Page
Program Assistant: Sue Eddleman
Office: North Classroom, 3621
Telephone: 303-556-2276
Fax: 303-556-6197
Web site: www.cudenver.edu/clas/ges/

Faculty

Professors: Jon Harbor, PhD, University of Washington; Martin G. Lockley, PhD, University of Birmingham (England); Herman Sievering, PhD, University of Illinois; John G. Weihaupt, PhD, University of Wisconsin, Milwaukee
Professor Emeritus: Wesley E. LeMasurier, PhD, Stanford University
Associate Professors: Frederick B. Chambers, PhD, Arizona State University, Tempe; Brian Page, PhD, University of California, Berkeley; John W. Wyckoff, PhD, University of Utah
Assistant Professors: Rafael Moreno-Sanchez, PhD, Colorado State University; Deborah S. K. Thomas, PhD, University of South Carolina; Joanna L. Wright, PhD, University of Bristol
Senior Instructors: Jon Barbour, PhD, University of California, Davis; Rudi Hartmann, PhD, Technical University of Munich
Instructor: Amanda Gierow, MA, University of Texas, Austin
Lecturers: John Lufkin, Jeanne Mayne, Heather Moore, Peter Timm

Undergraduate

Geography is a science that focuses on the spatial analysis of human/physical patterns and processes. Geographers attempt to identify the factors affecting the distribution of people and their activities on the surface of the earth and to provide meaningful solutions to problems faced by societies. This discipline is an ideal major for the liberal arts student, providing exposure to the concepts and techniques utilized in investigating the physical sciences, environmental issues, socioeconomic problems and planning policies.

The program is designed to provide the student interested in economic, physical or social geography with the background necessary for obtaining a rewarding career in government (federal, state, local) or private industry, as well as preparing students for graduate work.

REQUIREMENTS FOR MAJOR IN GEOGRAPHY

Students must declare a major by the time they have completed 60 semester hours of course work. The geography program (within the Department of Geography and Environmental Sciences) offers a BA degree that includes a full range of courses in the fundamentals of geography taught mainly by full-time faculty. Five degree options are available for the major in geography: general, environmental science, environmental studies, urban studies and planning and earth science. Total semester hour requirements vary among the five options, but all options require a minimum of 24 hours of upper-division credit. In addition, for each option, at least 15 semester hours must be taken at the downtown Denver campus.

Option 1 — General Geography

Option Advisors: Frederick B. Chambers and Brian Page

<i>Option 1 Requirements</i>	<i>Semester Hours</i>
Lower division	
GEOG 1202. Introduction to Physical Geography	3
GEOG 1302. Introduction to Human Geography	3

	<i>Semester Hours</i>
Upper division	
GEOG 3080. Introduction to Cartography and Computer Mapping	3
GEOG 3232. Weather and Climate	3
GEOG 3411. Globalization and Regional Development	3
GEOG 4080/5080. Introduction to GIS	<u>3</u>
Total	18

Additional Requirements

Choose six additional courses, including at least one course from each of the following subfields:

Physical Geography	
GEOG 3240. Colorado Climates	3
GEOG 4020. Earth Environments and Human Impacts	3
GEOG 4240. Principles of Geomorphology	3
GEOG 4270. Glacial Geomorphology	3

Human Geography	
ENVS 1342. Introduction to Environment and Society	3
GEOG 1602. Introduction to Urban Studies	3
GEOG 2202. Natural Hazards	3
GEOG 3430. Geography of Tourism	3
GEOG 4265/5265. Sustainability in Resource Management	3
GEOG 4335/5335. Contemporary Environmental Issues	3
GEOG 4350/5350. Environment and Society in the American Past	3
GEOG 4640/5640. Urban Geography: Denver and the U.S.	3

Regional Geography	
GEOG 1102. World Regional Geography	3
GEOG 3100. Geography of Colorado	3
GEOG 3120. Geography of Europe	3
GEOG 3130. Central America and the Caribbean	3
GEOG 3140. Geography of South America	3
GEOG 3150. Middle East	3
GEOG 3160. Geography of China	3

Techniques for Geographical Analysis	
GEOG 4060/5060. Remote Sensing I	3
GEOG 4070/5070. Remote Sensing II	3
GEOG 4085/5085. GIS Applications	3
GEOG 4090/5090. Environmental Modeling with GIS	3
GEOG 4095/5095. Deploying GIS Functionality on the Web	3
GEOG 4220/5220. Environmental Impact Assessment	3
GEOG 4230/5230. Hazard Mitigation and Vulnerability Assessment	3
GEOG 4235/5235. GIS Applications in the Health Sciences	3
GEOG 4770. Applied Statistics for the Natural Sciences	<u>3</u>
Total	18
Option Total	36

Option 2 — Environmental Science

Option Advisors: Frederick B. Chambers and Herman Sievering

Option 2 allows geography majors to concentrate on course work in environmental science.

Ancillary Courses

Option 2 students must take either a general biology sequence OR a general chemistry sequence to develop their science disciplinary skills.

BIOL 2051 and 2071 (4 semester hours) followed by BIOL 2061 and 2081 (4 semester hours)

—or—

CHEM 2031 and 2038 (4 semester hours) followed by CHEM 2061 and 2068 (5 semester hours)

Option 2 Requirements

Lower division	
ENVS 1042. Introduction to Environmental Sciences	4
GEOG 1202. Introduction to Physical Geography	3
GEOG 1302. Introduction to Human Geography	3

—or—

ENVS 1342. Introduction to Environment and Society	3
GEOG 3080. Introduction to Cartography and Computer Mapping	3

Upper division	
GEOG 3232. Weather and Climate	3
GEOG 3411. Globalization and Regional Development	3

—or—

GEOG 4335/5335. Contemporary Environmental Issues	3
Total	19

Additional Requirements

Choose seven additional courses:

Environmental Science	
GEOG 4020. Earth Environments and Human Impacts	3
GEOG 4220/5220. Environmental Impact Assessment	3

—or—

GEOG 4265/5265. Sustainability in Resource Management	3
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Plus one class from the following list:

GEOG 3240. Colorado Climates	3
GEOG 4240. Principles of Geomorphology	3
GEOG 4270. Glacial Geomorphology	3
GEOL 1202. Introduction to Oceanography	3
GEOL 4030. Environmental Geology	3

Upper-Division Environmental-Oriented Biology or Chemistry

One upper-division chemistry or biology course related to the student's environmental science interest must be taken as part of the environmental science option.

Introductory Statistics

One introductory statistics course must be taken as part of the environmental science option. Suitable courses include: MATH 2830, PSY 2090 and SOC 3121.

Techniques for Environmental Analysis

Choose one course from each:

Quantitative Methods	
ANTH 4050. Quantitative Methods in Anthropology	3
GEOG 4770. Applied Statistics for the Natural Sciences	3

Geo-Spatial Analysis

GEOG 4060/5060. Remote Sensing I	3
GEOG 4080/5080. Introduction to GIS	<u>3</u>

Total	21
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Option Total	40
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Option 3 — Environmental Studies

Option Advisors: Rafael Moreno and Deborah Thomas

Option 3 gives geography majors the opportunity to concentrate on the topic of human-environmental interaction, emphasizing policy and social issues.

Option 3 Requirements

Lower division	
ENVS 1042. Introduction to Environmental Sciences	4
ENVS 1342. Introduction to Environment and Society	3
GEOG 1302. Introduction to Human Geography	3

Upper division	
GEOG 3080. Introduction to Cartography and Computer Mapping	3
GEOG 3232. Weather and Climate	3
GEOG 3411. Globalization and Regional Development	3
GEOG 4080/5080. Introduction to GIS	<u>3</u>
Total	22

Additional Requirements

Choose six additional courses:

Environmental Studies	<i>Semester Hours</i>
GEOG 4265/5265. Sustainability in Resource Management	3
GEOG 4335/5335. Contemporary Environmental Issues	3

Plus one course from the following list:

GEOG 3302. Water Resources	3
GEOG 3430. Geography of Tourism	3
GEOG 4350/5350. Environment and Society in the American Past . . .	3

Environmental Policy and Planning

Choose one:

GEOG 4220/5220. Environmental Impact Assessment	3
GEOG 4230/5230. Hazard Mitigation and Vulnerability Assessment .	3
GEOG 4260/5260. Natural Resource Planning and Management . . .	3
PAD 5631. Seminar in Environmental Politics and Policy	3
PAD 5633. Seminar in Natural Resource and Environmental Health Law	3
P SC 4354. Environmental Politics	3

Techniques for Environmental Analysis

Choose two:

GEOG 4060/5060. Remote Sensing I	3
GEOG 4070/5070. Remote Sensing II	3
GEOG 4085/5085. GIS Applications	3
GEOG 4090/5090. Environmental Modeling with GIS	3
GEOG 4095/5095. Deploying GIS Functionality on the Web	3
GEOG 4235/5235. GIS Applications in the Health Sciences	3
GEOG 4770. Applied Statistics for the Natural Sciences	3

Community/Professional Experience (optional but highly recommended)

GEOG 3939. Internship	1-3
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Total	18
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Option Total	40
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Note: Up to 4 semester hours of honors thesis course work or up to 3 semester hours of internships may be counted toward the 18 hours of additional requirements. Such substitutions must be approved by a program option advisor.

Option 4—Urban Studies and Planning

Option Advisors: Brian Page and Amanda Gierow

Option 4 allows geography majors to concentrate on social and spatial aspects of metropolitan growth and change. Students are given the opportunity to take advanced planning courses in their junior and senior years.

Option 4 Requirements

Lower division

GEOG 1202. Introduction to Physical Geography	3
GEOG 1302. Introduction to Human Geography	3
GEOG 1602. Introduction to Urban Studies	3

Upper division

GEOG 3080. Introduction to Cartography and Computer Mapping .	3
GEOG 3232. Weather and Climate	3
GEOG 3411. Globalization and Regional Development	3
GEOG 4080/5080. Introduction to GIS	3
Total	21

Additional Requirements

Choose six additional courses:

Urban Studies and Planning	
GEOG 4640/5640. Urban Geography: Denver and the U.S.	3
URP 5501. Planning Issues and Processes	3

Plus two courses from the following list:

Semester Hours

GEOG 4220/5220. Environmental Impact Assessment	3
GEOG 4230/5230. Hazard Mitigation and Vulnerability Assessment .	3
GEOG 4260/URP 6653. Natural Resource Planning and Management .	3
GEOG 4265/5265. Sustainability in Resource Management	3
GEOG 4400/URP 6671. Regional Economic Development	3
GEOG 4630/URP 6673. Transportation Planning I	3
GEOG 4670/URP 6674. Transportation Planning II	3

Techniques for Urban Analysis

Choose two:

GEOG 4060/5060. Remote Sensing I	3
GEOG 4070/5070. Remote Sensing II	3
GEOG 4085/5085. GIS Applications	3
GEOG 4090/5090. Environmental Modeling with GIS	3
GEOG 4095/5095. Deploying GIS Functionality on the Web	3
GEOG 4235/5235. GIS Applications in the Health Sciences	3

Community/Professional Experience (optional but highly recommended)

GEOG 3939. Internship	1-3
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Total	18
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Option Total	39
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Note: Up to 4 semester hours of honors thesis course work or up to 3 semester hours of internship may be counted toward the 18 hours of additional requirements. Such substitutions must be approved by a program option advisor.

Option 5—Earth Science

Option Advisor: Joanna Wright

Option 5 allows geography majors to concentrate on studying natural and physical processes within and on the surface of the planet.

Option 5 Requirements

Lower division

ENVS 1042. Introduction to Environmental Sciences	4
ENVS 1342. Introduction to Environment and Society	

—or—

GEOG 1302. Introduction to Human Geography	3
GEOG 1072. Physical Geology: Surface Processes	4
GEOG 1082. Physical Geology: Internal Processes	4

Upper division

GEOG 3080. Introduction to Cartography and Computer Mapping .	3
GEOG 4335/5335. Contemporary Environmental Issues	

—or—

GEOG 3411. Globalization and Regional Development	3
Total	21

Additional Requirements

Choose six additional courses:

Earth Science

GEOG 3232. Weather and Climate	
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—or—

GEOG 3411. Introductory Paleontology	4
GEOG 3011. Mineralogy	4
GEOG 3421. Sedimentation and Stratigraphy	4

Plus one of the following courses:

GEOG 4240. Principles of Geomorphology	3
GEOG 1202. Introduction to Oceanography	3
GEOG 3032. Geology of Colorado	3
GEOG 3100. Current Perspectives on Evolution of Consciousness and Culture	3
GEOG 3102. Dinosaurs Past and Present	3
GEOG 4460. Vertebrate Paleontology and Evolution	3

Environmental Science	Semester Hours
Choose one:	
ENVS 5030. Environmental Geology	3
GEOG 4010. Biogeochemical Cycles	3
GEOG 4020. Earth Environments and Human Impacts	3
GEOG 4220/5220. Environmental Impact Assessment	3
GEOG 4265/5265. Sustainability in Resource Management	3
PHYS/ENVS 3082. Energy and the Environment	3
Techniques for Earth Science Analysis	
Choose one:	
GEOG 4060/5060. Remote Sensing I	3
GEOG 4080/5080. Introduction to GIS	3
GEOG 4770. Applied Statistics for the Natural Sciences	3
Total	20-21
Option Total	41-42

UNDERGRADUATE GEOGRAPHIC INFORMATION SCIENCE CERTIFICATE

Description

The intention of this certificate is to provide undergraduates with a mechanism for demonstrating capabilities in spatial techniques in the social and/or physical sciences. The focus of this certificate is on a broad array of geotechniques, including geographic information systems, remote sensing, cartography and statistics, which give students additional analytical skills to take into the workplace or on to graduate school.

This certificate is designed for geography majors as well as nonmajors.

Upon successful completion of the certificate, students will be able to:

- understand basic theoretical underpinnings of spatial analysis
- apply geo-spatial technologies to real-world problems
- have a basic knowledge of how to operate at least three types of software used for spatial analysis

Curriculum

To obtain the certificate, students must complete four core courses, one elective, and a 1-hour independent study, totaling 16 hours. Although the four core courses may be taken in any order, it is advisable to begin with GEOG 3080. Introduction to Cartography and Computer Mapping, since this course familiarizes students with many key concepts used in the other classes. All core courses are offered on a yearly basis. See department Web site for details (www.cudenver.edu/clas/ges).

DEPARTMENTAL HONORS

The criteria for *cum laude* shall be a GPA of 3.6 in all courses on the downtown Denver campus (a minimum of 30 credits for transfer students) and an honors thesis that demonstrates independent research skills. The criteria for *magna cum laude* shall be a GPA of 3.75 in all downtown Denver campus courses and a superior honors thesis. The criteria for *summa cum laude* shall be a GPA of 3.9 in all downtown Denver campus courses and a truly exceptional honors thesis. The GPA alone shall serve only as a minimum criterion for each of the three levels of honors. Evaluation of the honors thesis shall be the deciding criterion for the level that is granted. The department expects that the award of *summa cum laude* would be a rare occurrence reserved for students who demonstrate extraordinary academic promise.

Admission to the honors program and the awarding of departmental honors shall be subject to faculty approval.

SENIOR EXIT EXAMINATION

All majors are required to take a senior exit examination based on required courses in the discipline.

REQUIREMENTS FOR ENVIRONMENTAL SCIENCES MINOR

The environmental sciences minor offers students exposure to the breadth of environmental issues. Students may emphasize the natural/physical sciences, the social sciences and humanities or structure their own mixed emphasis.

Choose two lecture/laboratory courses (see Note 2):	Semester Hours
BIOL 2051/2071. General Biology I/Laboratory	4
BIOL 2061/2081. General Biology II/Laboratory	4
CHEM 2031/2038. General Chemistry I/Laboratory	4
CHEM 2061/2068. General Chemistry II/Laboratory	5
ENVS 1042. Introduction to Environmental Sciences	4
GEOL 1072. Physical Geology: Surface Processes	4
GEOL 1082. Physical Geology: Internal Processes	4
PHYS 2010/2030. College Physics I/Laboratory	5
PHYS 2020/2040. College Physics II/Laboratory	5
Total	8-10

Choose three upper-division courses outside of the student's major discipline from the following list (see Notes 5 and 6):

ANTH 4010. Global Health Studies I	3
BIOL 3411. Principles of Ecology	3
CHEM 4700. Environmental Chemistry (see Note 4)	3
ECON 4540. Environmental Economics	3
ENVS/PHYS 3082. Energy and the Environment	3
GEOG 3232. Weather and Climate	3
GEOG 3240. Colorado Climates	3
GEOG 4020/ENVS 5020. Earth Environments and Human Impacts ..	3
GEOG 4060/5060. Remote Sensing I	3
GEOG 4080/5080. Introduction to GIS	3
GEOG 4090/5090. Environmental Modeling with GIS	3
GEOG 4220/5220. Environmental Impact Assessment	3
GEOG 4230/5230. Hazard Mitigation and Vulnerability Assessment .	3
GEOG 4240. Principles of Geomorphology	3
GEOG 4265/5265. Sustainability in Resource Management	3
GEOG 4270. Glacial Geomorphology	3
GEOG 4335/5335. Contemporary Environmental Issues	3
GEOG 4350/5350. Environment and Society in the American Past ..	3
GEOL 4030. Environmental Geology	3
HIST 4232. Historic Preservation	3
HIST 4810. U.S. Environmental History	3
PHIL 4510. Philosophy of Nature	3
P SC 4354. Environmental Politics	3
Total	9
Minor Total	17-19

Notes:

1. All work submitted for an environmental sciences minor must have a grade of C (2.0) or above.
2. The lecture/laboratory sequence can be part of the requirements for the major, but not in the student's major department (i.e., a biology major cannot use the general biology sequence, but could use the general chemistry sequence, which is also required for the biology major).
3. Students must take a minimum of 9 hours of the upper-division courses at the downtown Denver campus.
4. If the student plans to go on to the MS in environmental sciences program, he/she should choose courses other than CHEM 4700. This is a core course in the MS in environmental sciences program.
5. Many of the upper-division courses have prerequisites; the student must check the catalog for prerequisite requirements for these courses.
6. The four upper-division elective courses for the environmental sciences minor cannot be from the student's major discipline, even if the particular course is not counted toward the major.

REQUIREMENTS FOR GEOGRAPHY MINOR

Students must complete 15 semester hours in geography, including at least 6 semester hours of upper-division courses. Students must achieve a grade of C (2.0) or above on required courses. At least 9 semester hours of upper-division geography courses must be completed at the downtown Denver campus.

REQUIREMENTS FOR GEOLOGY MINOR

Advisor: Joanna L. Wright
 Office: North Classroom, 3421
 Telephone: 303-556-6007

<i>Course Title</i>	<i>Semester Hours</i>
GEOLOGY 1072. Physical Geology: Surface Processes	4
GEOLOGY 1082. Physical Geology: Internal Processes	4
Choose at least two of the following courses:	
GEOLOGY 3011. Mineralogy	4
GEOLOGY 3411. Introductory Paleontology	4
GEOLOGY 3421. Sedimentation and Stratigraphy	4
GEOLOGY 4030. Environmental Geology	3
Minor Total	15-16

At least two of the upper-division requirements must be completed at UCDHSC. Transfer students who have earned the equivalent of all these courses elsewhere must complete a minimum of two of the required upper-division courses at UCDHSC. No grade below a C (2.0) will be counted toward the minor requirements.

URBAN AND REGIONAL PLANNING MINOR

The undergraduate planning minor in the Department of Geography and Environmental Sciences provides nongeography undergraduate students the opportunity to pursue studies in the professional field of planning. Geography majors can pursue the urban studies option, so this minor would not be available to these majors.

Geography and urban and regional planning share a common concern for the spatial configuration of the places that we inhabit and enjoy. In recognition of this close association, there is currently an articulation agreement between the Department of Geography and Environmental Sciences and the College of Architecture and Planning that provides students with a mechanism for acceleration through the master of urban and regional planning (MURP) degree program, if accepted into that graduate program. Those students completing the requirements for an undergraduate planning minor may also be eligible to pursue an accelerated MURP degree.

To meet the requirements for this minor, students must complete three core requirements and two electives, totaling 15 semester hours. Although the three core courses may be taken in any order, it is advisable to begin with GEOLOGY 1302 or GEOLOGY 1602, since these courses familiarize students with many key concepts used in other classes. All core courses are offered on a yearly basis.

Curriculum

Core Requirements

GEOLOGY 1302. Introduction to Human Geography	
—or—	
GEOLOGY 1602. Introduction to Urban Studies	3
GEOLOGY 4640. Urban Geography: Denver and the U.S.	3
URP 5501. Planning Issues and Processes	3
Total	9

Electives

Choose two:	
GEOLOGY 4060/5060. Remote Sensing I	3
GEOLOGY 4080/5080. Introduction to GIS	3
GEOLOGY 4085/5085. GIS Applications	3
GEOLOGY 4090/5090. Environmental Modeling with GIS	3
GEOLOGY 4095/5095. Deploying GIS Functionality on the Web	3
GEOLOGY 4230/5230. Hazard Mitigation and Vulnerability Assessment ..	3
GEOLOGY 4235/5235. GIS Applications in the Health Sciences	3
GEOLOGY 4400. Regional Economic Development	3
GEOLOGY 4630. Transportation Planning I	3
GEOLOGY 4990. Special Topics: Undergraduate Urban and Regional Planning Practicum	3
Total	6
Minor Total	15

Entrance Requirements

All undergraduate students, except geography majors, are eligible for this minor.

Performance Requirements

Students must complete 15 semester hours in geography and/or planning. Because of the professional nature of this minor and the potential for fast-tracking in the MURP program, 12 semester hours of upper-division courses are required. Students must achieve a grade of C (2.0) or higher in required courses. All upper-division courses must be completed at the downtown Denver campus and a minimum of 9 credits must be completed in CLAS (geography) to satisfy residency requirements.

Master of Science in Environmental Sciences

Program Director: John Wyckoff
Associate Program Director: Jon Barbour
Office: North Classroom, 3622
Telephone: 303-556-4520
Fax: 303-556-6197
E-mail: Jon.Barbour@cudenver.edu
Web site: www.cudenver.edu/clas/ges/mses.html

FACULTY (CONCURRENTLY APPOINTED)

Professors: Larry Anderson, chemistry; Lloyd Burton, School of Public Affairs; Lynn Johnson, civil engineering; John Lanning, chemistry; Martin Lockley, geography and environmental science; Herman Sievering, geography and environmental science; Diana Tomback, biology; John Weihaupt, geography and environmental science
Associate Professors: Leo Bruederle, biology; Frederick Chambers, geography and environmental science; Greg Cronin, biology; Brian Page, geography and environmental science; Anu Ramaswami, civil engineering; Timberly Roane, biology; John Wyckoff, geography and environmental science
Assistant Professors: Michael Green, biology; Rafael Moreno, geography and environmental science; Brian Muller, planning and design; Deborah Thomas, geography and environmental science; Joanna Wright, geography and environmental science

Environmental sciences is a multidisciplinary study of the environment, housed in the Department of Geography and Environmental Sciences. The academic fields involved in environmental sciences include chemistry, biology and ecology, physics, geology, geography, anthropology, engineering, political science, law, economics and the health sciences. Students planning to pursue the MS in environmental sciences must either have earned a bachelor's degree or have taken significant course work in a natural/physical sciences or engineering and completed several other prerequisites (see the following graduate information). A graduate-level certificate in environmental sciences is also offered. The certificate may be earned as a stand-alone certificate or as an option in the MS in environmental sciences.

Environmental careers encompass a broad range of professions, from those with a strong foundation in the natural/physical sciences or engineering to those based in the social sciences and/or humanities. Students interested in environmental issues and careers should investigate the whole field before deciding which course to follow. At the downtown Denver campus of UCDHSC, the MS in environmental sciences emphasizes the natural/physical sciences and engineering with the addition of the social sciences and humanities.

The MS in environmental sciences degree is designed to provide training in engineering, natural/physical sciences and socioeconomic analysis. The goals of the program are to (1) enhance the interdisciplinary communication and analytical skills of the student, and (2) provide a multidisciplinary approach for more intensive study of a particular environmental issue. Students will receive instruction in the physical and biological dynamics of various ecosystems, environmental engineering and socioeconomic issues associated with environmental analysis.

Graduates of the environmental sciences program are involved in many different areas, such as reviewing environmental impact statements, monitoring groundwater quality and communicating with the public. Many students have found employment in various agencies (U.S. Environmental Protection Agency, U.S. Geological Survey, Colorado State Department of Public Health and Environment) and private-sector environmental and engineering firms.

REQUIREMENTS FOR ADMISSION

The program is for students who either have baccalaureate degrees or significant background in one of the natural/physical sciences or engineering. In addition, minimum undergraduate science and math requirements are:

- one semester of calculus and one semester of upper-division statistics (if applicant is missing the statistics course, he/she can be admitted but must take ENV5 5600. Applied Statistics or an approved statistics course as an elective before receiving the MS in environmental sciences degree)
- two semesters general chemistry with lab
- one semester physics
- two semesters general biology with lab

If only two semesters of the six prerequisite courses are lacking, students may be admitted, but must take them in the first year in the program. Applicants who have fulfilled all prerequisites have a better chance of acceptance. Applicants may be required to take additional prerequisite courses (necessary for completing particular core or elective courses). The prerequisite courses will not count toward the MS environmental sciences degree. As part of the admission review process, applicants are required to submit a graduate application, a minimum of three letters of recommendation, transcripts from all institutions previously attended, and general GRE scores (recommended for all; required for applicants with less than a 3.0 GPA). UCDHSC has a minimum requirement of a 2.5 undergraduate GPA for applicants to the Graduate School. The number of applicants admitted to the program in any semester depends, in part, on space availability. Applicants are encouraged to submit their materials in advance of Graduate School admissions deadlines.

Preferred Application Deadlines

Fall	April 1
Spring	October 1

All application materials in by these deadlines will be given preference.

FINANCIAL AID

There are three kinds of financial aid available: tuition assistance; research assistantship positions funded by grants to specific program faculty; and the regular package of financial aid (primarily loans) available through the financial aid office on the downtown Denver campus. Incoming students will be automatically considered for program-distributed tuition assistance at the time of admission to the program. Continuing students will be regularly apprised of available aid and positions. Students interested in research assistantships should consult individual faculty with whom they wish to work regarding potential assistantship positions. All other aid should be requested through the UCDHSC Financial Aid Office, North Classroom 1030, Campus Box 125, P.O. Box 173364, Denver, CO 80217-3364. Telephone: 303-556-2886.

INTERNSHIPS

Students in the MS in environmental sciences program are strongly encouraged to contact the Career Center for internships and paid positions related to environmental sciences. The Career Center is located in the Tivoli Student Union, Suite 260. Telephone: 303-556-2250.

Internships not only give students valuable experience but may lead to the student's master's project. Many students have had internships in federal agencies, such as the U.S. Environmental Protection Agency and the U.S. Geological Survey.

MASTER'S INTERNATIONAL PROGRAM

The Master's International (MI) program is a cooperative effort between the U.S. Peace Corps and UCDHSC that provides students with the opportunity to earn a master of science in environmental sciences degree and at the same time gain a Peace Corps experience. The objective of the program is to have students interested in international environmental issues gain firsthand overseas experiences and earn credit toward their degree.

To qualify for the program, students must meet the admissions requirements for the university master's degree program and the requirements established by the Peace Corps for volunteer service. In some cases, enrolled students will be able to apply to the Peace Corps as a program applicant during their first semester of graduate study. Students in the MI program must complete the same degree requirements as non-MI students in the MS in environmental sciences program. A diverse pool of applicants and participants to the program will be encouraged.

MI program participants entering the Peace Corps will complete approximately 12 weeks of preservice training. Upon successful completion of training, program participants will become Peace Corps volunteers and begin a two-year tour of service in their country of assignment. Before beginning their Peace Corps assignments, program participants will be expected to meet academic requirements of the program. The program will be designed to prepare them for Peace Corps service and volunteer activities generally.

PROGRAM REQUIREMENTS

The MS in environmental sciences is a 38-hour program that provides students with two alternate plans. Plan I requires a thesis, while Plan II is a nonthesis program. General requirements for the program include: a set of core courses (15 hours), two hours of the MS in environmental sciences seminar course (ENV5 6002), an environmental policy course (3 hours), and elective courses (12 hours minimum). Students choosing Plan I must also complete 6 hours of thesis, while those choosing Plan II must complete 6 hours of additional elective course work. Students opting for Plan II are encouraged to enroll in 3 hours of independent study (ENV5 6840) as one of their electives.

The degree is offered through the College of Liberal Arts and Sciences with the cooperation of the College of Engineering and Applied Science. In addition, some courses offered by the College of Architecture and Planning, the School of Public Affairs and the Business School are relevant and applicable to the program.

Core Courses

<i>Required Courses</i>	<i>Semester Hours</i>
Fall	
C E 5401. Introduction to Environmental Engineering.....	3
ENV5 5030. Environmental Geology.....	3
ENV5 6200. Risk Assessment.....	3
Spring	
BIOL 5445. Applied Environmental Biology.....	3
CHEM 4.700. Environmental Chemistry.....	3
Total.....	15

The core courses are to be taken first upon entry into the program. They are the foundation for other courses in environmental sciences.

Policy Courses

Students are required to enroll in at least one course (3 hours) that deals with environmental policy. The environmental policy requirement of the master's program is intended to expose students whose background is largely in the natural sciences or engineering to the legal, political and social aspects of environmental issues. To satisfy this requirement, students must enroll in one of the following courses (other courses may be acceptable if approved by the program director):

Choose one:	<i>Semester Hours</i>
GEOG 5265. Sustainability in Resources Management	3
P AD 5631. Seminar in Environmental Politics and Policy	3
P AD 5633. Seminar in Natural Resource and Environmental Health Law	3
P SC 4354. Environmental Politics	3
URP 6651. Environmental Impact Assessment	3

Seminar Courses

Students are required to register for ENV5 6002. Environmental Sciences Seminar in the first semester they are enrolled in the MS in environmental sciences program. The seminar serves as an introduction to the program and helps students to develop research skills and further their professional development.

Elective Courses

(See www.cudenver.edu/clas/ges/courseENVS.html for a complete list of elective courses for the MS in environmental sciences program.)

Students, with the coordinator and/or an advisor, will complete a program plan that will include 12-21 hours of elective requirements that will meet their interests. Students may choose to use four of the electives to fulfill one of the following options offered in environmental sciences: air quality, ecosystems, environmental health, geospatial analysis, hazardous waste and water quality. Students must have the prerequisites for each course and must meet the requirements listed in the notes below. Contact the option advisor for the particular option of interest before starting. Upon graduation, the option will be noted on the student's transcript.

Following are the requirements for each environmental sciences option:

Air Quality Option

Option Advisor: Larry Anderson
Telephone: 303-556-2963
E-mail: Larry.Anderson@cudenver.edu

<i>Required Courses</i>	
CHEM 5710. Air Pollution Chemistry	3
ENV5 5730. Air Quality Modeling and Analysis	3
Total	6

<i>Electives</i>	
Choose two:	
C E 58XX. Air Pollution Control	3
CHEM 5720. Atmospheric Sampling and Analysis	3
URP 6686. Air Quality Planning and Policy	3
Total	6
Option Total	12

Ecosystems Option*

Option Advisor: Herman Sievering
Telephone: 303-556-4277
E-mail: Herman.Sievering@cudenver.edu

<i>Required Courses</i>	
BIOL 5415. Microbial Ecology	3
ENV5 5020. Earth Environments and Human Impacts	3
Total	6

<i>Electives</i>	
Choose two:	
BIOL 5154. Conservation Biology	3
BIOL 5416. Aquatic Ecology	3
ENV5 5500. Ecological Risk Assessment	3
ENV5 6220. Toxicology (See Note 2)	3
GEOG 5060. Remote Sensing I	3
Total	6
Option Total	12

*BIOL 5445. Applied Environmental Biology required as a prerequisite for the ecosystems option.

Environmental Health Option *

Option Advisor: Deborah Thomas
Telephone: 303-556-6370
E-mail: Deborah.Thomas@cudenver.edu

<i>Required Courses</i>	
ENV5 6220. Toxicology (See Note 2) (fall, even years)	3
PNVS 6230. Environmental Epidemiology (spring, even years)	3
Total	6

<i>Electives</i>	
Choose two:	
ANTH 4010. Global Health Studies I	3
ENV5 5500. Ecological Risk Assessment	3
ENV5 6210. Human Health and Environmental Pollution (spring, odd years)	3
P AD 5633. Seminar in Natural Resource and Environmental Health Law	3
Total	6
Option Total	12

*ENV5 6200. Risk Assessment required as a prerequisite for the environmental health option.

Geospatial Analysis Option*

Option Advisor: Rafael Moreno
Telephone: 303-556-3762
E-mail: Rafael.Moreno@cudenver.edu

<i>Required Courses</i>	
GEOG 5080. Introduction to GIS	3
GEOG 5090. Environmental Modeling with GIS	3
Total	6

<i>Electives</i>	
Choose two:	
C E 5382. GIS Spatial Database Development	3
C E 5385. GIS Relational Database Systems	3
C E 5386. GIS Laboratory	3
Total	6
Option Total	12

*GEOG 3080. Introduction to Cartography and Computer Mapping is required as a prerequisite of the geospatial analysis option.

For more information, contact the option advisor or Jon Barbour at 303-556-4520, Jon.Barbour@cudenver.edu.

Hazardous Waste Option*

Option Advisor: Anu Ramaswami
Telephone: 303-556-4734
E-mail: ARamaswa@carbon.cudenver.edu

<i>Required Courses</i>	
C E 5480. Hazardous Wastes and Site Remediation	3
C E 58XX. Hazardous Waste Regulations	3
Total	6

<i>Electives</i>	
Choose two:	
BIOL 5051. Advanced Topics in Microbiology	3
C E 5402. Multimedia Transport and Fate of Environmental Pollutants	3
ENV5 5403. Unsaturated Zone Hydrology	3
Total	6
Option Total	12

*C E 5401. Introduction to Environmental Engineering required as a prerequisite for the hazardous waste option.

Water Quality Option***Option Advisor:** John Lanning**Telephone:** 303-556-2434**E-mail:** John.Lanning@cudenver.edu

<i>Required Courses</i>	<i>Semester Hours</i>
BIOL 5416. Aquatic Ecology	3
ENVS 5410. Aquatic Chemistry	3
Total	6

Electives

Choose two:

C E 5333. Applied Hydrology	3
C E 5393. Water Resources Development and Management	3
ENVS 5403. Unsaturated Zone Hydrology	3
Total	6
Option Total	12

*CHEM 4700. Environmental Chemistry is required as a prerequisite of the water quality option.

Notes:

1. Many of the courses have prerequisites; student must check the catalog for prerequisite requirements for these courses. Some options have a prerequisite course requirement.
2. One course may not be used for more than one option, even if it is listed in several options. Other courses may be offered that will be acceptable as electives with approval of the option advisor and the director of the program.
3. No more than three courses may be from any one discipline (excluding ENVS); i.e., chemistry, biology, civil engineering.
4. Courses used by the student to fulfill a core requirement may not be used to fulfill the option.
5. All work submitted for the environmental sciences option must have a grade of *B* (3.0) or better.
6. All courses for the environmental sciences option must be completed at the downtown Denver campus.
7. Courses applied to either a certificate* or an MS degree may later be applied toward the other if all pertinent course work is completed within a seven-year time period.

*The above options of the program may be taken to earn an environmental sciences certificate. Certificates may be earned without entrance into the MS in environmental sciences program. (See "Graduate Certificate" section below.)

GRADUATE CERTIFICATE

The graduate-level certificate in environmental sciences has six options: air quality, environmental health, geospatial analysis, hazardous waste, water quality and ecosystems. The options each comprise four courses and are designed to approach an environmental issue from various disciplines. To earn a certificate, students are required to satisfactorily complete the courses in the option of their interest. These courses may be taken as electives within an MS degree program or through nondegree admission. Students must have the prerequisites for each course and must meet the requirements listed. Contact the option advisor for the particular option of interest before starting. A certificate will be issued upon proof of satisfactory completion of the courses. For an MS degree, students must coordinate the option courses with electives in their program. The listings of courses in each option are in the electives section of the master's program information.

In addition to the master of science in environmental sciences, the department also participates in the master of integrated science (MIS) program. For more information, see the MIS program description under CLAS degree programs.

HEALTH AND BEHAVIORAL SCIENCES**Director:** Richard Miech**Program Assistant:** Abby Fitch**Mailing Address:** Program in Health and Behavioral Sciences,
Campus Box 188, P.O. Box 173364, Denver, CO 80217-3364**Office Location:** Administrative Building, 280**Telephone:** 303-556-4300**Fax:** 303-556-8501**E-mail:** Abby.Fitch@cudenver.edu**Web site:** www.cudenver.edu/clas/hbsc/**Faculty****Professors:** Lorna Grindlay Moore, PhD, University of Michigan;

Stephen Koester, PhD, University of Colorado

Associate Professors: Richard Miech, PhD, University of North Carolina;

David Tracer, PhD, University of Michigan

Research Faculty: Susan Dreisbach, Sharry Erzinger, Jean Scandlyn**Adjunct Faculty:** John Brett, Lucinda Bryant, Sheana Bull, Lauren

Clark, Mary Coussons-Read, Estevan Flores, Karen Gottlieb,

Debbi Main, Cornelius Rietmeijer

The health and behavioral sciences (HBSC) program trains students to confront issues affecting the health of communities and populations by focusing on social determinants of health and disease. The program's overarching framework integrates social, cultural and biomedical perspectives to understand the underpinnings of health and the conditions essential for its creation and maintenance. Students and faculty conduct interdisciplinary research on topics including emerging diseases, maternal/child health, substance abuse, health disparities and global health. Graduates are innovative researchers, effective educators and leaders directly engaged in the practice of public health.

UNDERGRADUATE PROGRAM IN COMMUNITY HEALTH SCIENCE

The health and behavioral sciences program is committed to the principle that understanding the basic social, cultural and biological dimensions of health is fundamental to a solid liberal arts and sciences undergraduate education. HBSC has developed a minor in community health science that provides undergraduates with the basic intellectual and methodological tools needed to understand the societal contexts of health, healthcare and public health. We expect that graduates with a minor in community health science will be successful in their pursuit of graduate degrees in a broad range of fields including the biomedical sciences, social and behavioral sciences, public health, law, medicine, dentistry, pharmacy, business administration and health services research. The program is especially appropriate for students who intend to pursue careers in public health as well as medicine, nursing, health policy and administration. Students seeking the minor should contact CLAS advising and the health and behavioral sciences program with specific questions.

A major is not currently available, but students may complete an individually structured major (ISM) that combines course work in HBS with that of related fields such as anthropology, biology and psychology. Students should consult the "Individually Structured Major" section in this catalog for a description of ISM programs and with CLAS Advising or the HBSC program regarding specific questions.

PROGRAM REQUIREMENTS FOR THE MINOR

To earn a minor in community health science, a minimum of 18 semester hours are required, of which 12 must be upper-division. Students must achieve no less than a *C* (2.0) in each course applied toward minor requirements. At least 12 semester hours must be taken from the downtown Denver campus faculty. Note that additional HBSC courses are currently being developed to provide additional choices. As they are approved, these courses will appear on the HBS Web site, the online course descriptions and term schedule planner. (Note: HBS courses, in general, are 3 semester hours under the prefix HBSC.)

Community Health Service Courses Semester Hours

Choose two:

HBSC 2001. Introduction to Community and Population Health Science	3
HBSC 3021. Fundamentals of Health Promotion	3
HBSC 3031. Health, Human Biology and Behavior	3
HBSC 3041. Health Culture and Society	3
Total	6

Methods Courses

Choose at least two:

GEOG 4235. GIS Applications in the Health Sciences	3
HBSC 4001. Introduction to Epidemiology	3
HBSC 4021. Community Health Assessment	3
Total	6

Community Health Emphasis Courses

Choose at least two:

ANTH 4040. Anthropology of Food and Nutrition	3
ANTH 4060. Evolutionary Medicine	3
ANTH 4090. Political Economy of Drug Culture	3
ANTH 4260. Human Reproductive Ecology	3
ANTH 4560. Human Ecology	3
CMMU 4500. Health Communication	3
CMMU 4620. Health Risk Communication	3
GEOG 4020. Earth Environments and Human Impacts	3
GEOG 4230. Hazard Mitigation and Vulnerability Assessment	3
HBSC 3010. Evolution of Human Sexuality	3
HBSC 4010. Global Health Studies I: The Biocultural Basis of Health	3
HBSC 4020. Global Health Studies II: Comparative Health Systems	3
HBSC 4080. Global Health Practice	3
HBSC 4200. The Global HIV/AIDS Epidemic	3
HIST 4345. Gender, Science and Medicine: 1600 to the Present	3
HIST 4346. Medicine and Society: the Ancients to the Present	3
HIST 4503. Topics in History of Science	3
PSY 3235. Human Sexuality	3
PSY 3262. Health Psychology	3
Total	6
Minor Total	18

Check the department Web site for additional course offerings.

PHD PROGRAM IN HEALTH AND BEHAVIORAL SCIENCES

The doctor of philosophy degree in health and behavioral sciences is rooted in the realization that our ability as a global society to overcome some of the most significant and intractable public health problems today rests on the willingness of biomedical and social science researchers to innovate across traditional disciplinary boundaries. Students are trained in theory from multiple disciplines and in both quantitative and qualitative research methods.

Although a master's degree is not provided by the health and behavioral sciences department, two articulated master's/PhD programs currently exist at UCDHSC as described below.

A student's particular research focus constitutes a key part of his or her doctoral program. A range of possible foci exists, given the particular student's interest and faculty expertise. Examples of HBSC research foci include:

- *Social determinants of health.* Such research interests include studies on the health-related influences of socioeconomic position, social and economic inequality, discrimination, social networks and support, social capital, work conditions and psychological states including stress.
- *Community health.* This area of research involves community health assessment; program design and evaluation; translation of evidence-based interventions to diverse populations and communities; participatory research and community mobilization; policy analysis and advocacy for health-related problems.

- *Biosocial ecology.* Within this area are studies of the interplay of biological (including physiological, genetic or others of the biomedical health sciences), social, cultural and environmental characteristics influencing maternal/infant health, exercise performance or susceptibility to disease.
- *Global health* topics include social, cultural and biomedical factors influencing transmission of disease and health disparities on an international (as well as national) scale.

Recent student research exemplifying such foci includes:

- social factors affecting newly emerging diseases in the American Southwest
- factors that contribute to positive perceived health in the older-aged population
- ethnic group differences in weight gain and cardiovascular disease
- the impact of natural hazards and risk management strategies on health among pastoral herders in Mongolia
- adolescent sexual risk behaviors in the context of social networks and cultural norms
- disease incidence patterns and environmental contamination in North Casper, Wyoming

Graduates of the HBSC program acquire skills that situate them for leadership roles in public health. Depending upon a student's concentration, the successful graduate will gain expertise in research design and methods; social, cultural and biobehavioral determinants of health and disease; the structure and organization of healthcare systems; the contribution of individual, social and cultural factors for deciding health behaviors; and how guided change in healthcare systems may enhance quality, efficacy and access. The significance of these skills in addressing current complex health issues ensures that graduates will be in demand in a number of employment sectors ranging from community and public health organizations, to academic institutions, to nonprofit research organizations and to private healthcare settings.

Requirements for Admission

A master's or equivalent graduate degree is required for admission to the PhD program. In addition, we encourage prior graduate training in the areas noted below. Students applying without prerequisites may be admitted, but will be required to complete appropriate courses before being permitted to complete the core curriculum. The program currently works with two master's-level programs to provide articulated master's-PhD training, as described below.

In addition to the general admission requirements of the Graduate School, the specific admission requirements for the PhD in health and behavioral sciences are as follows:

1. Knowledge from prior course work or vocational experience at the equivalent of college senior or graduate level in each of the following areas.

Social or behavioral sciences (15 semester hours minimum): knowledge of essential facts and concepts concerning the relationship among individuals and society, social organization, individual psychology and the relationship among culture, belief and behavior. This could be satisfied by course work in psychology, sociology and anthropology.

Human biology or physiology (6 semester hours minimum): familiarity with the functioning of the human body in health and disease states, including an understanding of cellular and organ system processes; an appreciation of evolutionary theory and the mechanisms by which evolution operates on both cellular and population levels; and an understanding of the interplay between the evolution of disease and host response. This could be satisfied by course work in human biology, physiology, pathophysiology or biological anthropology.

Statistics (3 semester hours minimum): prior course work and current familiarity with statistics including probability theory,

parametric and nonparametric methods and acquaintance with basic multivariate techniques.

Epidemiology (3 semester hours minimum): prior course work at the advanced undergraduate or graduate level with the basic concepts and methods of epidemiology including measures of risk, mortality, distribution of disease, role of bias and confounders, and study design.

2. Demonstrated academic excellence as evidenced by an undergraduate GPA of 3.25 (out of a possible 4.0 points) or better, a graduate GPA of 3.5 or better, and scores in the top 30th percentile (averaged) of the GRE. Admission to the program is highly competitive; minimum GPAs and GRE scores for acceptance in any given year may be higher than the minimum levels indicated here.

The applicability of a student's prior course work will be decided by the program executive committee after reviewing the student's transcript and additional materials. If the student does not have the requisite educational background or GPA, the student may be admitted on a conditional or provisional basis and additional course work required in accordance with Graduate School rules.

Prospective students should not be dissuaded from applying to the program if they do not meet all of the requirements for admission. In some cases, employment experience may be counted toward meeting a requirement. In other cases, students may be admitted conditionally upon their completion of a list of prerequisite courses that will be established at the time of admission. Students should be sure to address this issue in completing the graduate application by specifying the academic and vocational experience they possess that meets, in part or full, the admission requirements described above.

MASTER'S LEVEL PREPARATION FOR THE DOCTORAL PROGRAM IN HEALTH AND BEHAVIORAL SCIENCES

The program does not currently offer master's-level training in HBSC. Instead, we urge interested applicants to pursue relevant master's degree training in one of the social, behavioral or health sciences disciplines. In addition, we work closely with two master's programs at UCDHSC. These are the concentration in medical anthropology within the anthropology MA program offered by the anthropology department and the master of science in public health offered by the preventive medicine and biometrics department. Contact these respective programs for more information on these degree options and our program for how their requirements articulate with those for the health and behavioral sciences PhD.

TO APPLY FOR ADMISSION

At the UCDHSC downtown Denver campus, all graduate applications are now submitted electronically. To begin the application process, go to <https://hydra.cusys.edu/admapp/templates/vp/mtapgintro.htm>. If you have any difficulties, call the program assistant at 303-556-4300. The program admits students only for the fall semester, which typically begins in mid- to late August. The deadline for the receipt of all application materials is **February 15** for admission the following August.

Applicants should invest considerable thought and effort in preparing their application. For instance, in the essay (Part II, question 6) applicants should provide information on: (a) their academic training and any employment related to public health or health care; (b) their experiences with inter- and multidisciplinary perspectives, and (c) how they envision using their doctoral degree to improve the health status of human populations and individuals. Students should also indicate the kinds of research foci that interest them the most.

In addition to the required recommendation form, letters of recommendation are required from at least three individuals in a position to judge the applicant's ability to complete the program. Recommenders may be employers, colleagues or professors; however, the applicant should be sure that the letters address the quality of and aptitude for academic work as well as personal characteristics and qualities.

Financial Aid

There are four kinds of financial aid available: graduate student stipends/fellowships; tuition assistance; research assistantship positions funded by grants to specific program faculty; and the regular package of financial aid (primarily loans) available through the Financial Aid Office. Students seeking the articulated MA in anthropology/PhD in HBSC program should consider applying to the NSF predoctoral fellowship program.

Newly admitted, out-of-state and students demonstrating outstanding scholastic achievement receive priority when assigning departmental sources of funding. Students interested in research assistantships should contact the individual faculty member with whom they wish to work regarding potential assistantship positions.

All other aid should be requested through the UCDHSC Financial Aid Office, North Classroom 1030, Campus Box 125, P.O. Box 173364, Denver, CO 80217-3364. Telephone: 303-556-2886.

Program Requirements

There are three dimensions to the required curriculum:

- a) A core curriculum that focuses on problem-oriented, interdisciplinary approaches to theory and method
- b) Elective course work intended to provide the student with a solid base from which to launch the dissertation research
- c) Dissertation research and writing

The core curriculum is subject to change. What appears below is intended to give students a general idea of the extent, shape and content of the core curriculum. Students should check with the program office for up-to-date information on specific course requirements and scheduling.

THE CORE CURRICULUM

The core curriculum should be completed by students by the end of their second year of full-time study. It consists of the following series of courses which, together, constitute 26 semester hours:

I. HBSC 7001. Health and Behavioral Sciences Colloquium.

Each fall, the HBSC program will organize a series of presentations by scholars working in the health and behavioral sciences. The presentations provide students with the most current science and theory in the field. Required of all first- and second-year students. (2 semester hours)

II. HBSC 7011, 7021 and 7071. Theoretical Perspectives in the Health and Behavioral Sciences.

This series is designed to give students a thorough background in how the principles of the social and behavioral sciences have been applied to health issues. Topics include: the interplay between structure and agency in creating and maintaining health; social epidemiology; critical theory and social determinants of health; issues affecting Western biomedicine and public health systems; diffusion of healthy behavioral change among populations; social construction of health and illness; health policy and bioethics; social networks; and stress. (9 semester hours)

III. HBSC 7031. Human Ecology and Environmental Adaptation.

This course focuses primarily on the interplay of biology, environment, and culture in the causes and exacerbation of disease. This course will emphasize the biological/physiological dimensions of human health and disease. The course includes the following topics: health within environmental and evolutionary contexts; models of causation in biomedicine and other medical systems; individual, community and population manifestations of health and disease; and biocultural interaction in disease processes. Specific case studies drawn from contemporary health problems will be used to illustrate in detail the nature of these processes. (3 semester hours)

IV. HBSC 7041, 7051. Research Design and Methods in the Health and Behavioral Sciences and one additional advanced methods course of student's choosing.

This series covers the philosophy of science and the structure of scientific inquiry, procedures for

hypothesis-testing, quantitative and qualitative methodological strategies commonly employed in the field, epidemiology and program evaluation. Students must further develop specialized methodological skills by completing an independent study (HBSC 6840) or taking one additional course in advanced epidemiology, advanced biostatistics, health economics, survey research design or qualitative methods and data analysis. This requirement will be tailored specifically to the student's particular interests by his/her advisor. (9 semester hours)

- V. HBSC 7111. Applications of the Health and Behavioral Sciences.** This course offers students the opportunity to focus on individual research interests with guidance from faculty and input from peers. (3 semester hours)

ELECTIVE COURSES

Elective course work together constitutes 26 semester hours, of which a minimum of 6 hours can be drawn from the large number of offerings in the health and behavioral sciences at UCDHSC. A full listing of elective courses is available in the program office and online. Students will be expected to fulfill the necessary prerequisites for taking these courses, and final authority as to whether a student may enroll in the course will rest with the department in which the course is offered.

DOCTORAL DISSERTATION RESEARCH

The doctoral dissertation research topic is chosen by the student. The student is expected to define a research question in health and behavioral science, identify the research strategy to be used for answering the question, conduct the research required and document the project in the form of a doctoral dissertation. The student will be guided in this process by a doctoral dissertation advisor and the additional members who comprise the student's doctoral dissertation committee (see below). A minimum of 30 semester hours of dissertation work is required. Students must register for a minimum of 5 dissertation credits each semester of their dissertation work. Students may not take more than a year's leave of absence or fail to enroll for semester hours more than three semesters before they are dropped from the program.

Advisors

Upon admission to the program, each student will be assigned a first-year advisor. The student or the faculty will then choose the faculty advisor who will guide the student through the core and elective course work. The faculty advisor may or may not be the chair of the student's dissertation committee. The student selects his or her chair and three additional committee members who oversee the student's comprehensive examination and dissertation research.

Formal Review

A formal review of each student's first-year progress will be undertaken at the end of the first year of study. A student may not take any additional courses in the program until this review is completed. Students who are deemed not to be making satisfactory progress will be informed in writing as to the nature and final result of the review before the end of June in the first year of study.

The Dissertation Prospectus and the Comprehensive Examination

Before a student advances to candidacy, she/he must complete a dissertation prospectus and defend it successfully in the context of an oral comprehensive examination. The dissertation prospectus is a complete description of the question or hypothesis that the student wishes to research for the dissertation project, the research design and study techniques and an assessment of the proposed project's contribution to the field. It will include a comprehensive review of the relevant literature. If the student chooses to undertake research in a particular ethnic or cultural community, she/he must also demonstrate sufficient understanding of that setting including adequate knowledge of the

language. This prospectus must be approved by the student's advisor prior to scheduling the comprehensive examination.

The comprehensive examination will be an oral format based in part on but not restricted to the material presented in the dissertation prospectus. This exam *must* take place before the student's advancement to candidacy and will typically occur by the end of the third year of study. A committee comprising the chair and three faculty members will supervise the completion of the dissertation prospectus. This committee will conduct the oral examination and will recommend to the executive committee by a majority vote whether or not the student should be advanced to candidacy.

The Doctoral Dissertation and Final Exam

After advancement to candidacy, the student in consultation with his or her advisor will appoint a dissertation committee comprising the chair and three faculty members. The chair and composition of the committee will be subject to approval by the program executive committee. The chair and two other members must have been present at the student's comprehensive examination and will be responsible for overseeing the research and writing of the doctoral dissertation. The committee will review drafts of the dissertation and, when the dissertation is completed to its satisfaction, will conduct the final exam, which will be based on the doctoral dissertation and related materials. The final examination will be open to the public.

Center for Research in the Health and Behavioral Sciences

Director: Susan Dreisbach
Telephone: 303-556-6796

The Center for Research in the Health and Behavioral Sciences is dedicated to promoting research and community service in health issues facing the local Denver area, Colorado, the nation and beyond. Research conducted by the allied CRHBS faculty is unique in integrating biomedical, public health and social science perspectives. Current external funding of research through CRHBS is focused on such topics as preventing HIV and STD transmission program evaluation. Research assistant and internship positions for students in the health and behavioral sciences doctoral program are commonly available through CRHBS.

HISTORY

Chair: Myra L. Rich
Program Assistant: Sue Sethney
Undergraduate Advisor: Myra L. Rich
Graduate Advisor: Carl E. Pletsch
Office: King Center, 560
Telephone: 303-556-4830
Fax: 303-556-6037
Web site: www.cudenver.edu/clas/history/

Faculty

Professor: Thomas J. Noel, PhD, University of Colorado
Associate Professors: Michael T. Ducey, PhD, University of Chicago; Gabriel Finkelstein, PhD, Princeton University; Pamela W. Laird, PhD, Boston University; Marjorie Levine-Clark, PhD, University of Iowa; Carl E. Pletsch, PhD, University of Chicago; Myra L. Rich, PhD, Yale University; James B. Whiteside, PhD, University of Colorado
Assistant Professor: Alison M. Shah, PhD, University of Pennsylvania
Senior Instructors: James E. Fell Jr., Marilyn Hitchens, Rebecca Hunt, James P. Walsh, John G. Whitesides
Lecturer: Richard D. Smith
Emeritus Professors: Frederick S. Allen, PhD, Harvard University; Mary S. Conroy, PhD, Indiana University; Mark S. Foster, PhD, University of Southern California; James B. Wolf, PhD, University of California, Los Angeles

History constitutes an intellectual challenge because its special responsibility, understanding the past, requires one to master considerable information and to integrate many branches of knowledge. Perhaps more important to the history student than learning what has happened is understanding the process of change. By comparing the state of humankind over time, the history student identifies fundamental social trends and analyzes causes. The student also develops research, analytical and writing skills necessary not only for work, but for living.

The bachelor's degree in history provides preparation for immediate postgraduate careers or advanced training in the social sciences. History majors frequently choose careers in teaching, government service, business and other fields where critical-thinking skills are valued. History is traditionally a valued background for law school and graduate schools of business administration. An attraction of the major in history is its generality, making it an excellent choice for those with flexible career goals.

Undergraduate

REQUIREMENTS FOR THE MAJOR

Students must declare a major by the time they have completed 60 semester hours of course work. For the BA in history, a minimum of 36 semester hours of history course work is required. Majors must complete at least 18 upper-division hours at the University of Colorado. Not more than 48 hours of history will be counted toward graduation requirements. No grade below a *C* (2.0) will count toward major requirements to graduate.

<i>Required History Courses</i>	<i>Semester Hours</i>
HIST 3031. Theory and Practice of History	3
HIST 4839. History Seminar	3

Distribution Requirement (18 semester hours)

A minimum of 6 semester hours in each of the following areas: United States, Europe and world. At least 3 semester hours in each area must be upper-division.

Electives (12 semester hours)

The degree requires a minimum of 12 additional semester hours of electives, which can be satisfied by a combination of additional history courses, internships or honors independent study for eligible students (see below for more information).

BA in History with Secondary Licensure

Students seeking secondary social studies teacher licensure may pursue a BA in history. This option enables them to complete their history major as well as fulfill requirement for licensure at the undergraduate level. Call 303-556-8316 for more information.

Internships

Students may qualify for internships with the Colorado State Historical Society, Historic Denver, Denver Museum of Nature and Science, the National Park Service and other agencies to earn credit and experience. Students must have a minimum 2.75 cumulative GPA in at least 15 semester hours of CU course work to take an internship. Three hours of internship can be taken in one semester.

Honors Program

Students with a cumulative GPA of 3.5 or higher may compete for a degree in history awarded with Latin praise of *cum laude*, *magna cum laude* or *summa cum laude*. A cumulative GPA of 3.5-3.69 is required for *cum laude*, 3.7-3.89 for *magna cum laude*, and 3.9-4.0 for *summa cum laude*. Students must enroll for HIST 4849, in which they will prepare and submit a research paper for honors review by a faculty committee.

Downtown Denver Campus Historical Studies Journal

Since 1983, downtown Denver campus graduate students have published this illustrated journal showcasing the most outstanding original research done each year by history students.

REQUIREMENTS FOR THE MINOR

Students interested in a minor in history are required to complete 18 hours of course work which must include HIST 3031. A minimum of 3 semester hours must be taken in each of the following areas: United States, Europe and world. Students must choose at least 6 hours of elective upper-division history credit. At least 12 semester hours must be completed at the downtown Denver campus. No grade below a *C* (2.0) will count toward the minor.

INDEPENDENT STUDY

Students may take up to 9 semester hours of courses in independent study or internships (no more than 6 hours per semester), with permission of the instructors concerned and an undergraduate advisor.

Graduate

The UCDHSC history faculty offers a master's degree program emphasizing modern history. Students applying for admission to the program should have sufficient background in history, though not necessarily a BA in the subject. Some knowledge of allied social sciences is desirable. The department encourages applications from individuals of any age interested in resuming their education.

The master's degree in history is traditionally viewed as training for careers in education, government service, museum and archive management and historic preservation, as well as for further degree work in history, law and business management. The degree program also is attractive to individuals who want to further their general education.

REQUIREMENTS FOR ADMISSION

In addition to the general admission requirements of the Graduate School, the Department of History requires an undergraduate GPA of at least 3.25. All applicants to the history program must take the verbal section of the GRE. A verbal score in the 80th percentile or above is generally required. The admissions committee will evaluate applications at least once a semester. Any gaps, weaknesses or special circumstances affecting an applicant's academic record should be addressed in the statement of purpose portion of the application. In special circumstances, the department may modify its admission standards.

DEGREE REQUIREMENTS

Candidates in history must satisfy the general requirements of the Graduate School as outlined in this catalog. In meeting the master's degree requirements of the Department of History, candidates have four options:

Plan I (thesis option) requires 24 semester hours of course work and a thesis (6 hours of thesis credit). Under this plan, candidates must include a minimum of 12 semester hours of course work at the 6000 level. The plan requires a minimum of 12 hours in the major field and 9 hours in the minor field. Thesis writing shall be done under the supervision of the candidate's major advisor.

Plan II (nonthesis option) requires 30 semester hours of course work. Under Plan II, candidates must include a minimum of 15 semester hours of course work at the 6000 level including at least 15 hours in the major field and 9 hours in the minor field. Except in special circumstances, the department strongly recommends the thesis option.

Plan III allows students to focus on public history. This plan requires a total of 36 semester hours with at least 18 hours in the major field, 9 hours in a minor field and 6 hours of thesis or thesis equivalent.

Plan IV is designed for teachers and requires 30 semester hours.

It includes at least 12 hours of course work in the major field, 9 hours in the minor field and 6 hours in advanced history curriculum development (in lieu of a thesis).

Plan V permits students to earn both the master's degree in history and secondary teacher licensure. Students in Plan V must complete 30 semester hours in history (including a 12-credit major field, a 9-credit minor content field, and a 6-credit curriculum and methods minor field) and 37 semester hours in the School of Education & Human Development's Initial Professional Teacher Education (IPTE) program. Up to 17 history hours and IPTE hours are eligible for cross-credit.

All plans require a comprehensive examination in the major and minor fields after the completion of course work.

A residency of at least one academic year is required for the degree. Each graduate student is responsible for selecting a major and minor advisor.

Each graduate student, in consultation with the major advisor, is responsible for assembling an examining committee, normally consisting of three persons.

Particular Requirements for the Master's Degree in History

1. HIST 6013. Historiography is required of all graduate students.
2. Each candidate must select one of the fields listed below as a specialty:
 - The United States*
 - Modern Europe*
 - Modern Britain*
 - Latin America*
 - Gender*
 - Science, Technology and Medicine*
 - Public History*
3. Candidates must select a second area of history from the above list as their minor field and complete at least 9 hours of work in that area.
4. Candidates selecting the 30-hour, courses-only option must take two seminars, one of which should be in the major field of study.
5. With the consent of their major advisor, candidates taking the 30-hour option may include in their program a minor consisting of work taken outside the Department of History. The minor may be chosen from the following subjects: economics, political science, psychology, sociology, anthropology, geography, philosophy, literature, art history, architecture, planning or education.
6. Candidates working in the area of study involving the use of a foreign language may be required by their major advisor to demonstrate proficiency in that language.
7. No grade lower than B- (2.7) in history courses will count toward the completion of the course work for the master's degree.
8. Candidates may register for up to 6 hours of independent study (HIST 6840) or internships. In special circumstances, with consent of the major advisor, candidates may register for up to 9 hours of independent study or internships. Additional independent study or internships must be approved by the graduate advisor upon the advice of the major advisor.
9. All candidates for the master's degree shall monitor their own progress through the program in consultation with the major advisor.

For further information concerning the master's degree in history at the downtown Denver campus, direct inquiries to:

Chair, Department of History
University of Colorado at Denver and Health Sciences Center
Campus Box 182, P.O. Box 173364
Denver, CO 80217-3364
Telephone: 303-556-4830

PUBLIC HISTORY AND PRESERVATION SPECIALTY

Public history and preservation is offered as either a major or minor specialty of the master's degree. In conjunction with the College of Architecture and Planning, an 18-hour graduate certificate program in historic preservation is also available.

For the MA with public history as a specialty, students complete a thesis or thesis equivalent (6 semester hours) as well as 30 hours of course work, which must include theory and practice of public history and history preservation courses. MA students pursuing public history as a minor field must take 9 hours of public history and preservation courses.

The public history program emphasizes internships and work experience, including some paid positions and research projects. For further information, inquiries should be addressed to the director of public history and preservation at 303-556-2044.

HUMANITIES, MASTER OF

Director: Myra Bookman

Assistant Director: Margaret Woodhull

Office: Plaza Building, M108

Telephone: 303-556-2305

Fax: 303-556-8100

Web site: www.cudenver.edu/ict/index.html

Faculty

Senior Instructors: Myra Bookman, PhD, University of Colorado; Margaret Woodhull, PhD, University of Texas, Austin

The master of humanities offers graduate interdisciplinary studies designed for recent university graduates or those who have graduated earlier and are now seeking intellectual enrichment, career change or preparation for a PhD or professional school. Some students are teachers or other professionals seeking additional training to expand their expertise. Many enroll in the program for the sheer satisfaction of intellectual enrichment. It is ideal for students whose professional and personal obligations require flexibility and accessibility, whether they are part-time or full-time students. Students are able to pursue their interests across disciplinary boundaries and enroll in courses from a number of departments. Students who pursue the master of humanities will take courses from disciplines traditionally included in the category of liberal arts, such as literature, philosophy, history, communication, fine arts, art history, theatre and music. But they may also include appropriate course work from the social sciences or other areas. Each student's program is supervised by a faculty advisor.

Requirements for Admission

In addition to the general requirements of the Graduate School governing acceptance to a master's degree program, applicants must submit the following:

- two official copies of all undergraduate transcripts, with overall GPA of at least 2.75 out of 4.0
- a writing sample
- three letters of recommendation (at least two from academic sources)
- appropriate undergraduate training or professional background, or indicators that supply evidence of ability to pursue the MH degree
- a typed statement specifying the goal of advanced study in the humanities expressed in clear and effective English
- standardized test scores are not required, but will be considered if submitted

After meeting all other requirements for admission, applicants may be required to have an interview to discuss their interest in the program and their plans for study. For out-of-state applicants, an appropriate substitute for the interview may be determined by the director.

Provisional admission:

Applicants may be admitted as provisional-status graduate students if their complete record indicates a high probability of success.

Nondegree students:

Potential applicants may take graduate-level courses as nondegree students (unclassified student with a bachelor's degree) if they:

1. Wish to strengthen their record in order to demonstrate that they can successfully complete courses in the program or
2. Wish to start courses in the program prior to completing their application.

Up to 9 semester hours taken as a nondegree student may be accepted by the program once a student has been admitted to the program (the 9-hour limit also includes graduate work from another university).

International Students:

International students must also meet UCDHSC requirements for international admission. Contact the Office of International Education at 303-315-2237 or consult its Web site at <http://thunder1.cudenver.edu/InternationalAdmissions/>.

Degree Requirements

Thirty-six semester hours are required for Track I and 39 semester hours are required for Track II. All courses credited toward the MH degree must be taken at UCDHSC over a period not exceeding seven years (a maximum of 9 graduate semester hours may be transferred from other institutions). At least a *B* average (3.0) must be maintained. Each student's program is supervised by a faculty advisor. All independent study contracts must be approved in advance by one of the program directors. A total of two independent study courses and two 4000-level undergraduate courses may count toward the degree. The rest must be 5000/6000-level courses offered through various departments. All students must pass an oral comprehensive exam in order to graduate.

Program Options

The master of humanities offers two general plans of study:

TRACK I (INDIVIDUALIZED PROGRAM) REQUIREMENTS – THESIS OR PROJECT OPTION (36 SEMESTER HOURS)

Students in Track I have the opportunity to fashion a course of study based on their individual interests and goals. In consultation with a faculty advisor, students choose two or three academic disciplines as areas of concentration. Students who select a thesis (6 semester hours) will submit a thesis proposal after completing 30 hours of course work. In the case of a project (3 semester hours), students will submit a project proposal after 33 hours.

All Track I students have the following requirements:

- three interdisciplinary seminars: (1) HUM 5025. Methods and Texts of the Humanities, which must be taken during the first year of entrance into the program; (2) Mid-Program Seminar, an interdisciplinary seminar with a HUM prefix, which is approved for the student's program by one of the program directors (note that a Mid-Program Seminar **must** have a HUM prefix); (3) HUM 5924. Directed Research and Reading in Interdisciplinary Humanities, a final seminar that provides background reading, theory and research approaches for students to develop a thesis or project
- additional 21-24 elective credits, depending on whether the student chooses the thesis or project option
- a thesis (6 credits) or a final project (3 credits), which must be a substantial scholarly and/or creative exercise involving at least two disciplines (all students must submit a proposal approved by three faculty members in order to proceed with a thesis or project.)
- an oral exam before a committee of three faculty members in order to graduate

TRACK II (CULTURAL STUDIES) – NONTHESIS/PROJECT OPTION (39 SEMESTER HOURS)

This track is somewhat more structured than Track I, but does not require a thesis or a project. In consultation with a faculty advisor, students choose from courses organized into eight interdisciplinary clusters:

- classics
- identity and gender

- meaning and values
- philosophy and theory
- self, society and community
- social and political thought
- technology and culture
- understanding America/understanding the World

All Track II students have the following requirements:

- complete 15 semester hours in one of the above clusters
- three required interdisciplinary seminars: (1) HUM 5025. Methods and Texts of the Humanities, which must be taken during the first year of entrance into the program; (2) Mid-Program Seminar, an interdisciplinary seminar with a HUM prefix, which is approved for the student's program by one of the program directors (note that a Mid-Program Seminar **must** have a HUM prefix); (3) HUM 5924. Directed Research and Reading in Interdisciplinary Humanities, a final seminar that provides background reading, theory and research approaches for students to develop a theme for the oral exam
- 15 additional hours in elective credit (students retain considerable flexibility in selecting these hours)
- an oral exam and a brief paper (15-20 pages) before a committee of three faculty members in order to graduate

INDIVIDUALLY STRUCTURED MAJOR

Office: CLAS Advising Office, North Classroom, 2024

Telephone: 303-556-2555

Web site: www.cudenver.edu/clas/ISMajor.html

The individually structured major (ISM) is an interdisciplinary major based on an individual contract rather than a preset list of courses. The flexibility of designing your own major affords liberal arts students an opportunity to pursue academic interests that cross traditional department or college boundaries. The ISM is attractive to students who have specific educational and career goals not satisfied with a traditional major or to students interested in a K-12 teaching career where breadth more than depth is valued to meet licensure requirements.

Students interested in the individually structured major work with faculty advisors in each discipline to create a program plan or contract to define the individually structured major. The ISM program plan must have an academic or career theme that ties course work together. Students are encouraged to complete the program plan before the end of the sophomore year.

Upon completion of graduation requirements, students in the individually structured major program will receive a diploma that will read "Bachelor of Arts, Individually Structured." The University of Colorado transcript will read "Bachelor of Arts, Major: Individually Structured, Area:" (ISM title selected by student and approved as part of the ISM program plan).

Requirements for the Major

The ISM program plan requires course work over two or three disciplines. A discipline is defined as a single department or program such as biology, ethnic studies or math. The ISM program plan must comply with the following policies:

- Between 48 and 54 semester hours are allowed for the program plan.
- A minimum of 16 semester hours must be upper-division credit.
- Each discipline requires a minimum of 15 semester hours, of which at least 3 must be upper-division hours.
- A minimum of 6 semester hours in each discipline must be taken from downtown Denver campus faculty.
- A maximum of one discipline may be outside CLAS.
- A third optional discipline may be a mixture of course work, excluding courses from the first and second disciplines.

- An ISM title must be consistent with the academic theme and disciplines in the program plan.

The ISM program plan contract is approved by faculty for each discipline and submitted to the CLAS Advising Office, North Classroom 2024, for college approval by the associate dean. The ISM program plan must be approved before one-third of the ISM course work is completed. Typically, a maximum of 18-21 hours of previously completed courses is allowed.

Graduation requirements for ISM students include a minimum 2.0 GPA for all ISM course work, a minimum 2.0 GPA in each discipline in the program plan and a minimum of 24 hours of course work taken from downtown Denver campus faculty.

Honors

Liberal arts students interested in graduating with Latin honors in the individually structured major program should meet with the associate dean in the CLAS Advising Office to verify they meet eligibility requirements and to modify the program plan for the honors project. Students who successfully complete the ISM honors program will have the appropriate Latin honor designation placed on the University of Colorado diploma and transcript.

To participate in the ISM honors program, CLAS students must meet each of the following eligibility requirements:

- have a declared ISM “major” with an approved ISM contract
- possess a minimum 3.2 cumulative University of Colorado GPA
- possess a minimum 3.5 GPA on all completed University of Colorado course work in the ISM contract

Eligible ISM students must complete an undergraduate research project and present the results to a faculty honors committee. The level of Latin honors awarded is determined by the faculty honors committee. ISM students are to complete 3 to 6 semester hours of undergraduate independent study over a period of two semesters in one of the disciplines that constitute the ISM contract. The faculty sponsor from the project discipline will serve as honors committee chair. The independent study research project is to produce a thesis-quality report to be presented orally to a three-member interdisciplinary faculty honors committee representing the disciplines in the ISM contract. Upon completion of the research report and oral presentation to the honors committee, the level of Latin honors will be determined by the following criteria:

cum laude—awarded upon completion of written report and oral presentation

magna cum laude—awarded by honors committee based on successful written report and oral presentation

summa cum laude—awarded by honors committee based on excellence in written report and oral presentation

INTEGRATED SCIENCES, MASTER OF

Director: Tammy Stone

Office: CU-Denver Building, 110

Telephone: 303-556-3063

Fax: 303-556-4861

E-mail: Tammy.Stone@cudenver.edu

Web site: www.cudenver.edu/clas/mis/index.html

Students in this program have the opportunity to take courses designed for professional growth in their area of interest. For the teaching professional, several courses relating to the needs of teachers have been created in the master of integrated sciences (MIS) program.

The program includes three options: applied science, computer science and mathematics. Students are required to complete a project or thesis that includes research into some particular area of interest within the chosen option.

The length of time it takes to complete the degree is determined by the student's own schedule flexibility; many finish within two years. The

program requires completion within five years or within six successive summers. Courses are offered during a wide range of times, and many MIS students complete their curriculum by attending night classes throughout their program.

Requirements for Admission

To be considered for admission to the program:

- a student must have completed at least 40 semester hours in mathematics, computer science, physics, biology, chemistry and/or geology
- if their undergraduate GPA is 2.75 or less, the student may be required to take the GRE

Students are admitted only for the fall semester. Deadline for fall admission is April 15.

Degree Requirements

APPLIED SCIENCE OPTION

All candidates choosing the applied science option must complete approved upper-division or graduate-level electives in biology, chemistry, geology, physics, mathematics or computer science to complete a 30-semester-hour degree plan. This plan must include 1 to 4 semester hours of master's project credit or 4 to 6 semester hours of master's thesis credit. Additionally:

- a minimum of 15 semester hours of approved courses at the 4000 level or above in science must be completed for the degree. These courses should include at least one in each of two areas from: biology, geology, chemistry and physics.
- to assure breadth in the degree, the candidate must complete an approved 6-semester-hour upper-division or graduate-level sequence in mathematics or computer science
- to assure depth in the degree, the candidate must complete 18 semester hours of approved graduate course work (i.e., numbered 5000 or above) and project (MINS 5960) or thesis (MINS 5950) credit
- the degree plan may include 3 semester hours of approved courses or seminars at the 4000 level or higher in secondary school mathematics teaching, history of mathematics or science, or philosophy of mathematics or science

COMPUTER SCIENCE OPTION

All candidates for the computer science option must complete approved upper-division or graduate-level electives in biology, chemistry, geology, physics, mathematics or computer science to complete a 30-semester-hour degree plan. This plan must include 1 to 4 semester hours of master's project credit or 4 to 6 semester hours of master's thesis credit. Additionally:

- either by previous training or by course work in the degree, candidates must demonstrate facility with a high-level language such as Java, Pascal, C++, Delphi or Ada that includes the ability to use arrays, records, dynamic structures (pointers) and recursion. A core of at least 15 semester hours of approved computer science courses is required. Some computer science and mathematics courses are cross-listed. A cross-listed course cannot be counted both as a computer science and as a mathematics course.
- to assure breadth in the degree, the candidate must complete 6 semester hours of approved upper-division or graduate-level sequence in biology, chemistry, geology, physics or mathematics
- to assure depth in the degree, the candidate must complete 18 semester hours of approved graduate course work (i.e., numbered 5000 or above, 6 of which must be in computer science) and project (MINS 5960) or thesis (MINS 5950) credit
- the degree plan may include 3 semester hours of approved courses or seminars at the 4000 level or higher in secondary school mathematics teaching, history of mathematics or science, or philosophy of mathematics or sciences

MATHEMATICS OPTION

All candidates choosing the mathematics option must complete approved upper-division or graduate-level electives in biology, chemistry, geology, physics, mathematics or computer science to complete a 30-semester-hour degree plan. This plan must include 1 to 4 semester hours of master's project credit or 4 to 6 semester hours of master's thesis credit. Additionally:

- a minimum of 15 semester hours of approved courses at the 4000 level or above in mathematics must be completed for the degree's mathematics option. Some computer science and mathematics courses are cross-listed. A cross-listed course cannot be counted both as a computer science and as a mathematics course.
- to assure breadth in the degree, the candidate must complete a 6-semester-hour approved upper-division or graduate-level sequence in biology, chemistry, geology, physics or computer science
- to assure depth in the degree, the candidate must complete 18 semester hours of approved graduate course work (i.e., numbered 5000 or above, 6 of which must be in mathematics) and project (MINS 5960) or thesis (MINS 5950) credit
- the degree plan may include 3 semester hours of approved courses or seminars at the 4000 level or higher in secondary school mathematics teaching, history of mathematics or science, or philosophy of mathematics or science

APPLIED FOCUS COURSES

Often, candidates for the master of integrated sciences degree need the applied focus of an undergraduate course, whereas related graduate courses are too theoretical to be as useful. To provide for this need, after a candidate has taken the maximum 12 semester hours of upper-division undergraduate course work, the candidate may enroll at most two times in MINS 5000. Topics (for a maximum of 8 semester hours). The candidate would take a regularly scheduled upper-division course, complete the course with a grade of B– (2.7) or better and submit additional work as agreed upon by the instructor and the candidate's advisor.

Two examples:

- a candidate enrolls for MINS 5000. Numerical Analysis I, takes MATH 4660. Numerical Analysis II, and does additional work as approved by the course instructor and the candidate's advisor
- a candidate enrolls for MINS 5000. Instrumental Analysis, takes CHEM 4121. Instrumental Analysis, and does additional work as approved by the course instructor and the candidate's advisor

GRADUATE ADVISOR AND PROJECT COMMITTEE

All candidates for the master of integrated sciences degree must select a faculty advisor and two other faculty members to serve with the advisor as the candidate's graduate committee. The name of the faculty advisor must be submitted to the MIS executive committee no later than two semesters following full admission to the program.

ORAL PRESENTATION

No later than the last semester of enrollment for the degree, the candidate must make an oral presentation before the candidate's graduate committee to present relevant information and answer questions regarding the completed project or thesis.

INTERNATIONAL STUDIES PROGRAM

Director: Michael Ducey (history)

Office: King Center, 542

Telephone: 303-556-6264

E-mail: Michael.Ducey@cudenver.edu

Web site: www.cudenver.edu/ints/

Faculty

The international studies program is an interdisciplinary major with faculty drawn from several independent academic departments.

Undergraduate Major

In a world where global commerce and politics have emerged as driving forces, the international studies major provides students with global perspectives. This interdisciplinary liberal arts degree is designed to offer a thorough education in international issues in preparation for international careers. This major offers students the opportunity to develop a deeper understanding of complex international issues and the forces shaping our world. Increasingly, government and the private sector seek graduates familiar with differing perspectives and cultures and willing to adapt to the rapidly changing workplace.

The international studies major not only introduces students to diverse cultures, but also gives them the methodological tools to analyze the world from different academic disciplines. The program requires students to take courses from a wide array of departments: anthropology, economics, geography, history, modern languages, political science, religious studies and the Business School. The program is designed to give students both a broad understanding of different methods and approaches to international problems and ensure that students come out of the program with a deeper understanding of one world region.

While the major does not require study abroad or an international internship, we encourage students to pursue such opportunities. The major is committed to supporting students who wish to take advantage of the numerous international education opportunities available through the UCDHSC Office of International Education.

REQUIREMENTS FOR THE MAJOR IN INTERNATIONAL STUDIES

The major consists of 48 to 51 semester hours, structured as follows:

- complete 9 semester hours from a list of introductory courses listed below
- choose three thematic concentrations from the following five: language and culture, international relations and comparative politics, economics and development, international commerce, and regional societies and history. Majors complete 12 hours in each theme (except international commerce, which requires 15). Below is a list of preapproved courses in each concentration. Students wishing to apply courses not on the list may do so with the approval of the program director.
- a capstone seminar (3 semester hours) for students in their last year
- the major is interdisciplinary, and students must take classes in at least three different disciplines (anthropology, economics, geography, history, international commerce/business, modern languages, political science or religious studies). No more than 18 hours in any one discipline will be accepted toward the major.
- students are expected to develop a regional specialization. They must choose courses from the introductory and thematic concentration lists that contribute to an understanding of a world region.
- all international studies majors must demonstrate a proficiency in a language other than English. This may be fulfilled with the fourth semester of a foreign language course sequence. Students must receive a grade of C or better in all language courses; they also have the option of testing out of this requirement.

- majors must complete at least half (24 hours) of the semester hours at the downtown Denver campus. A cumulative GPA of 2.5 or better is required, with a minimum grade of C- earned in all major courses to graduate.

Required Courses

Introductory Courses

Choose one course from each of the following three groups:

Choose one:	<i>Semester Hours</i>
ECON 2012. Principles of Economics: Macroeconomics	3
GEOG 1102. World Regional Geography	3

Choose one:	
P SC 3022. Introduction to Comparative Politics	3
P SC 3042. Introduction to International Relations	3

Choose one:	
ANTH 2102. Culture and the Human Experience	3
HIST 3451. Introduction to African History	3
HIST 3460. Introduction to Latin American History	3
HIST 3470. Introduction to Asian History	3
HIST 3480. Introduction to European History	3
RLST 2660. World Religions	3
Total	9

Thematic Concentrations. Students must take a minimum of four upper-division courses in each of three of the following five concentrations, for a total of 36 semester hours (12 hours in each concentration). Please note that the concentration in international commerce requires five courses rather than four for a total of 39 semester hours. The list below does not include all the international courses applicable to the major, only the ones frequently taught. It is expected to change as departments develop new courses and hire new faculty in different areas.

Note: Concentrations are interdisciplinary and are not the same as academic departments. Students must take courses in at least three different academic departments and no more than 18 semester hours in any one department.

Language, Culture and Literature. This concentration aims at deepening the student’s understanding of the cultural underpinnings and worldviews of different societies.

Modern languages: any upper-division courses in the Department of Modern Languages except Methods of Teaching French/German/Spanish. We have not listed the courses individually because there are so many upper-division courses on world literature and culture available in modern languages.

ANTH 3121. Language and Communication	3
ANTH 4130/RLST 4010. Comparative Religious Systems	3
PHIL 3680/RLST 4400. Differing Concepts of God	3

International Relations and Comparative Politics. Courses in this concentration stress comparative approaches, diplomacy and conflict resolution. Students will have an understanding of how different societies make decisions and manage international relations. How do other cultures conceive of and practice power?

ANTH 4180. The Nature of Power	3
HIST 3121. The World at War, 1914–1945	3
HIST 4032. Twentieth Century World History	3
HIST 4220. U.S. Foreign Policy Since 1912	3
HIST 4412. Mexico and the United States: People and Politics on the Border	3
HIST 4471. The Second World War	3
HIST 4475. The Vietnam War	3
P SC 3022. Introduction to Comparative Politics*	3
P SC 3042. Introduction to International Relations*	3
P SC 4057/RLST 4500. Religion and Politics	3
P SC 4105. Comparative Politics: Europe	3

Semester Hours

P SC 4146. Indigenous Politics	3
P SC 4156. The Arab-Israeli Peace Process	3
P SC 4185. Corruption in the U.S. and Abroad	3
P SC 4216. International Politics: Human Rights	3
P SC 4217. Human Rights in Theory and Practice	3
P SC 4225. Democracy and Democratization	3
P SC 4226. The United Nations in World Affairs	3
P SC 4236. American Foreign Policy	3
P SC 4266. International Law	3
P SC 4286. International Relations: War or Peace?	3
P SC 4726. Russian and Chinese Foreign Policy	3
P SC 4736. Middle East in World Affairs	3
P SC 4807. Revolution and Political Violence	3
P SC 4995. Travel Study Topics	3

* If not taken to fulfill the introductory major requirements

Economics, Development and Environment. Students taking this concentration will develop an understanding of economic processes in an international context. The courses offer comparative approaches and cultural perspectives on development and environment.

Note: Students in this concentration must take ECON 2012. Principles of Economics: Macroeconomics as one of their three introductory courses.

Of the four courses in this concentration one of them must be:
ECON 2022. Principles of Economics: Microeconomics (Required) . 3

Choose three courses from the following:

ANTH 4010. Global Health Studies I: Biocultural Basis of Health	3
ANTH 4070. Culture of Development and Globalization	3
ANTH 4140. Principles of Economic Anthropology	3
ANTH 4170. Culture and the Environment	3
ANTH 4390. Laboratory Methods in Archaeology	3
ECON 4081. Intermediate Macroeconomic Theory	3
ECON 4230. Law and Economics	3
ECON 4410. International Trade	3
ECON 4420. International Finance	3
ECON 4540. Environmental Economics	3
ECON 4770. Economic Development—Theory and Problems	3
GEOG 3411. Globalization and Regional Development	3
GEOG 3430. The Geography of Tourism	3
GEOG 4265. Sustainability in Resource Management	3
P SC 4085. Comparative Public Policy	3
P SC 4126. Introduction to International Political Economy	3
P SC 4235. Politics and Markets in Latin America	3
P SC 4248. Gender and International Development	3
P SC 4326. Advanced International Political Economy: Globalization	3
P SC 4365. Global Ecological Crises	3
P SC 4555. International Women’s Resistance	3

International Commerce. The objective of this concentration is to give students an introduction to international business practices.

ECON 2012 and ECON 2022 are prerequisites to most of these courses. Note that the first three courses are prerequisites of MKTG 4200 and MGMT 4400. Students opting for this concentration must take both MKTG 4200 and MGMT 4400. Students must meet Business School entrance requirements for the international commerce concentration, with a 3.0 GPA overall or in the last 24 hours. Students must have junior standing to take the 3000-level courses and must be formally admitted to the international studies program to take the 4000-level courses. Students must be formally registered as international studies majors to take the 4000-level courses.

Note: This concentration requires 15 hours, not 12.

ACCT 2200. Financial Accounting and Financial Statement Analysis (MATH 1070 or MATH 1110 prerequisite and sophomore standing)	3
MGMT 3000. Managing Individuals and Teams	3

Semester Hours

MGMT 4400. Introduction to International Business	3
MKTG 3000. Principles of Marketing (junior standing required).	3
MKTG 4200. International Marketing	3

Regional Societies and History. Students in this concentration are expected to develop a historical understanding of how nations and political systems develop. To understand why international actors behave in a given way, one needs to understand the historical background of those actors; this concentration will familiarize students with that background.

ANTH 4220. Community in Global Context	3
ANTH 4250. Culture Change in the Modern World	3
ANTH 4740. Ethnography of Mexico and Central America	3
ANTH 4995. Travel Study	3-9
GEOG 3120. Geography of Europe	3
GEOG 3130. Central America and the Caribbean	3
GEOG 3140. Geography of South America	3
GEOG 3150. Middle East	3
HIST 3350. Colonial Latin America	3
HIST 3500. African History in Novels and Films	3
HIST 3995. Travel Study Topics	1-15
HIST 4024. Nineteenth Century Europe	3
HIST 4025. Twentieth Century Europe	3
HIST 4027. The Enlightenment: Eighteenth Century Intellectual History	3
HIST 4028. After the Revolution: Nineteenth Century Intellectual History	3
HIST 4029. Fin de Siecle: Late Nineteenth and Early Twentieth Century Intellectual History	3
HIST 4046. Victorians and Victorianism	3
HIST 4051. Great Britain: 1760-1914	3
HIST 4062. Modern France, 1789 to the Present	3
HIST 4071. Modern Germany	3
HIST 4074. Post-War Germany	3
HIST 4081. Emergence of Modern Russia: 1700-1856	3
HIST 4082. Reform and Revolution in Russia: the 1860s to 1917	3
HIST 4083. Russia Since 1917	3
HIST 4086. Eastern Europe	3
HIST 4303. Sex and Gender in Modern Britain	3
HIST 4411. Modern Mexico	3
HIST 4414. Nationalism and State Building in Latin America, 1750-1850	3
HIST 4415. Social Revolutions in Latin America	3
HIST 4421. Modern China	3
HIST 4451. Southern Africa	3
HIST 4455. African Struggle for Independence	3
HIST 4460/RLST 3160. The Islamic World	3
HIST 4461. The Modern Middle East	3
HIST 4621. Explorers and Exploration	3
P SC 3125. Introduction to Latin American Society	3
P SC 4155. Political Systems of the Middle East and North Africa	3
P SC 4165/RLST 3100. Islamic Politics and Culture	3
P SC 4175. Politics and Governments of the Pacific Rim	3
P SC 4505. The Post-Soviet World: Origins and Present Condition	3
P SC 4554. Chicano and Latino Politics	3
P SC 4615. Politics and Government of China	3
RLST 3400/PHIL 3666. Asian Philosophies and Religions	3
RLST 3500. Religions of India	3
RLST 3660/PHIL 3981. Chinese Philosophy	3

III. The international studies capstone course. All majors must take a 3-semester-hour seminar focusing on a global issue.

Currently the designated capstone course is: HIST 4417. Commodities and Globalization: Dessert in World History (3 credits).

Regional Specialization

Within the courses taken to fulfill the three different thematic concentrations and introductory courses, students must specialize in a single region. At least 15 hours of courses in the concentrations must focus on one of the following world regions:

- Asia
- Europe
- Latin America
- Middle East or Islamic World
- Sub-Saharan Africa

Majors may use any of the courses taken to fulfill the introductory or concentration requirements for the regional specialization. Language courses may be used to fulfill the regional requirement. Wherever possible, students must fulfill their language requirement with a language applicable to the region they study. (No semester hours are required beyond those needed to fulfill the introductory courses and thematic concentrations).

Honors

Students with a cumulative GPA of 3.5 or above in all UCDHSC courses may compete for a degree in international studies awarded with Latin praise of *cum laude*, *magna cum laude* or *summa cum laude*. Students with a GPA of 3.5 in their international courses are eligible for the award of *cum laude*, those with 3.7 are eligible for *magna cum laude*, and those with 3.9 or above may be awarded *summa cum laude*. In addition to a high GPA, candidates for honors must submit a research paper prepared under the supervision of a downtown Denver campus faculty member for review by an honors examination committee. The committee will consist of three faculty members drawn from departments participating in the program.

Study Abroad

Students are encouraged to participate in a study abroad program in the region they choose as their specialization. Please note that the major advisor must approve the study program in advance, and no more than 18 semester hours from a study abroad program can apply to the major. The courses applied to the major must also be approved by their respective disciplines. Travel-study courses that are CU resident courses will not count against the residency requirement for the major. Students should contact the Office of International Education for more information concerning study abroad opportunities (located at the Lawrence Street Center, 900, 303-315-2230).

Internships

Students may use up to 6 internship credits toward international studies graduation requirements. The internship must have a CLAS faculty sponsor who teaches courses applicable to the international studies degree. The internship must have an international element to count toward the degree. Students should seek the approval of the international studies program director for all internships. Students must fulfill the CLAS requirements to participate in an internship: junior standing and a minimum 2.75 GPA. Students must maintain communication with their faculty advisors on the progress they make during the internship if they expect to receive credit toward the major. For further information regarding internships, students should contact the Career Center in Tivoli, 260, 303-556-2250.

INDEPENDENT STUDY

Students may apply up to 6 credits of independent study toward international studies graduation requirements. All independent studies require students to work closely with a faculty member to carry out a research project. Under the supervision of a faculty member, students must prepare a serious research proposal to guide their project during the semester. Students participating in these courses must have completed at least 18 hours of the international studies major to participate in

independent study. Students who participate in independent study must have an overall UCDHSC GPA of 2.5. All independent studies are subject to approval of the dean's office.

LAW STUDIES MINOR

Coordinator: Omar Swartz (communication), JD, Duke University; PhD, Purdue University

Telephone: 303-556-5660

E-mail: Omar.Swartz@cudenver.edu

Additional Advisor: Glenn Morris (political science), JD, Harvard University School of Law

Telephone: 303-556-4930

E-mail: Glenn.Morris@cudenver.edu

Web site: www.cudenver.edu/clas/communication/undergradMinors.html#Law

The law studies minor at UCDHSC is an interdisciplinary course of studies intended to help students become intelligent and critical scholars of legal and political discourse. While the minor may be useful for students contemplating law school, it is also intended to appeal to a wider group of students interested in issues relating to law and society and careers in public policy-related fields. The minor is designed to achieve the following three interrelated goals:

- to introduce students the major areas of law that affect life in the United States and important legal issues that influence current events
- to enable students to become familiar and fluent with a legal vocabulary and legal reasoning
- to better prepare students with the analytical and conceptual tools to be critical citizens in our constitutional democracy

In addition to these goals, students who complete the minor with the intention of attending law school may find themselves more prepared than they otherwise would be for the often mystifying and rigorous first year. To help these students, the program contains an advising component which assists students who are contemplating law school to provide them with a realistic appraisal of law school and of the legal profession. The counselors will aid students with the law school application process.

Requirements for the Law Studies Minor

A total of 18 semester hours must be completed for the law studies minor. The five required courses (15 semester hours) must be taken in residence at UCDHSC. A minimum grade of *C* is required in each course and students must maintain a GPA of 3.0 in courses taken toward the minor. Every course taken for the minor must be upper division, and cannot serve to fulfill requirements of the undergraduate core. Students should check with their major department to determine whether courses counted toward the law studies minor can fulfill major requirements. To apply for this minor, students must complete and submit a Major/Minor Change Declaration form to the CLAS Advising Office in North Classroom 2024.

<i>Required Courses</i>	<i>Semester Hours</i>
CMMU 4680. Mass Communication Law and Policy (offered at least once a year)	3
HUM 3250. Introduction to Law Studies (offered every fall)	3
PHIL 4260. Philosophy of Law (offered every spring)	3

Choose two:

CMMU 4681. Communication Issues in Trial Court Practices and Processes (offered every other year)	3
CMMU 4750. Legal Reasoning and Writing (offered every other year)	3
P SC 3034. Race Gender, Law and Public Policy	3
P SC 4427. Law, Politics, and Justice	3
P SC 4494. Judicial Politics	3
Total	12

Elective

Choose one:

BLAW 3000. Legal and Ethical Environments of Business I.	3
CMMU 4140. Argumentation (taught each summer)	3
CMMU 4255. Negotiations and Bargaining	3
MUS 3720. Law and the Music Industry	3
P SC 3214. Federal Law and American Indians.	3
P SC 4024. Legislatures and Legislation	3
P SC 4477. Constitutional Law I.	3
PHIL 4812. Topics: American Legal Process	3
Total	9
Minor Total	18

The law studies program also recommends a course in informal logic to aid in preparation for the LSAT (e.g., PHIL 2441).

MATHEMATICAL SCIENCES

Chair: Michael S. Jacobson

Associate Chair: Lynn S. Bennethum

Program Assistant: Dawn Arge

Administrative Assistant: Jennifer Thurston

Office: CU-Denver Building, 600

Telephone: 303-556-8442

Fax: 303-556-8550

Web site: www-math.cudenver.edu/

Faculty

Professors: William L. Briggs, PhD, Harvard University; William E.

Cherowitzo, PhD, Columbia University; Leopoldo Franca, PhD, Stanford University; Harvey J. Greenberg, PhD, Johns Hopkins University; Michael S. Jacobson, PhD, Emory University; Karen Kafadar, PhD, Princeton University; Weldon A. Lodwick, PhD, Oregon State University; J. Richard Lundgren, PhD, Ohio State University; Jan Mandel, PhD (equivalent), Charles University (Czechoslovakia); Stanley E. Payne, PhD, Florida State University

Associate Professors: Lynn Bennethum, PhD, Purdue University; Stephen Billups, PhD, University of Wisconsin-Madison; Roxanne M. Byrne, PhD, University of Colorado; Andrew Knyazev, PhD, Institute of Numerical Mathematics, Russian Academy of Sciences; Anatolii Puhalskii, PhD, Moscow Institute of Physics and Technology; Stephan R. Sain, PhD, Rice University; Burton Simon, PhD, University of Michigan, Ann Arbor

Assistant Professor: Julien Langou, PhD, INSA, Toulouse, France

Adjuncts: Rico Argentati, Kirill Bukin, Faun Doherty, William Hart, Joan Hutchinson, Giuseppe Lancia, Doug Nychka, Brooks Reid, John Ruge

The Department of Mathematical Sciences offers courses and research opportunities with an emphasis on applied and computational mathematics. Traditional courses such as calculus, linear algebra, probability, statistics and discrete mathematics are offered regularly by the department. In addition, contemporary subjects such as continuous, probabilistic, optimization and discrete modeling; supercomputing; numerical analysis; optimization; and operations research are also well represented by course offerings and faculty interests. In all of its activities, the department embodies the outlook that mathematics is a powerful tool that can be used to solve problems of immediate and practical importance.

The study of mathematics with an emphasis on computers and applications can prepare students for careers in engineering, the sciences, business and management, actuarial science, public health and all computer-dependent disciplines.

Center for Computational Biology

Director: Stephen Billups
Telephone: 303-556-4814
Web site: <http://ccb.cudenver.edu>

Faculty and students from the mathematical sciences department are principal participants in the Center for Computational Biology (CCB), which is a multicampus center focused on computational biology research and education. The center facilitates interdisciplinary research collaborations and offers a 15-semester-hour graduate certificate program, which can be completed independently or in conjunction with the MS in applied mathematics. A complete description of the CCB is provided in the Information for Graduate Students chapter of this catalog or at the CCB Web site.

Center for Computational Mathematics

Director: Jan Mandel
Telephone: 303-556-4475
Web site: www-math.cudenver.edu/compmath/

The Center for Computational Mathematics is composed of faculty members who have an interest in computational mathematics, the study of solving mathematical problems with computers. The center resides in the Department of Mathematical Sciences and includes faculty members from various other departments. The primary goal of the center is to foster research in computational mathematics and to maintain a strong educational program at all levels. It has extensive ties with industry along the Front Range and with government laboratories throughout the nation. It offers students an excellent opportunity to receive training and experience in this exciting new field. The center operates a super-computing cluster, Beowulf.

Math Clinic

Web site: www-math.cudenver.edu/clinic/

Each semester, the mathematical sciences department conducts math clinics that are open to both undergraduate and graduate students. Each clinic is sponsored by a business, government agency or research organization. The clinic sponsor provides a specific project on which students work with the supervision of a faculty member and a sponsor representative. Every clinic results in a final report to the sponsor and provides participating students with an opportunity to apply mathematics to relevant problems. Recent math clinic sponsors include Ratheon, Lockheed Martin, Xenometrix, Budget Truck Rental and Denver Water.

Statistics Consulting Workshop

Director: Karen Kafadar
Telephone: 303-556-2547

The Department of Mathematical Sciences regularly offers a graduate course in statistics consulting in which students work on problems provided by researchers and clients at the downtown Denver campus and in the Denver metropolitan area. Potential clients should contact Dana Franklin at stats@math.cudenver.edu or 303-556-6269.

Undergraduate Program

Director: Bill Cherowitzo
Telephone: 303-556-6381

The Department of Mathematical Sciences offers a BS program that provides a broad training in mathematics with the option of specializing in one of six areas of emphasis (pure mathematics, applied mathematics, computer science, probability and statistics, actuarial science and

mathematics education). New graduates typically find work teaching, in actuarial firms, developing software, in engineering companies, doing statistical analysis for private and public organizations or pursuing graduate work in mathematics.

SELECTING A FIRST MATHEMATICS COURSE (MATHEMATICS MAJORS)

The following table is a guide for mathematics majors selecting a first mathematics course:

<i>Previous Mathematics Courses</i>	<i>Recommended First Course</i>
A. one year high school algebra and one year high school geometry	Beginning or intermediate algebra at a community college
B. two years high school algebra and one year high school geometry (i) <i>C</i> average (ii) at least <i>B</i> average	MATH 1110 MATH 1120
C. two years high school algebra and one year high school geometry with trigonometry (i) <i>C</i> average (ii) at least <i>B</i> average	MATH 1130 MATH 1401

Students planning to take MATH 1110 or MATH 1401 must take an AccuPlacer placement exam (see Academic Advising Office, North Classroom 1503). Students with transfer or advanced placement credit should see an academic advisor in the Department of Mathematical Sciences.

The BS in mathematics requires 48 semester hours in mathematics with an average of *C* (2.0) and with a grade of at least *C-* in each course. At least 30 of the 48 hours must be in upper-division courses (3000 level or above), excluding MATH 3040. To graduate, a mathematics major must have a minimum of 30 hours of resident credit (letter grades received at UCDHSC). Furthermore, 21 out of the last 30 hours must be taken at UCDHSC. Finally, at least 15 upper-division mathematics credits must be taken at UCDHSC.

Students must declare a major in the CLAS Advising Office by the time they have completed 60 semester hours. At this time, they will also be assigned a mathematics advisor in the Department of Mathematical Sciences, whom they should consult at least once a semester. All mathematics majors should visit the CLAS Advising Office to have graduation requirements checked.

REQUIRED CORE COURSES FOR ALL MATHEMATICS MAJORS

	<i>Semester Hours</i>
MATH 1401. Calculus I	4
MATH 2411. Calculus II	4
MATH 2421. Calculus III	4
MATH 3000. Introduction to Abstract Mathematics	3
MATH 3191. Applied Linear Algebra	3
MATH 3200. Elementary Differential Equations	
—or—	
MATH 4408. Applied Graph Theory	3
MATH 3250. Problem Solving Tools	3
MATH 3800. Probability and Statistics for Engineers	
—or—	
MATH 4810. Probability	3
MATH 4779. Math Clinic	3
Total core semester hours	30

Core Areas (choose one course from each of the following three areas)

<i>Analysis</i>	<i>Semester Hours</i>
Choose one:	
MATH 3200. Elementary Differential Equations	3
MATH 4201. Topology	3
MATH 4310. Introduction to Real Analysis I	4
MATH 4450. Complex Variables	3
MATH 4733. Partial Differential Equations	3
MATH 4650. Numerical Analysis I	3
<i>Modeling</i>	
Choose one:	
MATH 4387. Regression Analysis, Modeling and Time Series	3
MATH 4791. Continuous Modeling	3
MATH 4792. Probabilistic Modeling	3
MATH 4793. Discrete Math Modeling	3
MATH 4794. Optimization Modeling	3
<i>Discrete math</i>	
Choose one:	
MATH 3140. Introduction to Modern Algebra	3
MATH 3301. Introduction to Operations Research I- Deterministic Systems	3
MATH 4408. Applied Graph Theory	3
MATH 4409. Applied Combinatorics	3
Total core area semester hours	9

Electives Mathematics Majors Must Complete

Mathematics majors must take three upper-division mathematics courses, excluding MATH 3040, chosen to provide depth and breadth. Depth is obtained by taking a two-semester sequence of upper-division courses, one of which may be a course taken for the core area requirement.

Portfolio, Interview, Survey

In the semester of graduation, students must:

- submit a portfolio consisting of two papers, typically written for previous courses, that demonstrate mathematical and writing proficiency
- participate in an exit interview, which may be scheduled by the department administrative assistant
- complete a senior survey, available from the department administrative assistant

Required Courses for Each Option**Pure Mathematics Option**

All core courses	30
MATH 3140. Introduction to Modern Algebra	3
MATH 4201. Topology	3
MATH 4310. Introduction to Real Analysis I	4
MATH 4320. Introduction to Real Analysis II	4
Two approved math electives	6
Option Total	50

Applied Mathematics Option

All core courses with MATH 3200 and 4810 chosen	30
MATH 3301. Introduction to Operations Research I- Deterministic Systems	
—or—	
MATH 4408. Applied Graph Theory	3
MATH 4650. Numerical Analysis I	3
Two modeling courses (MATH 4387, 4791, 4792, 4793 or 4794)	6
Two approved math electives	6
Option Total	48

Computer Science Option

All core courses with MATH 4408 chosen	30
MATH 3140. Introduction to Modern Algebra	3
MATH 4650. Numerical Analysis I	3
MATH 4660. Numerical Analysis II	
—or—	
MATH 4674. Parallel Computing and Architectures	3
One modeling course (MATH 4387, 4791, 4792, 4793 or 4794)	3
Two approved math electives	6
C SC 2421. Data Structures and Program Design	3
Option Total	51

Probability and Statistics Option

All core courses with MATH 3200 and 4810 chosen	30
MATH 4650. Numerical Analysis I	3
MATH 4792. Probabilistic Modeling	3
MATH 4820. Statistics	3
One course from the discrete mathematics area	3
Two approved math electives	6
Option Total	48

Actuarial Science Option

All core courses with MATH 3200 and 4810 chosen	30
One modeling course (MATH 4387, 4791, 4792, 4793 or 4794)	3
MATH 3301. Introduction to Operations Research I- Deterministic Systems	
—or—	
MATH 4408. Applied Graph Theory	3
MATH 4387. Regression Analysis, Modeling and Time Series	3
MATH 4650. Numerical Analysis I	3
MATH 4820. Statistics	3
Approved math elective	3
Option Total	48

Mathematics Education Option

All core courses with MATH 3800 and 4408 chosen	30
One modeling course (MATH 4387, 4791, 4792, 4793 or 4794)	3
MATH 3140. Introduction to Modern Algebra	3
MATH 3210. Higher Geometry I	3
MATH 4010. History of Mathematics	3
MATH 4201. Topology	3
Approved math elective	3
Option Total	48

Note: Certification by the School of Education & Human Development is required for public school teaching. Contact the school for details.

REQUIREMENTS FOR THE MATHEMATICS MINOR

MATH 1401. Calculus I	4
MATH 2411. Calculus II	4
MATH 2421. Calculus III	4
Three additional upper-division math courses (3 or more credits each, excluding MATH 3040)	9
Minor Total	21

Minimum of 21 semester hours with a *C* average.

Note: At least 6 of the upper-division credits must be taken at the downtown Denver campus. No grade below a *C-* will be counted toward the minor requirements.

GRADUATION WITH HONORS

The mathematical sciences department recognizes students who complete the undergraduate program with distinction. To be eligible for graduation with honors (*cum laude*, *magna cum laude*, *summa cum laude*), a student must graduate with an overall GPA of 3.2 or better; must have a GPA of 3.5 or better in upper-division math courses; and must complete an honors project. Specific details may be obtained from

the Department of Mathematical Sciences. Students who wish to be considered for graduation with honors should notify a mathematics advisor as early in the program as possible.

Graduate Program

Director: Stephen C. Billups

Telephone: 303-556-4814

The Department of Mathematical Sciences offers the MS degree in applied mathematics and the PhD degree in applied mathematics and supports the master of integrated sciences (MIS) degree. Each of these degree programs conforms to the rules and policies of the Graduate School.

REQUIREMENTS FOR ADMISSION

To begin graduate work toward the MS or PhD degrees, a student should have at least the following preparation: 30 semester hours of mathematics [*B*–(2.7) or better], at least 24 of which are at or above the level of MATH 3000. These courses should include a full year of advanced calculus or introduction to analysis, one semester of linear algebra and one semester of either differential equations, abstract algebra, discrete mathematics or probability.

Students who do not have all the prerequisites or who have a cumulative undergraduate GPA that is less than 2.75, may be eligible for provisional admission to the master's program (see also the Graduate School admission requirements).

REQUIREMENTS FOR THE MS DEGREE

Students must present 30 hours of course work and maintain a 3.0 GPA for the MS degree. At least 24 of these hours must consist of graduate-level (numbered 5000 or higher) mathematics courses. The remaining 6 hours must be either mathematics courses numbered 5000 or above or approved courses outside the department numbered 4000 or above. Up to 9 semester hours may be transferred from other institutions.

A student may devote from 4 to 6 hours (of the 30 required hours) to the writing of a thesis. Following completion of course work, candidates must make a one-hour oral presentation before a committee consisting of three graduate faculty members.

The MS degree is designed to prepare a candidate for a position as an applied mathematician, a teacher or to continue studies at the PhD level. It provides training in applied mathematics in the fields of:

- discrete mathematics
- operations research
- applied statistics
- applied probability
- numerical analysis
- mathematics of science and engineering
- mathematical foundations of computer science
- computational biology

Students must take either applied analysis or real analysis and applied linear algebra. The choice of one of the above eight options will determine additional course requirements.

All master's degree students are encouraged to participate in the math clinic, a unique program in which students have an opportunity to work on real-world problems supplied by local businesses, research firms and government agencies.

REQUIREMENTS FOR THE PhD

The mathematical sciences department also offers a PhD in applied mathematics. The degree is designed to give candidates a contemporary, comprehensive education in applied mathematics and to provide research opportunities in the special fields of discrete mathematics, optimization, operations research, applied probability, computer science, computational mathematics, applied statistics and the mathematics of science and engineering.

There are six phases of the PhD program. A candidate must fulfill course requirements, pass the preliminary examinations, establish a PhD committee, meet the academic residency requirement, pass the comprehensive examination and write and defend a thesis.

- Students must complete 12 to 42 semester hours of nonthesis course work at the graduate level (12 hours if admitted with a master's degree in mathematics; 42 hours if admitted without a master's degree; a number of hours to be determined by the graduate committee if admitted with a master's degree in another field). In addition, 30 hours of thesis credit must be taken. The following courses are required as part of the formal course work: four PhD-level (6000 or 7000) courses (3 hours each), math clinic and three readings courses (1 semester hour each). Students must also satisfy a **breadth requirement** by taking a total of four courses in at least two different areas outside of the intended area of research. Courses used for a master's degree may be used to satisfy the breadth requirement. A 3.25 GPA must be maintained throughout all course work.
- six semesters of residence are required, as specified in the rules of the Graduate School. All students are strongly advised to spend at least one year doing full-time course work or research with no outside employment.
- the preliminary examinations are designed to determine that students who intend to pursue the PhD program are qualified to do so. These four-hour written examinations are in the areas of applied analysis and applied linear algebra. Students must pass these exams within two years if entering the program with an MS in mathematics or within three years otherwise.
- application for candidacy is made after completion of the preliminary examinations and after at least three semesters of residency. The application must be submitted at least two weeks before taking the comprehensive examination. The comprehensive examination is designed to determine mastery of graduate-level mathematics and the ability to embark on thesis research. It consists of a six-hour written examination and an oral follow-up examination.
- each student must write and defend a thesis containing original contributions and evidence of significant scholarship. The thesis defense is public and must be given before an examining committee approved by the Graduate School.

MODERN LANGUAGES, DEPARTMENT OF

Chair: Kathleen Bollard

Coordinator: Tim Phillips

Program Assistants: Jaynie Muggli, Susan Hess

Office: Plaza Building, 118

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Denver, CO 80217-3364

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Web site: www.cudenver.edu/clas/modlang/

French Faculty

Associate Professor and French Advisor: Diane M. Dansereau, PhD,
University of Michigan

Senior Instructors: Linda Alcott, Jocelyne Hunsinger, Lori Willard

German Faculty

Associate Professor: Carsten E. Seecamp, PhD, Johns Hopkins University

Senior Instructor: Tim Phillips, MA, University of Colorado

Latin Faculty

Lecturer: Mary DeForest

Spanish Faculty

Associate Professors: Kathleen Bollard, PhD, University of California-Berkeley; Donald L. Schmidt, PhD, University of Kansas

Assistant Professors: Ibon Izurieta, PhD, University of Iowa; Devin Jenkins, PhD, University of New Mexico; Amy VonCanon, PhD, University of Iowa

Instructors: Conxita Domenech, Ileana Gross, Zeb Kozlowski, Ted Wendelin

Lecturers: Adelaida Carmona, Suzanne Collings, Danny Martinez

Graduate Advisor: Ibon Izurieta

General Information

The Department of Modern Languages includes Chinese, French, German, Latin and Spanish. Majors are available in French and Spanish, and minors are available in French, German and Spanish. Certification is available in German. Students must declare a major by the time they have completed 60 semester hours of course work. The department recommends that majors and minors include some study abroad while they are fulfilling their degree requirements at UCDHSC. Please see a departmental advisor about study abroad opportunities. Credit earned abroad will normally count toward satisfaction of the major and minor requirements at UCDHSC, but to assure full transfer of credit, students must see an advisor in the department before enrolling in programs abroad. Courses taken abroad and designated as upper division in French, German or Spanish are subject to the 48-hour maximum of semester hours from a single discipline in the College of Liberal Arts and Sciences.

DEPARTMENTAL HONORS

Students who meet certain criteria and have been invited by the faculty of the appropriate language are encouraged to participate in the Department of Modern Languages honors program. Successful completion of this program by students majoring in French or Spanish leads to graduation with the distinction of *cum laude*, *magna cum laude* or *summa cum laude*. See French and Spanish sections for details.

RELEVANCE TO OTHER PROGRAMS

In addition to fulfilling major and minor requirements, courses in the Department of Modern Languages prepare students in the language, literature and civilization of the countries and peoples they are studying. Certain courses may apply to the fulfillment of core curriculum requirements in the College of Liberal Arts and Sciences. Other courses lead to a secondary-school teaching certificate, the master of humanities degree and the master of arts degrees in Spanish and education at the downtown Denver campus, and to the master of arts degree in French or Spanish on the Boulder campus. Only courses numbered 5000 and above apply to the master's degree; students enrolled in a master's program in Boulder should consult with their advisor before enrolling in courses on the downtown Denver campus.

FOREIGN LANGUAGE REQUIREMENT

All students with majors in the College of Liberal Arts and Sciences must demonstrate proficiency in a foreign language at the second-semester level. This is accomplished through course work, by examination or by completion of second-year high school credit. Students must receive a grade of *C-* (1.70) or higher in the final semester of the second-year course in high school or the second-semester college-level course in order to fulfill the foreign language requirement. The prerequisite for the second-semester college course is a grade of *C* (2.0) or better in the first-semester course. There is no pass/fail option for any course taken for the foreign language requirement. Students may show their level of proficiency by taking the placement/proficiency exam. The languages tested are French, German and Spanish. For other languages, consult

the CLAS Advising Office (North Classroom, 2024). Call the Department of Modern Languages, 303-556-4893, to schedule an exam time. The number of times a student may take the exam is limited to once per semester. For information on fulfilling part of the foreign language requirement through study abroad, call the Office of International Education, 303-315-2237.

DEPARTMENT OF MODERN LANGUAGES POLICY ON STUDENT PLACEMENT IN LOWER-DIVISION COURSES

A student may not enroll in a lower-division (1000/2000) language course that is below his/her level of language proficiency. Students wishing to enroll in a lower-division language course that does not directly follow their last completed course in the regular sequence must consult with an appropriate faculty member of the Department of Modern Languages prior to enrollment. Students who have achieved some proficiency in a foreign language through other means than academic courses must also consult with an appropriate faculty member of the Department of Modern Languages prior to enrollment. Call 303-556-4893 for further information.

DEPARTMENTAL ADVISING

Upon declaring a major or minor in modern languages, each student will be assigned to a faculty advisor with whom the student should consult at least once per semester thereafter. It is especially important that modern language majors have their transcripts reviewed by a departmental advisor before enrolling in their final 30 semester hours at UCDHSC. Failure to do so may result in delay of graduation. Students presenting four years of high school foreign language (Level IV) for admission must see a departmental advisor before enrolling in courses for the major or minor. Students with advanced placement credits from high school should see a departmental advisor about course equivalencies. The Department of Modern Languages does not accept CLEP credits.

Before enrolling in their final semester, seniors demonstrate advanced oral and written proficiency in the language that they are studying through an oral proficiency interview and a written outcomes assessment exam. Students must see a departmental advisor to schedule proficiency tests in their language.

RESIDENCY REQUIREMENT

A minimum of 18 semester hours of course work leading to a UCDHSC major in French or Spanish must be taken from modern languages faculty at the downtown Denver campus. For a UCDHSC minor in French, German or Spanish, 9 semester hours must be taken from modern languages faculty at the downtown Denver campus. Courses taken at other institutions while a student is enrolled at UCDHSC may be applied to the major or minor only with departmental approval before enrollment in those courses.

French

UNDERGRADUATE

The French program offers a variety of courses for students interested in French language, linguistics, literature, civilization and culture. A minor is also offered.

Admission and Grade Requirements

To be admitted to major status in French, students must have an overall GPA of *C+* (2.3). The minimum grade acceptable in any course applied to a French major or minor is a *C* (2.0). The GPA in all courses applied to a French major or minor at UCDHSC must be 2.5. No courses taken on a pass/fail basis may be credited toward a French major or minor.

Residency Requirement

The BA in French requires 30 semester hours of upper-division course work. A minimum of 18 semester hours for the major, and 9 hours for the minor, must be taken from French faculty at the downtown Denver campus. Courses taken at other institutions while a student is enrolled at UCDHSC may be applied to the major only with departmental approval before enrollment in those courses.

Proficiency Requirement

Before enrolling in their final semester in the language, French majors demonstrate advanced oral and written proficiency in French through an oral proficiency interview and a written outcomes assessment exam. Students must see their French advisor to schedule these proficiency tests.

Course Requirements for the Major

Students majoring in French must complete 30 semester hours of upper-division French courses (courses numbered 3000 and above). All French majors must complete the following course work:

<i>Required Courses</i>	<i>Semester Hours</i>
FR 3010. French Phonetics and Pronunciation	3
FR 3020. Oral Practice	3
FR 3050. Advanced Grammar and Composition	3
FR 3060. Advanced French Language Skills	3
Total	12

In addition to these four courses, students majoring in French must select and complete the following courses in French:

French electives, including:	18
• at least one literature course	
• at least one culture or civilization course	
• 9 semester hours at the 4000 level	
Major Total	30

Course Requirements for the Minor

Students minoring in French must complete 15 semester hours of upper-division French courses (courses numbered 3000 and above).

The minor in French must include at least one language skills class, chosen from the following:

<i>Required Course</i>	<i>Semester Hours</i>
FR 3010. French Phonetics and Pronunciation	3
FR 3020. Oral Practice	3
FR 3050. Advanced Grammar and Composition	3
FR 3060. Advanced French Language Skills	3
Total	3

Electives

In addition, students minoring in French must complete three additional French courses.	12
Minor Total	15

Honors in French

Students who complete all the requirements for the French major (as outlined above), meet the following criteria and have been invited by the French faculty are encouraged to participate in the honors program. Successful completion of this program by students majoring in French leads to graduation with the distinction of *cum laude*, *magna cum laude* or *summa cum laude*.

Cum laude

1. Overall GPA of 3.5 or better and French GPA of 3.8 or better —or—
2. Overall GPA of 3.2 or better and French GPA of 3.5 or better and *3 semester hours of French 4840. Independent Study*. The candidate

must present the independent study topic for approval by the faculty honors committee by the end of the first semester. At the end of the independent study project, and at least one month before the end of the second semester, the candidate shall deliver an *oral presentation* based on the project to the faculty honors committee.

Magna cum laude or *Summa cum laude*

1. Overall GPA of 3.5 or better and French GPA of 3.8 or better —and—
2. *6 semester hours of French 4840. Independent Study*, spread over two semesters. The candidate must present the independent study topic for approval by the faculty honors committee by the end of the first semester. At the end of the independent study project, and at least one month before the end of the second semester, the candidate shall submit a *written thesis* to the faculty honors committee.
3. The designation of magna or summa will be the decision of the faculty honors committee.

GRADUATE

At present, UCDHSC offers no French courses above 5999. The courses at the 5000 level are applicable to an MA degree through the University of Colorado at Boulder and to the master of humanities program at UCDHSC, depending upon degree plan approval by the appropriate graduate advisor.

German

UNDERGRADUATE MINOR

The German program provides a variety of courses for students interested in German language, linguistics, literature, history, philosophy, music and art.

Admission and Grade Requirements

To be admitted to minor status in German, students must have an overall GPA of C+ (2.3). The minimum grade acceptable in any course applied to a German minor is a C (2.0). The GPA in all courses applied to a German minor at UCDHSC must be 2.5. No courses taken on a pass/fail basis may be credited toward a German minor.

Residency Requirement

The German minor requires 15 semester hours of upper-division course work. A minimum of 6 semester hours must be taken from German faculty at the downtown Denver campus. Courses taken at other institutions while a student is enrolled at UCDHSC may be applied to the minor only with departmental approval before enrollment in those courses.

Students who have completed course work through the Oldenburg, Germany exchange program must also complete a residency requirement of a minimum of 6 credits of upper-division German courses. This residency requirement must include at least 3 credits of language skills courses at the downtown Denver campus.

Course Requirements for the Minor

Students minoring in German must complete 15 hours of upper-division German courses (courses numbered 3000 and above). The minor in German must include at least one language skills course:

<i>Required Courses</i>	<i>Semester Hours</i>
Choose one:	
GER 3050. Phonetics and Pronunciation of German	3
GER 3060. Advanced German Language Skills I	3
GER 3070. Advanced German Language Skills II	3
GER 3080. Advanced German Language Skills III	3
GER 3090. Advanced German Language Skills IV	3
Total	3

*Electives**Semester Hours*

In addition, students minoring in German must complete three additional German courses	12
Minor Total	15

Students taking a German course taught in English must complete a portion of the course work (e.g., papers and exams) in German for the course to count toward the minor.

UNDERGRADUATE CERTIFICATE IN APPLIED GERMAN LANGUAGE SKILLS

Certificate Description

The undergraduate certificate in applied German language skills is designed for students of any discipline who wish to acquire and demonstrate to potential employers that they possess a fluid working knowledge of the German language and understanding of the cultures in which German is spoken. The completion of the requirements for this certificate can also serve as a means for non-degree-seeking professionals to develop a working competency in the German language and culture for use in such areas as international business, education, genealogy, transatlantic travel, academic research, translation and many other fields.

ADMISSION REQUIREMENTS

All currently enrolled students at UCDHSC (undergraduate or graduate) in good standing (including non-degree-seeking students) are eligible for admission into the program. Any student who already possesses an undergraduate degree is also qualified for admission into the program, but must apply to the university as a non-degree-seeking student. Students working toward a baccalaureate degree who are currently enrolled in a college-level institution other than UCDHSC are also eligible for certification.

Transfer Credit

A significant portion of the certificate program is based on language proficiency. Consequently, students who have developed language skills through course work at higher education institutions outside UCDHSC, including study abroad, may apply a limited number of previously earned semester hours toward the program. Please refer to the requirements below for details. All transfer credit for consideration toward the program must be approved by UCDHSC German faculty.

Certificate Requirements

To obtain the certificate, students must maintain a 3.0 GPA in all course work required for the program. Students must complete a minimum of 12 semester hours of upper-division German language skills courses and 6 semester hours of German culture courses from UCDHSC faculty. This residency requirement may be reduced to 9 semester hours of upper-division language skills and 3 semester hours of culture course work from UCDHSC faculty if the remaining required course work has been completed through an approved study abroad program.

REQUIRED COURSE WORK

A. German Language Skills (15 semester hours)

Complete a minimum of 15 semester hours of upper-division German language skills courses. These courses are defined as those areas of study in which grammar, vocabulary, pronunciation and/or communicative abilities in German are the primary focus of instruction. Up to 6 semester hours of upper-division German skills courses may be applied as transfer credit from non-UCDHSC higher education institutions. Alternately, students may apply up to 9 semester hours of officially recognized study abroad credit toward this requirement.

B. German Culture (9 semester hours)

Complete a minimum of 9 semester hours of German culture courses. These courses may be completed at any level (lower- or upper-division as well as graduate) and in any combination of disciplines, provided that the student supplies evidence that a significant portion of each course is devoted to Austrian, German and/or Swiss culture. This includes but is not limited to history, philosophy, political science, literature (in German or in translation) and other German cultural topics. Up to 3 semester hours of culture courses may be applied as transfer credit from non-UCDHSC higher education institutions. Alternately, students may apply up to 6 semester hours of officially recognized study abroad credit toward this requirement.

Application of Course Work

The course work applied toward certification is meant as a proficiency requirement and not as a total credit amount. As a result, students who are working toward a degree may apply course work in German certification as credit toward other programs such as a minor, general education requirements, or their major. Students are encouraged to inform their major advisor that they are working toward certification in German for help in coordinating their overall academic curriculum.

Further Information

Students are encouraged to hold a personal conference with a departmental advisor before applying to the certificate program. Please contact the Department of Modern Languages on the Web or by phone at 303-556-4893.

GRADUATE

UCDHSC offers no German courses above 5999. Courses at the 5000 level are applicable to an MA degree in German through the University of Colorado at Boulder and to the master of humanities program at UCDHSC, depending upon degree plan approval by the appropriate graduate advisor.

Spanish

UNDERGRADUATE

The Spanish program studies the language, linguistics, literature, culture and civilization of Spain, Spanish America and the Spanish-speaking areas of the U.S.

Admission and Grade Requirements

To be admitted to major status in Spanish, students must have an overall GPA of C+ (2.3). The minimum grade acceptable in any course applied to a Spanish major or minor is a C (2.0). The GPA in all courses applied to a Spanish major or minor at UCDHSC must be 2.5. No courses taken on a pass/fail basis may be credited toward a Spanish major or minor.

Residency Requirement

The BA in Spanish requires 30 semester hours of upper-division course work in Spanish and 6 additional hours in related fields. A minimum of 18 semester hours of Spanish course work for the major, and 9 hours for the minor, must be taken from Spanish faculty at the downtown Denver campus. Courses taken at other institutions while a student is enrolled at UCDHSC may be applied to the major only with departmental approval before enrollment in those courses.

Proficiency Requirement

Before enrolling in their final semester in the language, Spanish majors must be evaluated by the faculty in oral and written skills. Students must see their Spanish advisor for specific information.

Course Requirements for the Major

Students majoring in Spanish for the BA degree must complete 30 semester hours of upper-division course work, at least 12 of which must be at the 4000 level. All course work applied to the 30-semester-hour minimum must be taught in Spanish. In addition, students must complete 6 semester hours in courses in related fields outside the curriculum in Spanish.

<i>Required Courses</i>	<i>Semester Hours</i>
Literature	
SPAN 3252. Introduction to the Study of Literature	3
At least one course on the literature of Spain	3
At least one course on the literature of Spanish America	3
Total	9
Language skills and theory	
SPAN 3060. Hispanic Phonetics: Theory and Practice	3
6 additional hours in language skills and theory	6
Total	9
Culture and civilization of Spain or Spanish America	
Choose two:	
SPAN 3070. Bilingual Communities: Spanish as a Language of Contact	3
SPAN 3212. Spanish American Culture and Civilization	3
SPAN 3221. Culture and Civilization of Spain I	3
SPAN 3222. Culture and Civilization of Spain II	3
SPAN 4230. Modern Culture of Spain Through Film and Narrative ..	3
Total	6
Related fields, two courses	
Latin American studies (from fields such as history, geography, political science, art history)	
Hispanic American studies	
Linguistics (in the fields of anthropology or English)	
Comparative literature	
Upper-division courses in another foreign language	
Major Total	30

Course Requirements for the Minor

Students minoring in Spanish for the BA degree must complete a minimum of 15 semester hours at the upper-division level (courses numbered 3000 and higher). All course work applied to the 15-semester-hour minimum must be taught in Spanish.

The minor in Spanish must include at least 3 semester hours in culture and civilization, chosen from the following.

<i>Required Courses</i>	
Five 3000-level courses or above	15
Electives	
Choose one:	
SPAN 3070. Bilingual Communities: Spanish as a Language of Contact	3
SPAN 3212. Spanish American Culture and Civilization	3
SPAN 3221. Culture and Civilization of Spain I	3
SPAN 3222. Culture and Civilization of Spain II	3
SPAN 4230. Modern Culture of Spain Through Film and Narrative ..	3
Total	3
Minor Total	18

Honors in Spanish

Students who complete all the requirements for the Spanish major (as outlined above) and meet the following criteria are encouraged to talk with the Spanish faculty about participation in the honors program. Successful completion of this program by students majoring in Spanish leads to graduation with the distinction of *cum laude*, *magna cum laude* or *summa cum laude*.

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Cum laude

Overall GPA of 3.5 or better and Spanish GPA of 3.8 or better

Magna cum laude or Summa cum laude

1. Overall GPA of 3.5 or better and Spanish GPA of 3.8 or better —and—
2. *6 semester hours of Spanish 4840. Independent Study*, spread over two semesters. The candidate must present the independent study topic for approval by the faculty honors committee by the end of the first semester. At the end of the independent study project, and at least one month before the end of the second semester, the candidate shall submit a *written thesis* to the faculty honors committee.
3. The designation of *magna* or *summa* will be the decision of the faculty honors committee.

GRADUATE

The UCDHSC modern languages faculty offers a master's degree program that is an alternative to the exclusively literary studies that traditionally lead to doctoral programs. By integrating language, literature and cultural studies with ancillary work in other disciplines, the degree provides the broader expertise that will lead to or enhance careers in teaching, government, social services, business and international trade. Students will tailor the program to their specific interests and needs by developing a topical focus and including courses from outside the Department of Modern Languages, through which they may develop a secondary emphasis that can be incorporated in a thesis project.

REQUIREMENTS FOR ADMISSION

In addition to the general admission requirements of the Graduate School, the Spanish MA program requires:

- an undergraduate GPA of at least 2.5, with a GPA of at least 3.0 in Spanish courses
- a bachelor's degree in Spanish is not required, although all candidates must demonstrate Spanish oral and written proficiency at the advanced level, as defined by the American Council on the Teaching of Foreign Languages.
- two copies of all college transcripts
- three letters of recommendation
- a statement of the applicant's purpose in pursuing the degree, in Spanish. Any gaps, weaknesses or special circumstances affecting an applicant's academic record should be addressed in the statement of purpose portion of the application.

In special circumstances, the department may modify its admission standards.

DEGREE REQUIREMENTS

Candidates in Spanish must satisfy the general requirements of the Graduate School as outlined in this catalog and will be required to complete 33 hours of course work distributed with respect to one of the following two options:

Thesis option (course work + thesis):	<i>Semester Hours</i>
SPAN 5000. Introduction to Graduate Studies in Spanish	3
Literature/culture and linguistics, including at least 6 in literature/culture and 6 in linguistics	15
Courses outside the Department of Modern Languages, as approved by advisor	6
Elective, as approved by advisor	3
Thesis preparation and writing	6
Option Total	33

Nonthesis option (course work):

SPAN 5000. Introduction to Graduate Studies in Spanish	3
Literature/culture and linguistics, including at least 6 in literature/culture and 6 in linguistics	18

Semester Hours

Courses outside the Department of Modern Languages, as approved by advisor	6
Electives, as approved by advisor (may include another course outside the Department of Modern Languages)	6
Option Total	33

1. No more than one undergraduate course (3 semester hours) may be applied toward the MA degree, and then only in an ancillary field outside the Department of Modern Languages.
2. Students choosing the nonthesis option may elect to take three courses (9 semester hours) outside the department.

FINANCIAL AID

The department offers a limited number of teaching assistantships for graduate students on a semester-by-semester basis. Appointment is competitive and is typically based on a student's academic credentials. Contact the department for details. For information on grants, federal work-study programs, scholarships and loans, contact the Office of Financial Aid

For further information concerning the master's degree in Spanish at UCDHSC, direct inquiries to the graduate advisor.

PHILOSOPHY

Chair: Candice Shelby

Program Assistant: Agnes Romero

Office: Plaza Building, M108

Telephone: 303-556-4868

Fax: 303-556-8100

Web site: www.cudenver.edu/clas/philosophy/

Faculty

Associate Professors: Candice Shelby, PhD, Rice University; Mark Tanzer, PhD, State University of New York at Stony Brook

Assistant Professors: David Hildebrand, PhD, University of Texas at Austin; Robert Metcalf, PhD, Pennsylvania State University; Maria L. Talero, PhD, Pennsylvania State University

Senior Instructors: Myra Bookman, PhD, University of Colorado; Sharon Coggan, PhD, Syracuse University; Daryl Mehring, PhD, University of Colorado; Samuel F. Walker, PhD, University of Colorado

Instructors: Lisa Bates, M Phil, City University of New York; Kimberly Garchar, PhD, University of Oregon; Paul Saalbach, PhD, University of Colorado

Honorary: Michael Boring, Barbara Goodrich, William Simpson

The philosophy program is recommended to students whose goal is a liberal arts education in the finest sense. Philosophy is concerned with the transmission and evaluation of basic beliefs and values. It is not an easy field of study, but for more than 25 centuries philosophy has been judged most rewarding by those who seek self-development, intellectual sophistication, and the happiness of a reflective life.

Philosophy is an excellent undergraduate preparation for almost any professional field.

Undergraduate

REQUIREMENTS FOR THE MAJOR

Students must declare a major by the time they have completed 60 semester hours of course work. A total of 36 semester hours must be completed for the philosophy major, at least 18 of which must be taken at the downtown Denver campus. A minimum grade of C (2.0) is required in each course. For those students who qualify for and fulfill the requirements for graduation with honors, a total of at least 39 hours is required.

Unless otherwise noted, registration for 4000-level courses in philosophy require a minimum grade of C (2.0) in every prior philosophy course and completion of at least PHIL 3002 or PHIL 3022 or permission of instructor.

<i>Required Courses</i>	<i>Semester Hours</i>
PHIL 2441. Logic and Language	3
PHIL 3002. Ancient Greek Philosophy	3
PHIL 3022. Modern Philosophy	3
(It is recommended, but not required, that PHIL 3002 be taken before PHIL 3022)	
PHIL 4735. Rationalism; PHIL 4740. Empiricism —or—	
PHIL 4760. Kant	3
Total	12

Additional course subject areas required (upper-division courses)

One course in 19th century philosophy (may be a single figure course)	3
One course in 20th century philosophy (may be a single figure course)	3
One course in metaphysics or epistemology	3
One course in ethics or social and political philosophy	3
Total	12

Additional electives

Choose four (maximum of 6 hours in religious studies)

Total upper-division semester hours required for major.

Major Total

Course work required for graduation with honors: 3-6 semester hours taken over two semesters of PHIL 4950.

REQUIREMENTS FOR THE MINOR

A total of 15 semester hours is required for the minor in philosophy, with a minimum grade of C (2.0) in each course.

<i>Required Courses:</i>	
PHIL 1012. Introduction to Philosophy	3
PHIL 3002. Ancient Greek Philosophy	3
PHIL 3022. Modern Philosophy	3
(It is recommended but not required that PHIL 3002 be taken before PHIL 3022.)	
Total	9

Electives

Choose two (at least 3 hours must be at the upper-division level)

Minor Total

Religious studies courses cannot be used to fulfill the requirements for the minor.

MINOR IN ETHICS

A total of 15 semester hours is required for an ethics minor, with a minimum grade of C (2.0) in each course.

<i>Required Course</i>	
PHIL 1020. Introduction to Ethics and Society	3
Choose four:	
PHIL 3150. History of Ethics	3
PHIL 3200. Social and Political Philosophy	3
PHIL 3250. Business Ethics	3
PHIL 3500. Ideology and Culture: Racism and Sexism	3
PHIL 3939. Internship	3
PHIL 4150. Twentieth Century Ethics	3
PHIL 4242. Bioethics	3
Minor Total	15

For those students who major in philosophy and minor in ethics, no course can satisfy the requirements for both. For example, if a student takes PHIL 4150, Twentieth Century Ethics, it cannot satisfy the requirement in the major for a course in 19th or 20th century philosophy.

CERTIFICATE IN ETHICS

The certificate in ethics is designed for special students who are not in a degree program.

A total of 15 semester hours is required for an ethics certificate. Students are required to write a capstone paper in an area of ethics directly related to their career and/or field of study (PHIL 3840).

Required Course	Semester Hours
PHIL 1020. Introduction to Ethics and Society	3
Choose four:	
PHIL 3002. Ancient Greek Philosophy	3
PHIL 3150. History of Ethics	3
PHIL 3200. Social and Political Philosophy	3
PHIL 3250. Business Ethics	3
PHIL 3500. Ideology and Culture: Racism and Sexism	3
PHIL 3840. Independent Study	3
PHIL 4150. Twentieth Century Ethics	3
PHIL 4242. Bioethics	3
Certificate Total	15

HONORS PROGRAM

Requirements for honors are the following:

A. Course Performance

- | | |
|---------------------------|---|
| 1. <i>Cum laude</i> | 3.4 GPA within the major
3.3 overall GPA |
| 2. <i>Magna cum laude</i> | 3.6 GPA within the major
3.5 overall GPA |
| 3. <i>Summa cum laude</i> | 3.8 GPA within the major
3.7 overall GPA |

B. Thesis

Majors desiring to graduate with honors in philosophy must enroll in PHIL 4950 for a minimum of 3 hours and a maximum of 6 hours (note that these hours are in addition to the 36 hours required for the philosophy major) and complete research that culminates in a thesis and oral examination. Majors must work with two faculty members during the project. Written proposals must be submitted and approved by the faculty committee prior to the beginning of the project. If the completed thesis and oral exam are deemed worthy of honors, the student will be awarded the honors consistent with his or her GPA. However, to receive highest honors (*summa cum laude*), the faculty committee must designate the performance for both the written thesis and the oral defense as worthy of graduation with highest honors. If the faculty committee makes no such designation, students will graduate *magna cum laude*.

Graduate

Graduate-level courses offered at the downtown Denver campus may be applied to CU-Boulder graduate degrees in philosophy or toward the master of humanities and master of social science at UCDHSC. Contact these programs for degree requirements and applicability limitations of UCDHSC course work.

Center for Ethics and Community

Executive Director: Candice L. Shelby

Telephone: 303-556-3223

The Center for Ethics and Community is dedicated to strengthening ethics in the community, in schools and universities and in the professions. The center focuses its activities in five major areas:

- academic programs
- research in ethics
- ethics and the professions
- community outreach
- educational programs

Through the Department of Philosophy, the center offers an ethics certificate and an ethics minor.

The ethics certificate is offered to individuals who are not enrolled in a degree program. The certificate program encourages community members from all walks of life to further their ethics education.

The ethics minor is offered primarily to students enrolled for regular course work.

PHYSICS

Chair: Randall P. Tagg

Program Assistant: Pam Wojahn

Office: North Classroom, 3801

Telephone: 303-556-8344

Fax: 303-556-6257

Web site: www.cudenver.edu/clas/physics

Faculty

Professors: Martin E. Huber, PhD, Stanford University; Martin M. Maltempo, PhD, Columbia University; Alberto C. Sadun, PhD, Massachusetts Institute of Technology

Associate Professor: Randall P. Tagg, PhD, Massachusetts Institute of Technology

Emeritus Professors: Willard R. Chappell, PhD, University of Colorado; Clyde S. Zaidins, PhD, California Institute of Technology

Undergraduate

Physics, as the most fundamental of the sciences, is the base on which many other disciplines rest. Therefore, knowledge of the fundamentals of physics is often required in other programs. The department offers both a course of study fulfilling the bachelor of science degree and a wide range of service courses for students majoring in disciplines other than physics. Students also have the option of choosing a minor in physics. In the interest of further awareness of scientific issues among the general public, the physics departments of UCDHSC and Metropolitan State College of Denver sponsor lectures organized by the Natural Philosophy Club and open to the public. Speakers lecture on topics in physics and related sciences at a level intended for general audiences.

Those students intending to major in physics should have a high school background that includes trigonometry, advanced algebra, chemistry and physics, as well as a good preparation in the arts and humanities. Students have an option during their freshman year to overcome some deficiencies in these areas.

The Department of Physics offers various programs of study, or tracks, tailored to the specific career goals of its majors. Students should consult with a departmental advisor prior to choosing a track.

Track 1—Pure and applied physics is intended for students preparing for graduate school, teaching careers or careers in industry or applied physics.

Track 2—Biophysics and medical physics is seen as a bridge to an advanced degree in the health sciences for those interested in medical research, admission to medical school, preparation for work in a hospital or clinic situation or industrial jobs in biomedical instrumentation.

For any track, students preparing for employment in an interdisciplinary area (such as environmental, geophysical or energy study) can choose to add an appropriate minor or arrange a specific major program on an individual basis. Students interested in teaching physics in high school are encouraged to consider the CLAS educational studies minor in addition to their physics major.

To enhance the employment options of physics graduates, the department is committed to providing students with opportunities for laboratory experience in a research environment. On-campus opportunities are available through the faculty research programs, or the department will assist interested physics majors in locating off-campus opportunities at a government or industrial laboratory.

Questions regarding physics courses or the physics curriculum should be directed to a departmental advisor. Appointments should be made through the physics office.

A sample curriculum for a Track 1 major follows; this sample is not intended as a mandatory schedule, but is provided only to give the student a standard by which to judge his or her progress and to indicate which semesters the required upper-division classes are offered.

TYPICAL CURRICULUM FOR BS (PHYSICS, TRACK 1)

FRESHMAN YEAR

<i>Fall Semester</i>	<i>Semester Hours</i>
MATH 1401. Calculus I	4
PHYS 2311. General Physics I: Calculus-based	4
PHYS 2321. General Physics Laboratory I	1
Core	3
Core	3
Total	15

<i>Spring Semester</i>	<i>Semester Hours</i>
MATH 2411. Calculus II	4
PHYS 2331. General Physics II: Calculus-based	4
PHYS 2341. General Physics Laboratory II	1
Core	3
Core	3
Total	15

SOPHOMORE YEAR

<i>Fall Semester</i>	<i>Semester Hours</i>
MATH 2421. Calculus III	4
PHYS 2711. Vibrations and Waves	3
PHYS 2811. Modern Physics I	4
Core	3
Elective	4
Total	18

<i>Spring Semester</i>	<i>Semester Hours</i>
MATH 3195. Linear Algebra and Differential Equations	4
PHYS 3411. Thermal Physics	3
Core	3
Core	3
Elective	6
Total	19

JUNIOR YEAR

<i>Fall Semester</i>	<i>Semester Hours</i>
PHYS 3120. Methods of Mathematical Physics	3
PHYS 3211. Analytical Mechanics	4
PHYS 3711. Junior Laboratory I	2
Core	3
Upper-division elective	3
Total	15

<i>Spring Semester</i>	<i>Semester Hours</i>
PHYS 3721. Junior Laboratory II	2
PHYS 3811. Quantum Mechanics	3
Core	3
Upper-division electives	7
Total	15

SENIOR YEAR

<i>Fall Semester</i>	<i>Semester Hours</i>
PHYS 4331. Principles of Electricity and Magnetism	4
PHYS 4650. Solid State Physics	
—or—	
PHYS 4810. Atomic and Molecular Structure	3
PHYS 4711. Senior Laboratory I	2
Core	3
Upper-division elective	3
Total	15

<i>Spring Semester</i>	<i>Semester Hours</i>
PHYS 3820. Subatomic Physics	
—or—	
PHYS 4510. Optics	3
PHYS 4721. Senior Laboratory II	2
Core	3
Core	3
Upper-division elective	3
Total	14

REQUIREMENTS FOR THE MAJOR

Students must declare their intention to major in physics by the time they have completed 60 semester hours, and complete between 36 and 46 semester hours in physics (depending on the track chosen) to receive the degree of bachelor of science in physics. No grade below a C (2.0) can be used to meet the requirements for the major. At least 12 semester hours of the requirements for the major must be completed at the downtown Denver campus.

A senior thesis is required for all students wishing to graduate with departmental honors. For all other students, the faculty encourages a senior thesis or project.

Required Courses Common to All Tracks

<i>Required Physics Courses</i>	<i>Semester Hours</i>
PHYS 2311. General Physics I: Calculus-Based	4
PHYS 2321. General Physics Laboratory I	1
PHYS 2331. General Physics II: Calculus-Based	4
PHYS 2341. General Physics Laboratory II	1
PHYS 2711. Vibrations and Waves	3
PHYS 2811. Modern Physics I	4
PHYS 3120. Methods of Mathematical Physics	3
PHYS 3211. Analytical Mechanics	4
PHYS 3411. Thermal Physics	3
PHYS 3711. Junior Laboratory I	2
PHYS 3811. Quantum Mechanics	3
PHYS 4331. Principles of Electricity and Magnetism	4
Total	36

<i>Required Ancillary Courses</i>	<i>Semester Hours</i>
MATH 1401. Calculus I	4
MATH 2411. Calculus II	4
MATH 2421. Calculus III	4
MATH 3195. Linear Algebra and Differential Equations	4
Total	16

Required and Elective Courses Specific to Track Semester Hours

Total Required. 52

Pure and Applied Physics (Track 1)

Required Physics Courses (4 hours):

PHYS 3721. Junior Laboratory II 2
PHYS 4711. Senior Laboratory I (or a course in computerized physics approved by advisor) 2

Elective Physics Courses

Two courses at 3000-level or above, to be approved by advisor. 6
Track Total 10

Biophysics and Medical Physics (Track 2)

Required Ancillary Courses (20 hours)

BIOL 2051. General Biology I 3
BIOL 2061. General Biology II 3
BIOL 2071. General Biology Laboratory I 1
BIOL 2081. General Biology Laboratory II 1
CHEM 2031. General Chemistry I 3
CHEM 2038. General Chemistry Laboratory I 1
CHEM 2061. General Chemistry II 3
CHEM 2068. General Chemistry Laboratory II 2
A probability and statistics course to be approved by advisor 3
Track Total 20

DEPARTMENTAL HONORS

Qualified students are encouraged to participate in the physics honors program. For these students, a senior thesis is required. This work will be conducted under the supervision of a faculty advisor. The topic and scope of this work will be chosen by the student in consultation with the thesis advisor. The student has the option of registering for up to three semester hours of independent study for the thesis project; regardless of registered semester hours, the student should commit the effort equivalent to a 3-semester-hour laboratory course toward completion of the thesis. The levels of passing scores are satisfactory, meritorious and excellent.

Within this framework, three levels of honors are awarded by the downtown Denver campus:

1. *Cum laude*: The student must have a cumulative GPA of 3.25 both in physics and overall at UCDHSC. The student's senior thesis and presentation must be judged to be meritorious by the committee.
2. *Magna cum laude*: The student must have a cumulative GPA of 3.50 both in physics and overall at UCDHSC. The student's senior thesis and presentation must be judged to be meritorious by the committee.
3. *Summa cum laude*: The student must have a cumulative GPA of 3.75 both in physics and overall at UCDHSC. The student's senior thesis and presentation must be judged to be excellent by the committee.

REQUIREMENTS FOR THE MINOR IN PHYSICS

A total of 16 semester hours is required for a minor in physics. No grade below a C can be used to meet the requirements for the minor. At least 6 semester hours of the requirements for the minor must be completed at the downtown Denver campus.

Required Physics Courses

Either of the sequences
PHYS 2010. College Physics I 4
PHYS 2020. College Physics II 4
PHYS 2030. College Physics Laboratory I 1
PHYS 2040. College Physics Laboratory II 1
Sequence Total 10

—or—

Semester Hours

PHYS 2311. General Physics I: Calculus-Based 4
PHYS 2321. General Physics Laboratory I 1
PHYS 2331. General Physics II: Calculus-Based 4
PHYS 2341. General Physics Laboratory II 1
Sequence Total 10

Elective Physics Courses (6 semester hours)

At least 3 of the 6 semester hours must be at the 3000 level or above.

REQUIREMENTS FOR THE MINOR IN ASTROPHYSICS

Astrophysics is an important and well-represented subdiscipline of physics. It includes the study of the solar system, galactic and extra-galactic astrophysics, as well as cosmology. A minor in this field combines a theoretical approach with observational analysis. There is also opportunity to do research in this field.

While the Department of Physics offers minors in both physics and astrophysics, it is not possible to receive minors in both fields. Physics majors may elect to receive only the astrophysics minor from the department.

A minor requires a total of 17 semester hours, in which no grade below a C (2.0) may be used to meet the requirements for the minor. At least 6 semester hours taken for the minor must be completed at the downtown Denver campus. Requirements for the minor in astrophysics may be used to fulfill the requirements of the major in physics. However, a student majoring in physics who wants to minor in astrophysics needs to take 15 semester hours in astrophysics that do not overlap with the major.

Required Physics Courses

PHYS 1052. General Astronomy I 4
Either of these sequences:
PHYS 2010. College Physics I 4
PHYS 2020. College Physics II 4
PHYS 2030. College Physics Laboratory I 1
PHYS 2040. College Physics Laboratory II 1
Sequence Total 14

—or—

PHYS 2311. General Physics I: Calculus-based 4
PHYS 2321. General Physics Laboratory I 1
PHYS 2331. General Physics II: Calculus-based 4
PHYS 2341. General Physics Laboratory II 1
Sequence Total 10

Elective Physics Courses

Choose one:

GEOL 1302. Introduction to Astrogeology 3
PHYS 3040. Modern Cosmology 3
PHYS 3050. General Astronomy II 3
PHYS 3060. Astronomical Image Processing Laboratory 3
PHYS 3840. Independent Study* 1-3
PHYS 3939. Internship/Cooperative Education* 1-3
PHYS 4840. Independent Study* 1-3
PHYS 4920. Advanced Undergraduate Seminar* 1
PHYS 4931. Internship in Applied Physics* 2-4
PHYS 4980. Advanced Physics Topics* 1-3
Total 3
Minor Total 17

* Topics in these classes vary. See departmental advisor for approval.

POLITICAL SCIENCE

Chair: Jane M. Everett

Program Assistant: Cory Gruebele

Prelaw Advisor: Glenn Morris

Undergraduate Advisor: Lucy McGuffey

Graduate Advisor: Anna Sampaio

Office: King Center, 502

Telephone: 303-556-3556

Fax: 303-556-6041

Web site: www.cudenver.edu/clas/polisci/

Faculty

Professors: Mike Cummings, PhD, Stanford University; Jana M. Everett, PhD, University of Michigan

Associate Professors: Glenn T. Morris, JD, Harvard University School of Law; Tony Robinson, PhD, University of California, Berkeley; Anna Sampaio, PhD, University of California at Riverside; Stephen C. Thomas, PhD, Stanford University

Assistant Professors: Christoph Stefes, PhD, University of Denver

Adjunct Faculty: Kathryn Cheever, PhD, University of Colorado; Bob Clifton, PhD, University of Colorado

Senior Instructors: Karen Breslin, JD, University of Denver; Amin Kazak, PhD, University of Denver; Lucy McGuffey, PhD, University of Denver

Instructors: Harvey Bishop, Thorsten Spheh

Adjunct Faculty: Loring Abeyta, Wadi Muhaisen, Charles Norton, Thad Tecza

Emeritus Faculty: Joel C. Edelstein, PhD, University of California, Riverside

Political science is the study of people, power and the public good. Looking at a variety of societies, institutions and interpersonal situations, the discipline asks who has power, where this power comes from, how it is used, how it promotes or impairs the public good and how the public good is defined. Political science draws from other fields, such as psychology, philosophy, economics, sociology and world literature. Finally, it explores the relationship between idealism and realism, between theory and practice, between political thought and personal action.

Opportunities for students with a BA in political science include careers in business, teaching, journalism, community organizing and government service. A political science degree also serves as good preparation for professional training in law and public administration. The students' internship experiences increase their job opportunities. Students with an MA in political science may find careers in such areas as business, government research and administration and teaching at the community-college level.

Please visit the political science department Web site for detailed information on programs, faculty, students, courses and syllabi, community involvement and service learning, internships and photographs.

Undergraduate

REQUIREMENTS FOR THE MAJOR

Undergraduate students must declare their intention to major in political science by the time they have completed 60 semester hours, and must complete a minimum of 36 semester hours in political science, of which at least 21 must be upper-division courses. Fifteen of the 36 hours must be taken from downtown Denver campus faculty. Courses are distributed among the primary fields as listed in this section, i.e., American politics, comparative politics, international relations, political theory and public law, and public policy and administration. To count for the major, all course work must be completed with a grade of C (2.0) or better.

Required Political Science Courses

Required Core	Semester Hours
P SC 1001. Introduction to Political Science: The Quest for Freedom and Justice	3
P SC 1101. American Political System	3
P SC 3011. Research Methods	3
Total	9

Choose two:

P SC 4207. Theories of Social and Political Change	3
P SC 4407. Early Political Thought	3
P SC 4417. Modern Political Thought	3
P SC 4427. Law, Politics and Justice	3
P SC 4437. Coercion and the State	3
P SC 4457. American Political Thought	3
Total	6

One 4000-level course in each of three fields:

American politics, comparative politics and international relations . . . 9

Experiential-Learning Requirement

Choose one:

P SC 3914. The Urban Citizen	3
P SC 3939. Internship	3
P SC 4934. CU at the Capitol	3
Experiential learning project in any P SC class	3
Total	3

Electives

Three political science elective courses	9
Total	36

Required Cognate Courses (6 hours)

In addition to the 36 hours above, choose two of the following cognate:

ECON 2012. Principles of Economics: Macroeconomics	3
ECON 2022. Principles of Economics: Microeconomics	3
HIST 1016. World History to 1500	3
HIST 1026. World History Since 1500	3
HIST 1211. Western Civilization I	3
HIST 1212. Western Civilization II	3
HIST 1361. U.S. History to 1876	3
HIST 1362. U.S. History Since 1876	3
Total	3
Major Total	42

PUBLIC POLICY OPTION

This option was designed for students who specifically desire to pursue careers in public policy and/or public administration in the public or nonprofit sectors. Grounded in basic political science theory and familiarity with American, comparative and international politics, this BA track emphasizes the specifically political aspects of public policy processes and settings. Cases will emphasize key policy issues confronting U.S. local, state and national decision makers and citizens. A focus on politics and the policymaking process will prepare students conceptually and methodologically to move beyond partisan politics to address how leaders can best mobilize resources to achieve constituent goals consistent with the public interest. The course requirements for this concentration are on the department's Web site.

REQUIREMENTS FOR THE MINOR

A student can earn an undergraduate minor in political science by completing 15 semester hours distributed as follows: one lower-division course (P SC 1001 or 1101) and four upper-division courses, including one each in political theory, American politics, comparative politics, and international relations. At least 9 of the 15 hours must be taken from downtown Denver campus faculty.

DEPARTMENTAL HONORS

Requirements for honors in political science are an overall GPA (in all courses, not just political science courses) of 3.65 or better and the preparation and defense of an honors paper. Honors graduates with an overall GPA of 3.75 to 3.84 may graduate with high honors, and those with GPAs of 3.85 and higher may graduate with highest honors. Level of honors granted depends upon both the GPA and the quality of the honors paper.

Graduate

REQUIREMENTS FOR ADMISSION

Students applying for admission to the MA program in political science should normally present at least 18 hours of undergraduate or previous graduate work in political science, at least 9 hours of which should be at the upper-division or graduate level. Deficiencies may be made up at UCDHSC by enrolling in political science courses as a nondegree student. Deficiencies usually must be made up before the student will be admitted as a regular degree student, and the work involved will be in addition to the minimum hourly requirements for the degree. The department may make exceptions to these requirements in unusual cases (for instance, if course work in related fields such as psychology, economics and history, or practical political experience, compensates for the deficiencies in political science). Applicants are normally expected to present an undergraduate GPA of at least 3.0. In addition to transcripts and letters of recommendation specified by the Graduate School, applicants must submit a statement of academic objectives and a writing sample. Standardized test scores are not required of applicants, but will be considered if submitted.

DEGREE REQUIREMENTS

Two degree plans are available. Under Plan I, degree requirements are eight graduate courses and an MA thesis. At least four of the courses must be graduate seminars in political science, while as many as three may be independent study or internships in political science or graduate seminars in cognate disciplines (but not more than two of either). Course work must include at least one graduate seminar in each of three broad subfields: political theory, American politics, foreign politics, "The State of the Discipline" and at least one graduate seminar. The thesis may be an article for publication, a speculative treatise in political theory, a job-related analysis of political decision making or a more traditional research paper.

Under Plan II, requirements are nine graduate courses and a project, rather than eight courses and a thesis. Plan II is available not only on the Denver campus, but also at the University Center at Chaparral in Douglas County and on the Fort Lewis College campus in Durango. These off-campus programs offer an MA in political science with an emphasis in politics and public policy. They are offered in an intensive weekend format through the Center for NEW DIRECTIONS in Politics and Public Policy. The emphasis on politics and the policy-making process relates to the ability of leaders to mobilize resources and achieve constituent goals consistent with the public interest. In this context, politics entails communication, and effective politics requires effective communication. In short, this emphasis on political awareness seeks to help participants utilize the political process as the "art of making what appears to be impossible, possible."

For details about core courses and electives available for the politics and public policy off-campus programs, contact the Center for NEW DIRECTIONS at 303-556-5950.

Emphasis of the political science faculty at UCDHSC is on critical perspectives, creative teaching and writing, interdisciplinary work, experiential involvement, applied theory and cooperative research projects. Close and continuing contact among students and faculty is encouraged.

Fourth World Center for the Study of Indigenous Law and Politics

Executive Director: Glenn T. Morris

Telephone: 303-556-6243

This center provides a research clearinghouse to students and faculty on the downtown Denver campus on legal and political issues that affect indigenous peoples (the Fourth World). In addition to supporting a modest library of rare books and periodicals on indigenous issues, the center also stocks video and audio cassettes on subjects of indigenous politics, and a substantial newsfile archive on current developments in the Fourth World. The center has produced curricular materials, including the *Fourth World Bulletin*, for use in international relations and area-studies courses.

Currently, the center is expanding the number of course offerings in the area of Fourth World studies, and expects to offer a certificate in Fourth World studies in the near future.

Center for NEW DIRECTIONS in Politics and Public Policy

Director: Kathryn Cheever

Telephone: 303-556-5950

This center provides academic programs, courses and research focused in the areas of politics and public policy with the purpose of developing the leadership capacities necessary to address changing public priorities for the 21st century within neighborhoods, communities, governmental jurisdictions and nonprofit entities.

The center expects to offer an undergraduate certificate in public policy and administrative leadership in the near future.

PSYCHOLOGY

Chair: Peter S. Kaplan

Program Assistant: Gay Freebern

BA Undergraduate Advisor: Allison Bashe

BS Undergraduate Advisor: David Albeck

Director of Clinical Training, MA in Psychology: Allison Bashe

Office: North Classroom, 5002

Telephone: 303-556-8565

Fax: 303-556-3520

Web site: www.cudenver.edu/clas/psychology/index.html

Faculty

Professors: Mitchell M. Handelsman, PhD, University of Kansas; Peter S. Kaplan, PhD, Indiana University

Associate Professors: Joy L. Berrenberg, PhD, University of Colorado; Mary Coussons-Read, PhD, University of North Carolina; Michael Zinser, MS, University of Wisconsin, Madison

Assistant Professors: David Albeck, PhD, University of Colorado; Elizabeth Sandin Allen, PhD, University of North Carolina at Chapel Hill; Richard Allen, PhD, University of North Carolina at Chapel Hill; Eric Benotsch, PhD, University of Iowa

Research Assistant Professor: Jennifer H. Adams, PhD, University of Houston

Senior Instructors: Allison Bashe, PhD, State University of New York, Stony Brook; Joan Bihun, PhD, Wayne State University; Kevin Everhart, PhD, University of South Carolina

Emeritus Professors: Rick M. Gardner, PhD, University of Nevada; Gary S. Stern, PhD, University of Massachusetts

Psychology is the scientific study of behavior, consisting of the following major areas of study: experimental psychology, biopsychology, animal behavior, developmental psychology, social psychology, cognitive psychology, personality, industrial/organizational psychology and abnormal psychology. The requirements for the major are designed

to introduce the student to the spectrum of psychology, including an early exposure to research methods and statistics.

The psychology major prepares students for employment and for graduate study in psychology and related fields. A program leading to the master's degree in particular applied areas of psychology is available at the downtown Denver campus.

Undergraduate

REQUIREMENTS FOR THE MAJOR: BA

Students should consult with the advisor when they declare a psychology major, which must be done once they have completed 60 semester hours of course work. Psychology BA major requirements include at least 37 and not more than 48 semester hours in psychology. Of these, at least 15 hours must be in upper-division courses completed at the downtown Denver campus. No grade below *C* (2.0) will be accepted toward the major requirements. Note that a prior college-level algebra course is strongly recommended for PSY 2090.

PSY 3939. Internship/Cooperative Education does NOT count toward the 37-hour minimum or the 15-hour upper-division requirement, but does count as elective psychology credit.

<i>Required Courses</i>	<i>Semester Hours</i>
PSY 1000. Introduction to Psychology I	3
PSY 1005. Introduction to Psychology II	3
PSY 2090. Statistics and Research Methods	4
PSY 2220. Biological Basis of Behavior	3
Total	13
Choose three including one or both PSY 3222 and PSY 4144:	
PSY 3222. Principles of Learning and Behavior	3
PSY 3254. Introduction to Animal Behavior	3
PSY 3262. Health Psychology	3
PSY 3263. Hormones and Behavior	3
PSY 3265. Drugs, Brain and Behavior	3
PSY 3724. Developmental Psychobiology	3
PSY 3810. Neuropsychology	3
PSY 3822. Aging, Brain and Behavior	3
PSY 4054. Behavioral Neuroscience	3
PSY 4104. Behavioral Genetics	3
PSY 4144. Human Cognition	3
PSY 4164. Psychology of Perception	3
Total	9
Choose four including at least two or all three of PSY 3205, 3305 and 4415:	
PSY 3090/3091. Research Methods in Experimental Psychology and Laboratory	4
PSY 3135. Organizational Psychology	3
PSY 3205. Human Development I: Child Psychology	3
PSY 3215. Human Development II: Adolescence and Adulthood	3
PSY 3235. Human Sexuality	3
PSY 3305. Abnormal Psychology	3
PSY 3505. Psychology and the Law	3
PSY 3610. Psychological Trauma	3
PSY 3611. Psychology of Women	3
PSY 3612. Domestic Abuse	3
PSY 4415. Experimental Social Psychology	3
PSY 4455. Theories of Personality	3
PSY 4485. Psychology of Cultural Diversity	3
PSY 4645. Industrial Psychology	3
PSY 4730. Clinical Psychology: Ethics and Issues	3
Total	12
<i>One integrative course:</i>	
PSY 4511. History of Psychology	3
Total required courses	37

REQUIREMENTS FOR THE MAJOR: BS

Students must declare a major by the time they have completed 60 semester hours of course work. To be admitted to the BS major, students must have sophomore standing and have received grades of *B* or better in General Biology I and II for majors with laboratory, or the equivalent. Students must take at least 48 hours and a maximum of 56 semester hours in psychology, biology and chemistry that will count toward graduation. A minimum of 15 upper-division semester hours must be taken from downtown Denver campus faculty. No grade below *C* is acceptable toward the major requirements; i.e., psychology, biology or chemistry courses in which a student earns a *C*- or below will not count toward the major.

Psychology Requirements

<i>Required Courses</i>	<i>Semester Hours</i>
PSY 1000. Introduction to Psychology I	3
PSY 1005. Introduction to Psychology II	3
PSY 2090. Statistics and Research Methods	4
PSY 2220. Biological Basis of Behavior	3
PSY 4054. Behavioral Neuroscience	3
Total	16
Choose two:	
PSY 3090/3091. Research Methods in Experimental Psychology and Laboratory	4
PSY 3222. Principles of Learning and Behavior	3
PSY 3254. Introduction to Animal Behavior	3
PSY 3263. Hormones and Behavior	3
PSY 3265. Drugs, Brain and Behavior	3
PSY 3724. Developmental Psychobiology	3
PSY 3810. Neuropsychology	3
PSY 3822. Aging, Brain and Behavior	3
PSY 4104. Behavioral Genetics	3
PSY 4164. Psychology of Perception	3
Total	6

Experiential Learning Requirement

Students must complete at least one of the following (all require consultation with BS advisor AND permission of instructor):

PSY 3939. Internship in Psychology (2.75 GPA required)	3
Honors Thesis in Psychology (3.5 GPA required)	3
PSY 4840. Independent Study in Psychology	3
Total	3

Physical and Biological Science Requirements

<i>Required Courses</i>	<i>Semester Hours</i>
BIOL 2051. General Biology I	3
BIOL 2061. General Biology II	3
BIOL 2071. General Biology Laboratory I	1
BIOL 2081. General Biology Laboratory II	1
CHEM 2031. General Chemistry I	3
CHEM 2038. General Chemistry Laboratory I	1
CHEM 2061. General Chemistry II	3
CHEM 2068. General Chemistry Laboratory II	2
Total	17
Choose two:	
BIOL 3225. Human Physiology	4
BIOL 3244. Human Anatomy	4
BIOL 3611. General Cell Biology	3
BIOL 3654. General Microbiology	4
BIOL 3832. General Genetics	4
BIOL 4134. Human Genetics	3
BIOL 4165. Neurobiology	3

Semester Hours

BIOL 4621. Immunology	3
CHEM 4810. General Biochemistry I	3
Total	6-8

Additional elective courses in psychology, biology and chemistry may be taken up to the maximum of 56 hours.

HONORS

Students interested in earning departmental honors should consult with their psychology advisor during the junior year. To be eligible for honors, a psychology major must have an overall GPA of 3.5 or higher at the start of the senior year and a GPA of 3.5 or higher in psychology courses taken at the downtown Denver campus. To earn honors in psychology, a student who meets the preceding qualifications must complete either (a) an empirical study designed, carried out and written by the student, or (b) a substantive and integrative review in an area approved by the honors committee, culminating in a scholarly article and research proposal. Students may receive up to 6 semester hours for their honors project by enrolling in PSY 4840. Independent Study. Additional details may be obtained from the psychology advisors.

REQUIREMENTS FOR THE MINOR

A minor in psychology requires the completion of 15 semester hours with a grade of C (2.0) or better, including the following courses: PSY 1000; PSY 1005; PSY 4511; PSY 3222 or PSY 4144; PSY 3205, 3305 or 4415. Upper-division courses (except PSY 4511) must be taken from downtown Denver campus faculty. Further information about the department may be obtained from department advisors or by calling 303-556-8565.

Graduate

The MA degree in psychology at the downtown Denver campus of UCDHSC can be obtained with a specialty in clinical psychology.

Department faculty also participate in the interdisciplinary PhD program in health and behavioral sciences.

REQUIREMENTS FOR ADMISSION

Students wishing to be admitted to the MA program should be familiar with the requirements for advanced degrees described in the Information for Graduate Students chapter of this catalog.

Applicants must have a baccalaureate degree from an accredited college or university. The minimum GPA is 2.75, although a substantially higher GPA is typical of successful applicants. The GRE general examination is required. In addition, the decision to admit an applicant is based on letters of recommendation, relevant work or research experience and completion of required prerequisite courses for each specialty. Both full- and part-time students are encouraged to apply.

DEGREE REQUIREMENTS

Students are required to complete 24 semester hours of course work and either a thesis or an internship in an approved agency setting.

Further information can be obtained from the Department of Psychology, 303-556-8565, or the Web site.

RELIGIOUS STUDIES PROGRAM

Director: Sharon L. Coggan

Office: North Classroom, 4019B

Telephone: 303-556-4715

Web site: www.cudenver.edu/clas/religiousStudies/

Faculty (concurrently appointed)

Professor: Martin G. Lockley (Geography and Environmental Sciences)

Associate Professors: Nancy Ciccone (English), Colleen Donnelly (English)

Assistant Professor: Robert Metcalf (Philosophy)

Instructors: Edward Casteel (Sociology), Sharon Coggan (Philosophy/Religious Studies), Amin Kazak (Political Science), Daryl Mehring (Philosophy), Lucy McGuffey (Political Science)

Lecturer: Richard Smith (History)

An undergraduate minor is offered in religious studies, a discipline that overlaps with many other fields of study: anthropology, literature, philosophy, psychology and others. Religion has played a vital role in history and continues to do so in contemporary life. The degree of interaction between a religious tradition and its host society is profound, knowledge of which is essential for a genuine understanding of that culture. Students will study the nature of the belief systems of the world's great religious traditions. Specific courses will offer the possibility of focusing one's studies in the areas of ancient myth and shamanic traditions, Judaic and Christian studies, Islam, Asian religions, psychology of religion, philosophy of religion, anthropology and sociology of religion, religion and literature and biblical studies.

Requirements for the Minor

Eighteen semester hours, at least 9 of which must be upper division and at least 9 credits taken with downtown Denver campus faculty. A minimum cumulative GPA of 2.0 for all UCDHSC courses taken in the minor is required, with no individual course grade lower than a C (2.0).

<i>Required Courses</i>	<i>Semester Hours</i>
RLST 1610. Introduction to Religious Studies.	3
One course in Western religions, chosen from approved list.	3
One course in Eastern religions, chosen from approved list.	3
Three courses of approved electives, chosen from approved list.	9
Total	16

Other courses, such as certain special topics, art history courses featuring religious themes and others may count toward the minor at the discretion of the course instructor and the director.

SOCIAL SCIENCE, MASTER OF

Director: Myra Bookman

Assistant Director: Margaret Woodhull

Office: Plaza Building, M108

Telephone: 303-556-2305

Fax: 303-556-8100

Web site: www.cudenver.edu/ict/index.html

Faculty

Senior Instructors: Myra Bookman, PhD, University of Colorado; Margaret Woodhull, PhD, University of Texas, Austin

The master of social science program is designed to meet the needs of students who prefer flexibility in constructing an individualized course of study in social science. Emphasis is placed on the integration of knowledge across and beyond traditional disciplinary boundaries. This is accomplished through three required seminars, courses from a variety of disciplines chosen with the approval of advisors and program directors

and a project or thesis. Courses can be chosen from the social science disciplines: anthropology, communication, economics, geography, history, political science, psychology and sociology, as well as from other disciplines and programs, e.g., English, philosophy, education, public affairs and architecture.

The MSS program is intended for students interested in developing their own interdisciplinary perspectives in such areas as social thought, public policy, women's studies, educational reform and cross-cultural studies or politics. The program can provide: training for advancement in the professions of education, business, social service and government; a basis for further graduate studies in a specific social science discipline or professional field; a means for teachers and other working students to tailor degree programs to fit their personal career development needs; and a nontraditional approach for recent university graduates or adults re-entering the university to pursue liberal educational goals in the social sciences.

Requirements for Admission

General rules for admission into the Graduate School apply to admission into the MSS program.

For admission as a regular graduate student, applicants should:

- submit two official copies of all undergraduate transcripts, with an overall GPA of at least 2.75 out of 4.0
- have appropriate undergraduate training or professional background or indicators that supply evidence of ability to pursue the MSS degree
- include a writing sample
- submit three letters of recommendation (at least two from academic sources)
- submit a written statement specifying the goal of advanced study in the social sciences, expressed in clear and effective English
- standardized test scores are not required, but will be considered if submitted.

After meeting all other requirements for admission, applicants may be required to have an interview to discuss their interest in the program and their plans for study. For out-of-state applicants, an appropriate substitute for the interview may be determined by the director.

Provisional Admission:

Applicants may be admitted as provisional-status graduate students if their complete record indicates a high probability of success.

Nondegree Students:

Potential applicants may take graduate-level courses as nondegree students (unclassified student with a bachelor's degree) if they:

1. Wish to strengthen their record in order to demonstrate that they can successfully complete courses in the program
—or—
2. Wish to start courses in the program prior to completing their application. Up to 9 semester hours taken as a nondegree student may be accepted by the program once a student has been admitted into the program (the 9-hour limit also includes graduate work from another university).

International Students:

International students must also meet UCDHSC requirements for international admission. See the International Education chapter of this catalog for further information.

Program Requirements

The MSS is a 36-hour program, of which 30 hours must meet all specifications of the Graduate School. Throughout their work toward the MSS degree, students must maintain at least a *B* (3.0) average in all courses. Requirements are:

- three required 3-hour core seminars: S SC 5013. Philosophical

Problems in the Social Sciences and S SC 5020. Elements of Social Thought must be taken during the first year of entrance into the program. S SC 5023. Research Perspectives in the Social Sciences should be taken later in the program when students are ready to write a proposal for the thesis or project.

- additionally, students must complete a coherent selection of courses from a variety of disciplines
- a project for 3 semester hours or a thesis for 6 semester hours.

Students may pursue courses around any coherent theme with the approval of MSS program directors and advisors. In addition to the unlimited self-structured options, there are four tracks in place from which students can select: women's studies, international studies, society and environment and community health science. Community health science is an interdisciplinary track that applies the social and behavioral sciences to identifying the patterns and explanations for population health and disease. Students work in conjunction with the UCDHSC health and behavioral sciences program.

All courses for the self-structured portion of the program (21-24 semester hours) must be selected with the approval of the student's advisor or one of the program directors. All independent study contracts must be approved by one of the program directors. A total of two independent study courses and two 4000-level undergraduate courses may count toward the degree. The remaining course work must be 5000/6000-level courses offered through various departments. All students must submit a proposal approved by three faculty members to proceed with a thesis or project and must pass an oral comprehensive exam to graduate.

SOCIOLOGY

Chair: Candan Duran-Aydintug

Program Assistant: Rachel Watson

Office: Lawrence Street Center, Suite 420

Telephone: 303-556-3557

Fax: 303-556-3510

Web site: www.cudenver.edu/clas/sociology/

Faculty

Professors: Karl H. Flaming, PhD, Syracuse University

Associate Professors: Candan Duran-Aydintug, PhD, Washington State University; Jon Winterton, PhD, Michigan State University

Assistant Professor: Akihiko Hirose, PhD, University of California, Riverside

Instructors: Edward Casteel, MSW, University of Denver; Andrea Haar, MA, University of Colorado at Denver

Associate Professor Emeritus: Richard H. Anderson, PhD, University of Oregon

Undergraduate

Sociology is the scientific study of groups, social process and behavior. The major in sociology is designed to familiarize the student with these areas through an understanding of theory, method and statistical procedures employed within them. Concentration is possible at the undergraduate level. However, the faculty believes the undergraduate should have a foundation in the basics of the discipline upon which to build a future specialization. Such specialization is more appropriate at the advanced levels.

Many career opportunities combine a foundation in sociology with business, computer science or community development. Opportunities within the field of sociology proper usually require graduate study. The major will prepare the student for such advanced work as well as for pursuit of career options with only the BA degree. For example, graduates with a sociology BA are employed in the human services field and with state and local government agencies.

The department has developed the following rationale for courses offered:

1. Lower-division courses (for majors and nonmajors)
 - a. 1000-level courses provide an introduction to the broad sociological perspective as it applies to social life, social systems and society.
 - b. 2000-level courses introduce the student to somewhat more specific content areas: population study, human ecology, social psychology, etc.
2. Upper-division courses (3000 and 4000)
 - a. 3000-level courses serve as advanced surveys of some specific area of concentration. They are designed to acquaint the student with the issues, methods, concepts and theoretical frameworks employed in the content area. Such courses as urban sociology, race and ethnicity, etc. are offered at this level. Many of these courses are open courses, in that students from other departments and colleges are encouraged to enroll in them.
 - b. 4000-level courses are devoted to a more detailed in-depth examination of specific issues, approaches and concepts within the previously identified content areas. These are advanced courses and are geared more directly to sociology and social science majors.
 - c. Undergraduate students can enroll in a course at the 4000/5000 level only if they are classified at junior or senior standing.

REQUIREMENTS FOR THE MAJOR

Students must declare a major by the time they have completed 60 semester hours of course work. A major in sociology is accomplished by completing a general core of 19 hours, plus a minimum of 15 hours and a maximum of 29 hours of electives in sociology, for a total of 34 hours with an average grade of C (2.0) in all courses. At least 16 of the 34 hours must be upper-division (3000-4000 level) courses. The maximum number of hours allowed in sociology is 48.

Core Courses

The core consists of the following group of courses, all of which must be completed with a grade of C (2.0) or better:

	<i>Semester Hours</i>
SOC 1001. Introduction to Sociology	3
SOC 3001. Urban Sociology	3
SOC 3111. Research Methods*	3
SOC 3121. Statistics*	4
SOC 4150. History of Sociological Theory*	3
SOC 4160. Contemporary Sociological Theory*	3
Total	19

* Must be taken from downtown Denver campus faculty

All prospective majors should contact the department as early in their academic careers as possible for information and for assignment to a major advisor. Transfer or returning students should consult with the department chairman concerning completion of the core courses.

The department requires that at least 13 hours of sociology be taken from downtown Denver campus faculty, including the following courses: SOC 3111, 3121, 4150 and 4160.

REQUIREMENTS FOR THE MINOR

For an undergraduate minor in sociology, a minimum of 15 semester hours in sociology must be completed with a grade of C or better. Nine of these hours must be taken from downtown Denver campus faculty and must include SOC 1001. Introduction to Sociology, and SOC 4150. History of Sociological Theory.

DEPARTMENTAL HONORS

Students wishing to graduate with departmental honors in sociology (*cum laude*, *magna cum laude* or *summa cum laude*) must have a minimum cumulative GPA of 3.2 and a 3.2 or higher in all sociology courses. Additional requirements are available in the sociology office. Qualified students are encouraged to apply for the honors program no later than the beginning of their senior year.

Graduate

The MA degree in sociology offered at the downtown Denver campus focuses on social psychology, sociology of the family, urban sociology and applied sociology. The program's urban emphasis complements professional degree programs in design and planning, medicine, nursing, community health, physical engineering, public and business administration, education and fine arts by providing advanced seminars and planning and research opportunities in theory and research.

REQUIREMENTS FOR ADMISSION

- general requirements of the Graduate School
- a combined GPA of at least 2.75 for all courses taken as an undergraduate or graduate prior to admission
- a combined GPA of at least 3.0 for all courses taken in sociology as an undergraduate or graduate prior to admission
- three letters of recommendation
- a statement specifying the purpose and goal of advanced study

DEGREE REQUIREMENTS

Both Plans

<i>Required Courses</i>	<i>Semester Hours</i>
SOC 5015. Contemporary Sociological Theories and Theory Construction	3
SOC 5024. Research Methods I.	3
SOC 5183. Quantitative Data Analysis	3
Total	9

Students may be asked to pass an equivalency examination before taking SOC 5015, 5024 and 5183.

Plan I

Core	9
Content courses	12
Guided reading ¹	6
Research practicum ²	3
Thesis ⁴	4
Minimum total hours (9 required + minimum 25)	34

Plan II

Core	9
Content courses	9
Guided reading ¹	6
Internship	3
Applied practicum ³	3
Project ⁴	4
Minimum total hours (9 required + minimum 25)	34

Notes:

1. The guided reading or research hours will help students formulate the project/research problem they will be working on. The course will be handled by the student's major advisor, and the hours must be completed before beginning work on the thesis or the project.
2. The research practicum will serve to develop the research data for the student's thesis. The thesis or project advisor will oversee this work.
3. The applied practicum will be designed to introduce the student to the applications appropriate for the project being developed. Done under the supervision of the thesis or project advisor.
4. Thesis and project hours will be devoted to writing the thesis or the project and will be entered into as the last step to completing the degree.

Upon completion of 15 graduate hours in sociology, of which 9 must be the required courses (SOC 5015, 5024, 5183), the student must petition the department to continue either as Plan I or as Plan II. Petitions will be reviewed by a departmental committee, and the student will be informed as to the plan to which they have been admitted. Unsatisfactory progress at this time may result in dismissal from the program.

Before beginning the required course work, students, depending on the results of the equivalency exams or departmental assessment, may be asked to enroll in deficiency courses in methods, theory or statistics. These deficiency courses may not count toward graduate degree completion.

For other departmental policies and further information, contact the department chair or the graduate director at 303-556-3557.

At A Glance: Air Force Aerospace Studies (Air Force ROTC)

Students

180-220

Faculty

8

Student Organizations/Activities

Civil Air Patrol
Drill Team
Color Guard
Arnold Air Society
Pershing Rifles
Silver Wings
Formal Military Engagements
Athletic Competitions
Motivational Activities

Branches

Finance and Contracting
Legal and Chaplain
Maintenance and Logistics
Medical and Dental
Operations
Special Duty Assignments
Special Investigations
Support

Additional Information

Earn a degree in the field of your choice while gaining leadership and management experience you need to succeed in either the Air Force or the business world.

ROTC graduates move directly into a management-level positions within the Air Force, well ahead of their non-ROTC peers.

Information about numerous career opportunities—such as pilot, development engineer, navigator and space, missile and command control—is available online at www.afrotc.com.



Bragging Rights

2006 Right of Line Award winner—
Best Detachment in the Nation
2006 High Flight Award winner—
Best Detachment in the Region
NASA astronaut alumni

At A Glance: Military Science (Army ROTC)

Students (Cadets)

100-110

2006 Officer Commissions Awarded:

24

Faculty

10

Additional Information

Army ROTC courses are college electives you can try out for up to two years with no obligation.

ROTC is a two- to four-year elective where leadership is the curriculum.

Student Organizations/Activities

Color Guard
Ranger Challenge team
Bataan Death March in New Mexico
Annual Spring Ski Trip
Tri-Military Competition
Dining In and Military Ball
Spring Tri-Military Awards Ceremony
Summer Training Internships:
Leadership Training Course (LTC),
Leadership Development and
Assessment Course (LDAC)

Branches

Air Defense Artillery, Armor, Aviation,
Corps of Engineers, Field Artillery,
Infantry, Chemical Corps, Military
Intelligence Corps, Military Police Corps,
Signal Corps, Adjutant Military Corps,
Finance, Ordnance Corps, Personnel,
Quartermaster Corps, Transportation,
Medical Corps and Nurse Corps.



Bragging Rights

Army ROTC program is the 11th largest ROTC program in the nation out of 272 programs.
Top 3 Ranger Challenge since 2002

Additional Information

Military officers range the highest for confidence in leaders of institutions (Harris Poll).

Commissioned officers serve our nation around the world: Alaska, Hawaii, Italy, Germany, Korea, Afghanistan, Iraq and in 132 other nations.

100% placement rate for officers commissioned through ROTC.

Commissioned as a second lieutenant in the Army; average starting salary is roughly \$48,000. More information is available online at www.goarmy.com/rotc

Reserve Officers' Training Corps (ROTC)

Air Force ROTC
Lynda Smith

Contact

Office
CU-Boulder Folsom Stadium
Room 218
303-492-8351
Fax: 303-492-8353
www.colorado.edu/AFROTC/
E-mail: Det105@colorado.edu

Mailing Address
AFROTC Det 105
University of Colorado
371 UCB
Boulder, CO 80309-0371

Army ROTC

Nancy McMillin

Contact

Office
CU-Boulder Folsom Stadium
Room 215
303-492-6495
Fax: 303-492-5560
www.colorado.edu/AROTC/
E-mail: arotc@colorado.edu

Mailing Address
AROTC
University of Colorado
370 UCB
Boulder, CO 80309-0370

The Reserve Officers' Training Corps (Air Force and Army) programs offer students the opportunity to receive a commission as an officer in the United States Air Force or United States Army. This program is in conjunction with a student's major course of study and is similar to an academic minor. Both the Army ROTC and the Air Force ROTC programs offer two-year and four-year programs with options for undergraduate and graduate students, active duty and reserve. Both also offer competitive scholarships and a varying degree of course credit. For more information, contact the ROTC offices on the Boulder campus, as listed in the margin.

AIR FORCE ROTC

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 for lower-division students (normally freshmen and sophomores); the Professional Officer Course for upper-division students (normally juniors and seniors); and Leadership Laboratory (attended by all cadets). Completion of a four-week summer training course is required prior to commissioning.

MODIFIED TWO-YEAR PROGRAM

All undergraduate and graduate students are eligible for these programs. They are offered to full-time, regularly enrolled degree students and require at least two years of full-time college (undergraduate or graduate level, or a combination). Those selected for this program must complete a six-week field training program during the summer months as a prerequisite for entry into the Professional Officer Course the following fall semester.

LEADERSHIP LABORATORY

All AFROTC cadets must attend Leadership Laboratory (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 AFROTC PROGRAMS

Other programs are frequently available based on current Air Force needs. Any AFROTC staff member in Boulder (303-492-8351) can discuss best alternatives. Interested students should make initial contact as early as possible, as selection is on a competitive basis. There is no obligation until a formal contract is entered.

AIR FORCE COLLEGE SCHOLARSHIP PROGRAM

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 is not required to compete for these scholarships. Students selected for this program are placed on scholarships that pay tuition, book allowance, non-refundable educational fees, and subsistence of \$250–\$400 per month, tax-free. These scholarships are available in all academic disciplines and are two to three years in length. All cadets enrolled in the Professional Officer Course receive \$350–\$400 per month subsistence during the regular academic year.

FLIGHT OPPORTUNITIES

Prior to entering the fourth year of the AFROTC program, qualified AFROTC students can compete for pilot and navigator allocations. Cadets receiving a pilot or navigator allocation will begin flight training after completion of their degree and commissioning as a second lieutenant. All cadets are eligible to fly with the Civil Air Patrol while enrolled in AFROTC.

USAF NURSING PROGRAMS

Qualified nursing students can compete for nursing scholarships. This scholarship *can lead to* a rewarding career as an Air Force officer, serving as a doctor or nurse. The prehealth scholarship pays for an undergraduate degree and medical school.

AFROTC COURSE CREDIT

AFROTC credit for graduation varies with each college. Students should contact the appropriate college for determination of credit.

REGISTRATION

Students at the UCDHSC downtown Denver campus may register for AFROTC classes through the concurrent registration process. Contact your dean's office for the appropriate forms. AFROTC classes begin with the AIRR prefix.

Courses

AIRR 1010-1. Foundations of the United States Air Force I. One 1-hour lecture and one 2-hour laboratory per week. This course is designed to introduce students to the United States Air Force and Air Force Reserve Officer Training Corps. Featured topics include: mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force officer opportunities, group leadership problems and an introduction to communication skills. Leadership Laboratory is mandatory for AFROTC cadets and complements this course by providing cadets with followership experiences.

AIRR 1020-1. Foundations of the United States Air Force II. A continuation of AIRR 1010. One 1-hour lecture and one 2-hour laboratory per week.

AIRR 2010-1. The Evolution of USAF Air Force and Space Power I. One 1-hour lecture and one 2-hour laboratory per week. This course is designed to facilitate the transition from Air Force ROTC cadet to Air Force ROTC officer candidate. Featured topics include Air Force heritage and leaders and continuing application of communication skills. Leadership Laboratory is mandatory for AFROTC cadets and complements this course by providing cadets with their first opportunity for applied leadership experiences discussed in class.

AIRR 2020-1. The Evolution of USAF Air Force and Space Power II. A continuation of AIRR 2010. One 1-hour lecture and one 2-hour laboratory per week.

AIRR 3010-3. Air Force Leadership Studies I. Two 1.5-hour seminars and one 2-hour laboratory per week. This course is a study of leadership, quality management fundamentals, professional knowledge, Air Force doctrine, leadership ethics and communication skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory Leadership Laboratory complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles of this course.

AIRR 3020-3. Air Force Leadership Studies II. A continuation of AIRR 3010. Two 1.5-hour seminars and one 2-hour laboratory per week.

AIRR 4010-3. National Security Forces in Contemporary American Society I. Two 1.5-hour seminars and one 2-hour laboratory per week. This course examines the national security process, regional studies, advanced leadership ethics and Air Force doctrine. Special topics of interest focus on the military as a profession, officership, military justice, civilian control of the military, preparation for active duty and current issues affecting military professionalism. Within this structure, continued emphasis is given to refining communication skills. A mandatory Leadership Laboratory complements this course by providing advanced leadership experiences, giving students the opportunity to apply the leadership and management principles of this course.

AIRR 4020-3. National Security Forces in Contemporary American Society II. A continuation of AIRR 4010. Two 1.5-hour seminars and one 2-hour laboratory per week.

ARMY ROTC

Army ROTC is an elective program that can lead to a commission as an officer in the active Army, the Army Reserve or the Army National Guard. Army ROTC classes are offered at the University of Colorado at Boulder and at Colorado School of Mines. Students interested in Army ROTC scholarship information or Army ROTC classes in general should contact the Department of Military Science at CU-Boulder. The Department of Military Science offers two programs for students.

Standard Four-Year Program

The four-year program consists of two phases: the basic course (freshman and sophomore years) and the advanced course (junior and senior years).

BASIC

The basic course offers a 2- or 3-credit course each semester covering Army history and organization as well as military leadership and management. Laboratory sessions provide the opportunity to apply leadership skills while learning basic military skills. Enrollment in the basic course incurs no military obligation except for Army scholarship recipients.

ADVANCED

The advanced course covers leadership, tactics and unit operations, training techniques, military law and professional ethics, and includes a leadership practicum each semester. A 35-day summer advanced camp at Fort Lewis, Washington, provides challenging leadership training and is a prerequisite for commissioning. The advanced course students must have completed the basic course and obtain permission from the professor of military science.

Two-Year Program

The two-year program for academic juniors and graduate students consists of the advanced course, preceded by a four-week summer ROTC basic course at Fort Knox, Kentucky. Veterans or students who have participated in three years of Junior ROTC or Civil Air Patrol may be eligible to enroll in the advanced course without attendance at basic camp or completion of the basic course. Inquiries on advanced placement should be directed to the Department of Military Science. The advanced course students must obtain permission from the professor of military science.

Scholarship Programs

Four-year college scholarships are available to high school seniors, who should apply before December 1 of their senior year. Competition for two- and three-year scholarships is open to all University of Colorado students whether or not they are currently enrolled in ROTC. Scholarship students receive tuition and laboratory fees up to \$20,000 per year, a book allowance and an allowance of \$300-\$500 per month during the academic year. Students interested in the scholarship program should contact the enrollment officer no later than the beginning of the spring semester to apply for the following academic year. Contact the enrollment and scholarship officer at 303-492-3549 or armyrotc@colorado.edu.

Leadership Laboratories

These 90-minute periods provide cadets with practical leadership experience and performance-oriented instruction outside the classroom.

Diagnostic evaluations of cadets in leadership roles are frequently administered. Leadership laboratories are compulsory for enrolled cadets.

Army Nursing Program

Qualified nursing students can compete for nursing scholarships. This scholarship *can lead* to a rewarding career as an Army Nurse Corps officer. Contact the Army ROTC enrollment officer at 303-492-3549 for information and benefits.

Registration

Students at the UCDHSC downtown Denver campus may register for AROTC classes through the concurrent registration process. Contact your dean's office for the appropriate forms. AROTC classes begin with the MILR prefix.

Courses

MILR 1011-2. Adventures in Leadership I. (*freshman, fall*) Introduction to the fundamentals of leadership including an examination of developing leadership styles in many functional areas applicable to the Army. Covers selected military subjects. Written and oral presentation required. \$87.50 laboratory fee.

MILR 1021-2. Adventures in Leadership II. (*freshman, spring*) Continues the investigation of developing leadership styles. Examines the implementation of leadership for small organizations. Covers selected military subjects. Written and oral presentation required. \$87.50 laboratory fee.

MILR 2031-3. Methods of Leadership and Management I. (*sophomore, fall*) Comprehensive review of contemporary leadership and management concepts including motivation, attitudes, communication skills, problem solving, human needs and behavior and leadership self-development. \$87.50 laboratory fee.

MILR 2041-3. Methods of Leadership and Management II.

(*sophomore, spring*) Continuation of MILR 2031 stressing practical application of leadership concepts. Students are required to be mid-level leaders for their cadet organization. \$87.50 laboratory fee.

MILR 3052-3. Military Operations and Training I. (*junior, fall*)

Examines the organization and operations of tactical U.S. Army units with a focus at the platoon level. Various leadership styles and techniques are studied as they relate to small-unit tactics. Basic military skills are introduced and students become familiar with actual military equipment. Potential hands-on training with military systems. \$87.50 laboratory fee.

MILR 3062-3. Military Operations and Training II. (*junior, spring*)

Focuses on the military decision-making process and the operations order. Exposes the student to tactical small-unit leadership in a variety of environments. Covers advanced tactics and small-unit weapons systems. \$87.50 laboratory fee. Prereq: consent of the professor of military science.

MILR 4072-3. Officer Leadership and Development I. (*senior, fall*)

Examines theory, doctrine and procedures behind Army operations and focuses on the impact of the information revolution on the art of land warfare. Cadets will also examine timeless principles of war and leadership by an in-depth analysis of two historical battles. MSIV cadets will be provided in- and out-of-classroom leadership opportunities and will be responsible for planning and executing cadet battalion training events throughout the semester. \$87.50 laboratory fee. Prereq: consent of the professor of military science.

MILR 4082-3. Officer Leadership and Development II. (*senior, spring*)

This course is a continuation of the learning experience provided in MILR 4072 as it examines theory, doctrine and procedures behind Army operations and the changing art of land warfare. Like MILR 4072, it provides in- and out-of-classroom leadership and management experience for MSIV-level cadets. This course is designed to provide cadets their final education before commissioning and active duty service. \$87.50 laboratory fee. Prereq: consent of the professor of military science.

At A Glance: School of Public Affairs

Students*

317

Degrees Awarded 2006‡

Graduate: 154

Degree Programs

Master of Public Administration (MPA)

Optional concentrations in
local government
environmental policy
management and law
domestic violence
nonprofit management

Executive and accelerated MPA options

Interdisciplinary certificate in emergency
management

Master of Criminal Justice (MCJ)

Optional concentration in domestic violence

Doctor of Philosophy (PhD) in Public Affairs

Optional concentration in homeland security

Faculty*

Full-time: 17

Lecturers: 11

Student-Faculty Ratio*

7:1

Alumni‡

2,782



Sample Organizations Hiring Alumni

State of Colorado
ICE/Homeland Security
Arapahoe Library District
Environmental Protection Agency
Denver Public Schools
Mile High Down Syndrome Association
City and County of Denver
Colorado Municipal League
Court Appointed Special Advocates (CASA)
Omni Research Institute
Colorado Coalition Against Domestic Violence
Colorado Office of Legislative Auditing
Bell Policy Center

Average starting salary for those working full-time in related field†:

\$54,444

Accreditation

National Association of Schools of Public
Affairs and Administration (NASPAA)

Institutes and Centers

Institute for Policy Research
and Implementation
Center on Domestic Violence
Wirth Chair in Environmental and
Community Development Policy
Center for Education Policy Analysis
Center for Public/Private Sector Cooperation
Center for the Improvement of
Public Management

Bragging Rights

The only accredited school of public affairs
in Colorado authorized to grant the MPA,
MCJ and PhD in Public Affairs
Ranked 35th nationally by *U.S. News &
World Report*
Currently houses the editorial office of the
Public Administration Review (PAR), the
premier journal in the field of public affairs.
SPA students report a 100% job placement
rate. (Survey respondents from 2002-2005)

*Fall 2006 end-of-term enrollment data ‡Fiscal year 2005-2006 data †2005 survey of 2003-2004 graduates, one year after graduation

School of Public Affairs

Dean
Kathleen M. Beatty

Associate Dean
Linda deLeon

Associate Dean, Colorado Springs
Teresa Schwartz

**Director, Doctor of Philosophy in
Public Affairs (PhD)**
Paul Teske

**Director, Master of Public
Administration (MPA)**
Jody Fitzpatrick

Director, Criminal Justice (MCJ)
Mary Dodge

Director, Western Slope Program
Fred Rainguet

Contact

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Denver, CO 80217

Prospective Student Inquiries
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E-mail: gspa@cudenver.edu

Current Student Inquiries
Telephone: 303-315-2228

Last Name A–K: Dawn.Savage@cudenver.edu
Last Name L–Z: Antoinette.Sandoval@cudenver.edu

Application Deadlines

Undergraduate

Fall—July 22
Spring—December 1
Summer—May 3

Graduate

	<i>Preferred Deadline</i>	<i>Final</i>
<i>Fall</i>	March 15	August 1
<i>Spring</i>	October 15	December 1
<i>Summer</i>	April 1	May 1

The School of Public Affairs is the only institution in Colorado authorized to offer graduate degrees in public administration, public affairs and criminal justice. Beginning in the fall of 2007, we will also welcome our first undergraduate students—with the addition of a new bachelor of arts in criminal justice degree. Nationally ranked for excellence, SPA offers programs in multiple locations: on the downtown Denver campus of UCDHSC, at the University of Colorado–Colorado Springs campus, on the Western Slope (Grand Junction) and through the nation’s oldest online MPA. The school offers four degrees: the bachelor of arts in criminal justice (BACJ), the master of public administration (MPA), the master of criminal justice (MCJ) and the PhD in public affairs. Qualified senior managers may elect to participate in the school’s executive MPA option, an innovative partnership between the school and the federal Management Development Centers, while upper-level police officials may choose the executive leadership MCJ. SPA offers an accelerated MPA option as well as a variety of concentrations for students with diverse interests.

SPA Students

The School of Public Affairs (SPA) attracts a wonderful mix of students, from undergraduates just beginning their public service careers to well-seasoned professionals already immersed in public or nonprofit management and policy. Students encompass a range of age and experience, and they represent the diversity of the Denver metropolitan area. Fifteen percent are students of color, and almost 5 percent hail from countries around the globe. SPA classrooms promote interaction among students, and the wealth of student backgrounds and experience enriches student learning enormously.

Our graduates are among the most successful in the university. They include state legislators and department heads, city managers and mayors, police chiefs and law enforcement or correctional administrators, nonprofit and for-profit CEOs and executives, school superintendents and university presidents and faculty.

The School of Public Affairs is accredited by the National Association of Schools of Public Affairs and Administration’s (NASPAA) Commission on Peer Review and Accreditation.

The Mission of SPA

The School of Public Affairs will improve the quality of public life in Colorado and the Rocky Mountain West.

To achieve this mission, SPA has set the following objectives:

- **build educational and research excellence**, establishing the School of Public Affairs as the best school of public affairs in the Rocky Mountain West and a top-ranked national school
- **focus on solving pressing public problems**, both by helping students to build strong problem-solving skills and by committing the entire SPA community to participation in problem-solving efforts
- **strengthen SPA’s contribution to successful student career development**
- **serve all of Colorado, the mountain West and the global community**

A Commitment to Community, to Public Service and to Problem Solving

The School of Public Affairs seeks students committed to public service. It prepares those students through a rigorous course of study

that combines scholarship and theory while building practical analytical, management and policy-making skills. SPA faculty frequently engage students in community-centered research projects, and the school offers a variety of opportunities for students to engage in the work of its centers and institute or to participate in events featuring visiting experts.

UNDERGRADUATE PROGRAM

BA in Criminal Justice

Program Director: Mary Dodge, PhD

Prospective Students: 303-315-2896

Current Students and Advising: 303-556-5970

Faculty

Professors: Mark Pogrebin, PhD, University of Iowa; Eric Poole, PhD, Washington State University

Associate Professors: Mary Dodge, PhD, University of California, Irvine; Angela Gover, PhD, University of Maryland

Assistant Professor: Deanna Perez, PhD, University of Maryland

Associate Research Professor: Jerry Williams, DPA, University of Colorado

The School of Public Affairs is excited to offer a new bachelor of arts degree in criminal justice (BACJ). The BACJ is an interdisciplinary program that combines specific course work in criminal justice with a liberal arts focus. The criminal justice degree will offer training for specific occupations within criminal justice agencies as well as provide students with the critical thinking, writing and presentation skills necessary for career advancement. The course work will emphasize an understanding of the complex nature of crime causation, evolving criminal justice organizations and the implications of public policies that will allow graduates to adapt to the evolving nature of the field.

As with all undergraduate degrees, students are required to complete the requirements of the downtown Denver campus core curriculum, providing an education that draws heavily on social and natural sciences as well as liberal arts. The program will not only provide a direct line to employment in the growing field of criminal justice, but will also facilitate the movement of outstanding students into SPA's MCJ and PhD graduate programs. Students will be well prepared to pursue additional advanced degrees in fields where critical thinking and analytical skills are required.

Admissions Requirements

Entering freshmen, current UCDHSC students and transfer students are eligible for admission to the BACJ program. All students must meet the admission requirements described in the Information for Undergraduate Students chapter of this catalog.

TRANSFER STUDENTS

Students who have attended another college or university are expected to meet general requirements for admission of transfer students as described in the Information for Undergraduate Students chapter. Transfer students with at least 30 semester hours of transferable credit who have been denied admission to the college by the downtown Denver campus Office of Admissions, and who have special circumstances not covered by the regular admission policies, may petition the SPA Academic Standards for provisional admission. The Academic Standards Committee requires evidence of academic performance before provisional admission is granted. Policies and procedures for the SPA Academic Standards Committee are available through the SPA Advising Office.

Advising and Student Services

Upon matriculation into the BACJ, students will receive advising from SPA's Student Services Team. Advising will ensure that students take appropriate courses in the core curriculum to provide a foundation for their course work in the BACJ. As students move through the program, they will also be assigned a faculty advisor who will assist them with questions about their majors, concentrations and career directions.

The Internship Program

Undergraduate students without experience in the field will be expected to complete an internship for credit under the direction of a faculty sponsor. Internships are helpful for career exploration early in a student's academic career or for job experience after developing academic content in the major.

Students must have a minimum 2.75 cumulative GPA and a minimum of 15 semester hours completed at UCDHSC before registering for the internship. A maximum of 3 semester hours of internship per semester and 9 credits total may be counted toward the 120 semester hours necessary for graduation.

Undergraduate students should contact the Career Center for details on internship placements, paperwork and requirements.

Program Requirements—Bachelor of Arts in Criminal Justice

Students completing a BACJ at UCDHSC will complete a minimum of 120 semester hours including:

- 34–36 general education core curriculum semester hours
- 21 undergraduate criminal justice semester hours, including 16 upper-division semester hours
- 15 elective semester hours in criminal justice and ancillary fields for the selected area of concentration
- 46–48 elective semester hours which will include an internship (if applicable), an optional CLAS or language minor (15-21 hours) and optional electives
- students without experience in the field of criminal justice must complete a 3-semester-hour internship

Students must receive a minimum of a C (2.0) in each undergraduate course applied to satisfy degree requirements.

UNDERGRADUATE REQUIRED CRIMINAL JUSTICE COURSES

<i>Required Courses</i>	<i>Semester Hours</i>
C J 1001. Introduction to Criminal Justice.....	3
C J 2041. Crime Theory and Causes.....	3
C J 3100. Criminal Justice Research Methods.....	3
C J 3150. Statistics for Criminal Justice.....	3
C J 4042. Corrections.....	3
C J 4043. Law Enforcement.....	3
C J 4044. Courts and Judicial Process.....	3
Total.....	21

Criminal Justice Electives—15 semester hours, with 9 hours from the Department of Criminal Justice and 6 from other departments

Criminal Justice Electives

C J 2110. Drugs, Alcohol and Crime.....	3
C J 2210. Probation and Parole.....	3
C J 2320. Policy-Community Relations.....	3
C J 2510. Juvenile Justice Administration.....	3
C J 3160. White Collar Crime.....	3
C J 3220. Community-Based Corrections.....	3
C J 3250. Violent Offenders.....	3
C J 3310. Police in Contemporary Society.....	3
C J 3420. Pleas, Trials and Sentences.....	3

	<i>Semester Hours</i>
CJ 3540. Crime and Delinquency Prevention.....	3
CJ 4120. Race, Class and Crime	3
CJ 4130. Poverty and Crime	3
CJ 4140. Domestic Violence and Crime	3
CJ 4170. Victim Studies	3
CJ 4180. Comparative Study of Criminal Justice Systems (CJ 1001++)	3
CJ 4230. Corrections and Treatment.....	3
CJ 4410. Criminal Law and Constitutional Procedure.....	3
CJ 4430. Law and Society	3
CJ 4440. Courts and Social Policy.....	3
CJ 4520. Gangs and Criminal Organizations	3
CJ 4530. Families and Intergenerational Crime	3
CJ 4600. Special Topics in Criminal Justice (CJ 1001, CJ 2041++)..	3
CJ 4700. Internship.....	3
CJ 4800. Independent Study	3
CJ/P AD 4600. Homeland Security and Emergency Management ..	3
Total	9

++Prerequisite

*Other Department Electives***

SOC 2462. Social Psychology.....	3
SOC 3020. Race and Ethnicity in the U.S.A.	3
SOC 3600. Social Relations	3
SOC 3700. Sociology of the Family.....	3
SOC 3964. Criminology.....	3
SOC 4340. Juvenile Delinquency.....	3
SOC 4440. Social Stratification.....	3
SOC 4460. Hate Crimes.....	3
SOC 4471. Sociology of Corrections.....	3
SOC 4770. Women and Crime.....	3
PSY 3135. Organizational Psychology.....	3
PSY 3205. Human Development I: Child Psychology.....	3
PSY 3215. Human Development II: Adolescence and Adulthood ..	3
PSY 3265. Drugs, Brain and Behavior.....	3
PSY 3305. Abnormal Behavior.....	3
PSY 3612. Domestic Abuse.....	3
PSY 3034. Race, Gender, Law and Public Policy.....	3
PSY 4124. Denver Politics	3
PSY 4185. Corruption in the U.S. and Abroad.....	3
PSY 4427. Law, Politics and Justice	3
PSY 4477. Constitutional Law I.....	3
PSY 4487. Constitutional Law II.....	3
PSY 4545. Immigration Politics	3
PSY 4837. Contemporary Issues in Civil Liberties.....	3
ANTH 4090. Political Economy of Drug Culture.....	3
CMMU 4265. Gender and Communication.....	3
ECON 3300. Economics of Crime and Punishment.....	3
Total	6

**Students must comply with departmental prerequisites.

Examples for Areas of Concentration

Juvenile Justice

CJ 2510. Juvenile Justice Administration	3
CJ 3540. Crime and Delinquency Prevention.....	3
CJ 4520. Gangs and Criminal Organizations	3
SOC 4340. Juvenile Delinquency.....	3
SOC 3700. Sociology of the Family	3
Total.....	15

Law and Society

CJ 4440. Courts and Social Policy.....	3
CJ 4430. Law and Society	3
CJ 3420. Pleas, Trials and Sentences.....	3

	<i>Semester Hours</i>
PSC 4427. Law, Politics and Justice	3
PSC 3034. Race, Gender, Law and Public Policy	3
Total.....	15

Domestic Violence

CJ 4140. Domestic Violence and Crime	3
CJ 4170. Victim Studies	3
CJ 4530. Families and Intergenerational Crime	3
PSY 3612. Domestic Abuse.....	3
CMMU 4265. Gender and Communication	3
Total.....	15

Minor in Criminal Justice

A minor in criminal justice will require 18 semester hours of course work including the following:

CJ 1001. Introduction to Criminal Justice.....	3
CJ 2041. Crime Theory and Causes	3
Total.....	6

At least one of the following:

CJ 4043. Law Enforcement	3
CJ 4044. Courts and Judicial Process	3
CJ 4042. Corrections	3
Total.....	3-9

One to three additional elective courses in criminal justice or ancillary fields.

GRADUATE PROGRAMS MASTER'S LEVEL—GENERAL INFORMATION

Transfer of Credit to SPA

Up to 9 semester hours of appropriate graduate work from an accredited college or university may transfer, if such credit was not applied to a completed degree that was awarded.

Limitation of Course Load

The normal course load for a full-time student is 9 semester hours. A student who is employed full time may not carry more than 9 hours unless an excess load has been approved in advance by the faculty advisor.

Financial Assistance

Students in the master's degree programs are eligible for several types of financial assistance. Educational loans require application to the Office of Financial Aid on the downtown Denver campus and completion of the FAFSA. A number of students secure internships or other part-time positions with local, state and federal agencies in the Denver metropolitan area. Scholarship assistance to underrepresented students entering the SPA is available on a limited basis.

The school receives announcements for fellowships from various government organizations and actively seeks additional funding for student support in the form of internship positions and research assistantships.

For meritorious candidates, SPA will also fund a small number of doctoral research assistantships each year based on financial availability. Students selected will receive a full-tuition waiver as well as a stipend of \$12,000 for the academic year. Our goal is to provide such funding for students for at least three years.

Persons interested in applying for financial assistance should inquire in the SPA office. The deadline is March 15 for the following term.

The Internship Program

An internship for the MPA and MCJ programs is required for students who have not had significant public, nonprofit or private-sector experience. The purpose of the internship is to continue the linkage between theory and practice that is the philosophical basis of SPA.

The internships generally involve part-time work. A maximum of three semester hours will be awarded for internship service.

Great care is taken by the SPA to ensure that the internship experience meets the intellectual needs of the student. Placements have included the Governor's Office, Colorado State legislature, Denver Mayor's Office, City of Denver, Denver Police Department, Boulder Crime Lab, Western Governor's Association, the National Conference of State Legislatures, the Colorado Department of Public Health and Environment and the Denver Center for the Performing Arts.

Admission Requirements

1. A baccalaureate degree from a college or university of accredited standing, with a minimum GPA of 3.0. Two sets of official transcripts are required from all higher education institutions attended.
2. Three recommendations from qualified references. Recommendations may be from professors, employers and/or others acquainted with the prospective student's professional and/or academic work.
3. Applicants are required to take the GRE, the GMAT or the LSAT unless they meet the requirements for waiver as stated below. Standard graduate admission test scores are normally waived when the candidate already has a graduate degree in another field. Other applicants may have test scores waived if: (1) they have an undergraduate GPA of 3.0 or better *and* (2) they have *significant* professional employment in management or policy-making positions for a minimum of 10 years or the equivalent.
4. A current resume highlighting professional accomplishments and community involvement.
5. International students whose first language is not English are required to take the TOEFL or IELTS. A score of 550 or higher on the paper-based exam or 213 or higher on the computer-based exam is required for the MPA or 525/197 for the MCJ.

All application material and test scores should be sent to SPA, University of Colorado at Denver and Health Sciences Center, Campus Box 142, P.O. Box 173364, Denver, CO 80217-3364.

SPA will process applications as they come in. Master-level applicants generally receive notification of their admission status three weeks after all materials have been received in the office. The preferred deadlines listed below allow students to receive best consideration for scholarships, financial aid and course selection. *Students who do not meet the preferred deadline may still submit application materials until approximately one month before the start of classes and will be considered on a space available basis.*

Semester	Preferred Application Deadline	Final Deadline*
Fall	March 15	August 1
Spring	October 15	December 1
Summer	April 1	May 1

*Final deadline does not apply to international students who should adhere to the preferred deadline.

PROVISIONAL ADMISSION

Under special circumstances, a student may be admitted on provisional status for one semester. Students admitted on a provisional basis take two courses in their first semester. MPA students may select two of the following: PAD 5001, 5003 or 5004. They may take no other courses during that semester. Based on their performance in these courses, a decision will be made concerning their admission into the program.

NONDEGREE ADMISSIONS

Students may register as nondegree students while developing their application packet. However, students are discouraged from taking many courses as a nondegree student if they hope to pursue a degree. Instead, it is best to apply before completing several courses to ensure the student will be admitted and the courses will apply to a degree. **Nine semester hours taken in the program as a nondegree student may be applied to the master's degree programs with approval of an advisor.** Nondegree student application forms are available in the Office of Admissions.

Time Limit for Master's Degree

Master's degree students must complete all course work and degree requirements within six years of registration in their first course.

MASTER OF PUBLIC ADMINISTRATION

Program Director: Jody Fitzpatrick, PhD

Faculty

Professors: Kathleen Beatty, PhD, Washington State University; Lloyd Burton, PhD, University of California, Berkley; Peter deLeon, PhD, Pardee RAND Graduate School; Robert Gage, PhD, Indiana University; Richard Stillman, PhD, Syracuse University; Paul Teske, PhD, Princeton University

Associate Professors: Linda deLeon, PhD, University of California, Los Angeles; Angela Gover, PhD, University of Maryland; Jody Fitzpatrick, PhD, University of Texas, Austin; Allan Wallis, PhD, City University Graduate Center

Assistant Professors: George Busenberg, PhD, University of North Carolina at Chapel Hill; Gabriel Kaplan, PhD, Harvard University; Christine Martell, PhD, Indiana University; Jennifer A. Wade-Berg, PhD, University of Georgia

MPA, West Slope Director: Fred Rainguet, PhD, University of Colorado
Wirth Chair: Sen. Gary Hart (Ret.), JD, Yale University

Research Professor: Stephen Block, PhD, University of Colorado
Clinical Professor: Malcolm Goggin, PhD, Stanford University
Research Associate: Robert Reichardt, PhD, Pardee RAND Graduate School

Lecturers: Todd Bryan, MPA, Harvard University; Floyd Ciruli, JD, Georgetown University; Wellington Webb, MA, University of Northern Colorado

Professors Emeritus: John Buechner, PhD, University of Michigan; Dale Neugarten, PhD, University of Southern California

The master of public administration (MPA) is designed to provide graduate professional education for students who wish to prepare themselves for careers in public management or policy, in nonprofit organizations or in private corporations that interface with the other sectors. The program also offers to those already in public service an opportunity to pursue additional education as a means of furthering their careers.

MPA Degree Requirements

The minimum requirements for the basic MPA degree are outlined below. Occasionally, changes are made; students may graduate under the requirements that were in effect when they were admitted.

1. All students must complete a minimum of 36 semester hours of graduate course work, with an average of *B* or better. No more than 6 semester hours of independent study can be applied toward the degree. Students who have not had professional work experience in the public or nonprofit sectors must complete an internship through an additional 3-semester-hour course described in No. 6 below, bringing their total semester-hour requirements to 39.

2. All MPA students (with the exception of those in the executive MPA option) must complete the following core courses or approved equivalents:

Semester Hours

P AD 5001. Introduction to Public Administration and Public Service	3
P AD 5002. Organizational Management and Change	3
P AD 5003. Research and Analytic Methods	3
P AD 5004. Economics and Public Finance	3
P AD 5005. The Policy Process and Democracy	3
P AD 5006. Leadership and Professional Ethics	3
Total	18

Students must receive a grade of B– or better in each core course. Students who earn a lower grade may repeat the course once to attempt to earn a B– or better.

3. All MPA students must complete 15 hours of electives. Courses in which a student earns a grade of less than a C will not be counted toward a degree.

4. All MPA students must complete the advanced seminar class during the last semester of their degree program:

P AD 5361. Advanced Seminar in Public Policy and Management	3
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All core or required classes must be completed before taking the advanced seminar.

5. Thesis option. The thesis option is available in lieu of P AD 5361 for MPA students who have an interest in pursuing a PhD in the future or a career in research. P AD 5361 also provides an opportunity for research projects.

6. Internships. Students who have limited experience (generally defined as less than one year of experience) in public, nonprofit or relevant private-sector service must enroll in P AD 6910. Field Study in Public Administration. The decision to require P AD 6910 for a particular student is made by the faculty admissions committee or the student’s faculty advisor upon the student’s acceptance to the MPA program. A minimum of 300 hours of supervised work and study is required to earn 3 hours of credit. This requirement raises the total semester hours needed to earn the MPA degree to 39.

P AD 5626. Local Government Politics and Policy	3
P AD 5628. Urban Social Problems	3
Electives (3)	9
Total	15

DOMESTIC VIOLENCE CONCENTRATION

P AD 5920. Psychology of Violence Against Women	3
P AD 5910. Women and Violence	3
P AD 5930. Battered Women and the Law	3
P AD 5110. Seminar in Nonprofit Management	3
Elective (1)	3
Total	15

EMERGENCY MANAGEMENT AND HOMELAND SECURITY CONCENTRATION

P AD 5650. Disaster and Emergency Management Policies	3
GEOG 5230. Hazard Mitigation and Vulnerability Assessment	3
Elective (3)	9
Total	15

The emergency management and homeland security concentration requires the completion of three electives chosen from a preapproved, multidisciplinary list of courses relevant to emergency management. Students may choose electives in one of three tracks: policy and management; spatial analysis, planning and quantitative assessment; or public safety, homeland security and justice.

NONPROFIT ORGANIZATIONS CONCENTRATION

P AD 5110. Seminar in Nonprofit Management	3
P AD 5140. Nonprofit Financial Management	3
Electives (3)	9
Total	15

Certain sections of P AD 6600. Special Topics in Public Administration may be substituted with permission of the nonprofit organization concentration director.

The Accelerated Cohort

The accelerated MPA is a fast-paced, full-time option that brings academically superior students together with a dedicated research and teaching faculty in the midst of the vibrant downtown Denver environment.

The accelerated option enables students to focus their energies in a concentrated program of study and earn a nationally accredited 36-hour MPA in 12 months. (It is preferred that applicants have some knowledge of economics, statistics and political science.)

The cost for the accelerated option is the same for both in-state and out-of-state students, providing out-of-state students with substantial savings.

The students in the cohort enjoy a unique experience as they go through all classes in the MPA together, fostering a community of scholar-practitioners.

Students are admitted to the program in cohorts of approximately 20 participants. A new cohort starts each fall. The cohort format helps to increase the opportunity to become acquainted with other graduate students and increases the opportunities for interaction between program participants and faculty.

The Executive Option

The School of Public Affairs and the Management Development Centers of the federal Office of Personnel Management have formed a partnership to offer an innovative course of study for selected senior-level professionals in the public and nonprofit sectors.

The executive MPA option provides students with an opportunity to earn a master’s degree targeted at improving their leadership competencies, while also offering significant flexibility in customizing course work to fit students’ individual needs and career objectives. In addition, the course

MPA OPTIONS

Concentrations and Graduate Certificates

All SPA concentrations are a total of 15 semester hours and may either be taken as part of the MPA program or as a stand-alone graduate certificate.

A student *may* choose to select one of the concentrations described below. Students completing a concentration take their electives in the area of their concentration, complete the advanced seminar project in the area of their concentration and are advised by faculty from the concentration. The concentrations and their particular required courses are:

ENVIRONMENTAL POLICY, MANAGEMENT AND LAW CONCENTRATION

Two of the three are required:

P AD 5631. Environmental Politics and Policy	3
P AD 5632. Environmental Management	3
P AD 5633. Natural Resource and Environmental Health Law	3
Electives (3)	9
Total	15

LOCAL GOVERNMENT CONCENTRATION

Two of the three are required:

P AD 5625. Local Government Management	3
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formats—online courses and weekend or week-long intensive meetings—enable students to fit their study into the framework of busy lives.

The executive MPA option is intended to serve high-level managers and policy experts from public agencies—federal, state and local—as well as those from the nonprofit sector.

PROGRAM DESIGN

The executive MPA option requires 30 semester hours of credit plus two required seminars at one of the management development centers of the federal Office of Personnel Management. One is in Aurora, Colorado; the other is outside Washington, D.C. The first required seminar is an assessment seminar. Students explore their own managerial and leadership styles, their personality types, and their levels of competence in a variety of executive skills. A group of highly-skilled trainers and psychologists administers and interprets test results, and participants use this self-knowledge to plan their MPA degree.

Near the end of the program, students also participate in one of the Management Development Centers' Core Leadership Seminars. These seminars focus on developing competencies identified by the federal government as necessary for its highest-level managers, the senior executive service. The required Western Management Development Center courses should total six units of graduate credit. More information is available online at www.leadership.opm.gov or by e-mail from WMDC Program Manager Bruce Kirschner at bhkirsch@opm.gov.

Executive students must take P AD 5001. Introduction to Public Administration and Public Service as one of their first courses. They then must select a minimum of three of the core courses listed below. Their advisor will assist in this selection. They must be able to demonstrate that they have gained competencies in the core courses they do not take through job experience and/or past course work.

	<i>Semester Hours</i>
P AD 5002. Organizational Management and Change	3
P AD 5003. Research and Analytic Methods	3
P AD 5004. Economics and Public Finance	3
P AD 5005. The Policy Process and Democracy	3
P AD 5006. Leadership and Professional Ethics	3
Total	9

These courses may be taken at one of SPA's sites in Denver, Colorado Springs or Grand Junction, or for students who live outside of Colorado, online.

Students also take five elective courses (15 semester hours), which may be selected either from the offerings at the Management Development Centers or from SPA. Both partners provide a wide variety of courses.

At or very near the end of their program, students participate in P AD 5361. Advanced Seminar. In this course, students engage in a self-designed professional project that integrates their new skills and knowledge. In addition, they reassess their professional competencies, charting the progress they have made during the program and designing a plan for future developmental experiences.

Online Classes

SPA provides a unique opportunity for students who live at a distance from the university to obtain a MPA degree.

Designed to serve students who are looking for a high-quality education, but who need an alternative to traditional classroom instruction, students may elect to do one or all of their courses online. This option allows students to complete the entire degree at a distance or to choose to come to campus for some courses while using an interactive online format for others. For both in-state and out-of-state online students, tuition is comparable to the rate charged to in-state students for courses that meet in the classroom. The nonprofit organization concentration is available online, as well as a variety of other electives leading to a general MPA degree. Students in the executive option may also choose to do all SPA course work online.

Domestic Violence Cohort

The first graduate program of its kind in the nation, the University of Colorado at Denver and Health Sciences Center's MPA concentration in domestic violence focuses on the management policies and public policy surrounding domestic violence, as well as grass-roots social justice work and best practices in this emerging field.

The program invites students from around the world to participate in a unique cohort program, which combines online courses with five intensive campus seminars spaced throughout the two-year program. Students may choose to take all courses in the classroom if they wish.

Western Slope Cohort

Public and nonprofit sector professionals living in Colorado's Western Slope have the opportunity to earn a MPA without traveling to the Front Range. SPA offers one MPA course each semester in Grand Junction at Mesa State College and supplements these offerings with online courses. Courses are designed to integrate the academic and applied experiences necessary to be an effective modern manager. The courses are offered in an intensive weekend format and emphasize the needs of small and rural communities.

DUAL DEGREES AND OTHER SPECIAL PROGRAMS

MPA/Juris Doctor Dual Degree Program

The School of Public Affairs and the University of Colorado at Boulder School of Law jointly sponsor a dual degree program leading to the simultaneous granting of the master of public administration (MPA) and juris doctor (JD) degrees. The program may be of particular interest to students who wish to practice law within the public sector, obtain a senior administrative post, represent public-sector clients, represent private-sector clients in transactions with government agencies and institutions and/or develop scholarly expertise in the relationship between law and public administration.

Interested persons must separately apply to and be admitted by both SPA and the School of Law. Upon admission, students may begin full-time study at either SPA or the School of Law; however, law study must be initiated no later than the beginning of the second year of enrollment in the program, and the first year of law study must be taken in its entirety and exclusive of nonlaw course work.

Through the choice of electives, students may develop a limited substantive specialization within the study of law and public administration. The dual degree program is structured to allow for 12 credits from the law school to be accepted as electives in the 36-credit MPA program, and 12 credits from SPA to be accepted into the law school's 89-credit JD program. Students are thus simultaneously awarded both degrees with a cumulative total of 101 credits; the program therefore allows students to complete all dual degree requirements in approximately four years of full-time study. Students without prior public-sector work experience will be required to complete an internship in an appropriate governmental institution or closely related nonprofit organization.

MPA/MASTER OF SCIENCE IN TECHNICAL COMMUNICATION DUAL DEGREE PROGRAM

The School of Public Affairs and the Department of Communication in the College of Liberal Arts and Sciences jointly sponsor a dual degree program leading to the simultaneous granting of the master of public administration (MPA) and the master of science in technical communication (MSTC) degrees. This program is designed for students interested in the development, operation and management of modern communications system networks and management information systems in government and nonprofit organizations. Interested persons must apply separately and be admitted by each program under its respective admissions standards. Upon admission, students may begin study in either program.

The dual degree program allows students to receive both degrees more quickly than they could by pursuing each separately. This is accomplished through a dual degree plan in which the core courses for each program are accepted as electives for the alternative program. Thus, in the MPA program, the SPA faculty will accept up to 12 hours of course work in the technical communication program as electives toward the 36 semester hours required for the MPA degree. A reciprocal agreement is that the technical communication program faculty will accept up to 9 semester hours of SPA core courses as electives in its program.

MPA students may choose any four of the following technical communication core courses for credit as electives in the MPA Program:

	<i>Semester Hours</i>
CMMU 5210. Communication and Discourse Analysis.....	3
CMMU 5240. Organizational Communication.....	3
CMMU 5405. Technical Communication: Writing.....	3
CMMU 5505. Technical Communication: Editing.....	3
CMMU 5510. Usability Testing.....	3
CMMU 5605. Rhetorical Theory for Technical Communication.....	3
CMMU 5805. Graphics.....	3
Total.....	12

Technical communication students may choose any three of the following MPA core courses as elective credits in the technical communication program:

P AD 5001. Introduction to Public Administration and Public Service... 3	3
P AD 5002. Organizational Management and Change..... 3	3
P AD 5003. Research and Analytic Methods..... 3	3
P AD 5004. Economics and Public Finance..... 3	3
P AD 5005. The Policy Process and Democracy..... 3	3
P AD 5006. Leadership and Professional Ethics..... 3	3
Total.....	9

For more information, contact the MPA/Technical Communication degree program advisor at the SPA office, 303-556-5970.

MPA/MASTER OF URBAN AND REGIONAL PLANNING

Background and Purpose

Public administration and urban and regional planning have many aspects in common. To provide students with an excellent education through understanding of both professions, the School of Public Affairs and the College of Architecture and Planning have developed a dual degree program. Students can obtain both master of public administration (MPA) and master of urban and regional planning (MURP) degrees with a minimum of 63 semester hours, as compared to a total of 87 semester hours to complete both degrees independently.

To be eligible for the dual MPA/MURP degree program, students must be admitted to each of the two schools under their respective admission procedures and standards and indicate an intention to pursue the dual degree. Students will take all the core courses and the Advanced Seminar in Public Policy and Management required for an MPA, plus the core and concentration requirements necessary for the MURP.

Students in each school must apply to the other school before completing 18 hours in their respective programs. Upon admission to both schools, students will be assigned an advisor in each school to work out a specific degree plan.

Core and Elective Requirements

CORE COURSES (42 CREDITS)

MURP

URP 5501. Planning Issues and Processes.....	3
URP 5511. Planning Methods II.....	3
URP 5520. Urban Spatial Analysis.....	3
URP 5530. Planning Law.....	3
URP 6630. Planning Studio I.....	3

Semester Hours

URP 6631. Planning Studio II.....	3
Total.....	18

MPA

P AD 5001. Introduction to Public Administration and Public Service... 3	3
P AD 5002. Organizational Management and Change..... 3	3
P AD 5004. Economics and Public Finance..... 3	3
P AD 5005. The Policy Process and Democracy..... 3	3
P AD 5006. Leadership and Professional Ethics..... 3	3
Total.....	15

Take one of two

P AD 5003-3. Research and Analytic Methods.....	3
URP 5510-3. Planning Methods I.....	3
Total.....	3

ADDITIONAL COURSE WORK (21 CREDITS)

MURP: 12 hours if URP 5510 elected, or 15 hours if P AD 5003 elected. Courses are to be selected with MURP advisor's approval.

MPA: 6 hours if P AD 5003 elected, or 9 hours if URP 5510 elected.

Practicum: P AD 5361 (3 hours required)

Electives: Take one of the following or another option with MPA advisor's approval (3 credits):

P AD 5250. Intergovernmental Management.....	3
P AD 5410. Administrative Law.....	3
P AD 5440. Negotiation and Conflict Resolution.....	3
P AD 5502. Public Financial Management and Policy.....	3
P AD 5503. Governmental Budgeting and Accounting.....	3
P AD 5540. Organization Development.....	3
P AD 5625. Local Government Management.....	3
P AD 5626. Local Government Politics and Policy.....	3
P AD 5631. Environmental Politics and Policy.....	3
P AD 5632. Environmental Management.....	3
Total.....	3

MASTER OF CRIMINAL JUSTICE

Program Director: Mary Dodge, PhD

Faculty

Professors: Mark Pogrebin, PhD, University of Iowa; Eric Poole, PhD, Washington State University

Associate Professors: Mary Dodge, PhD, University of California, Irvine; Angela Gover, PhD, University of Maryland

Assistant Professor: Deanna Perez, PhD, University of Maryland

Associate Research Professor: Jerry Williams, DPA, University of Colorado-Denver

The master of criminal justice (MCJ) program is designed for students interested in comprehensive professional graduate education in the field of criminal justice. It is intended to develop in the student a fundamental understanding of the basic fields within criminal justice and of background material from supporting disciplines, which would enable the student to adapt to many operational specializations.

As an academic and professional field of study, this program is dedicated to preparing men and women not only to administer the system as it presently exists—but also to evaluate, to analyze and to change—to become pioneers in accelerating the shaping of a rational and responsive criminal justice system.

To deal with this system effectively, research design capability must be developed along with the skills required for the ordering and analysis of empirical data. This course of study will also prepare the student to

be an innovator in crime control and prevention through course work dealing with strategies and skills for promoting individual, organizational and social change.

Degree Requirements

1. The program leading to the MCJ degree requires a minimum of 36 semester hours of appropriate graduate study with an average of *B* or better. No grade below *C* will be accepted for graduate credit. No more than 6 semester hours of independent study can be applied toward the degree.
2. The completion of the following core courses is required with a grade of *B-* or better:

	<i>Semester Hours</i>
CJ 5000. Law and Social Control	3
CJ 5100. Administration of Criminal Justice	3
CJ 5120. Nature and Causes of Crime	3
CJ 5321. Research Methods in Criminal Justice	3
Total	12

3. Students must complete a minimum of 27 semester hours of course work in criminal justice.
4. Students who have not had criminal justice experience are required to complete CJ 6910 (Field Study). A minimum of 240 hours of supervised work is required to earn 3 hours of credit. All required core courses must be completed before taking CJ 6910.
5. Completion of a comprehensive written examination taken during the last semester of enrollment is required to complete graduation requirements. In special cases, students must receive the approval of both a faculty advisor and the director of the criminal justice program to complete a thesis for 3 semester hours in lieu of the comprehensive exam.

ELECTIVE COURSES

The courses listed below may be taken as electives for the MCJ degree:

CJ 5325/7325. Qualitative Methods for Criminal Justice	3
CJ 5510/7510. Seminar: Contemporary Issues in Law Enforcement	3
CJ 5520/7520. Seminar: Corrections	3
CJ 5530/7530. Seminar: Community Corrections	3
CJ 5540/7540. Seminar: Juvenile Justice Administration	3
CJ 5552/7552. Seminar: Criminal Justice Ethics	3
CJ 5553/7553. Seminar: Women and Criminal Justice	3
CJ 5554/7554. Seminar: Criminal Justice Reform	3
CJ 5571/7571. Advanced Seminar: The Social Organization of Crime	3
CJ 5572/7572. Advanced Seminar: Race, Crime and Justice	3
CJ 5573/7573. Advanced Seminar: Organized Crime	3
CJ 5574/7574. Advanced Seminar: White Collar Crime	3
CJ 5575/7575. Advanced Seminar: Mentally Disordered Offender	3
CJ 5576/7576. Advanced Seminar: Social Science in the Criminal Justice System	3

MCJ Options

EXECUTIVE LEADERSHIP MCJ PROGRAM

Program Director: Gerald L. Williams

The School of Public Affairs' executive leadership master of criminal justice (ELMCJ) is a two-year, part-time cohort program that allows police executives to gain and enhance the knowledge and skills necessary to manage change, solve problems, plan and act strategically, develop and challenge employees, foster and encourage innovation and trust, understand and support calculated risk taking and establish and maintain organizations with a sound foundation in ethics and integrity.

Qualified candidates are executive-level law enforcement officers or those designated as potential future executives within local, state and federal law enforcement agencies. Classes meet two Friday evenings and three Saturdays, from 8 a.m. to 5 p.m., over a three-month period during each semester. One additional class will be held between each semester on two consecutive Fridays and three Saturdays.

CONCENTRATION IN DOMESTIC VIOLENCE

	<i>Semester Hours</i>
P AD 5920. Psychology of Violence Against Women	3
P AD 5910. Women and Violence	3
P AD 5930. Battered Women and the Law	3
P AD 5110. Seminar in Nonprofit Management	3
Elective (1)	3
Total	15

DOCTOR OF PHILOSOPHY IN PUBLIC AFFAIRS

Program Director: Paul Teske, PhD

Faculty

Professors: Kathleen Beatty, PhD, Washington State University; Lloyd Burton, PhD, University of California, Berkeley; Peter deLeon, PhD, Pardee RAND Graduate School; Robert Gage, PhD, Indiana University; Richard Stillman, PhD, Syracuse University; Paul Teske, PhD, Princeton University

Associate Professors: Linda deLeon, PhD, University of California, Los Angeles; Angela Gover, PhD, University of Maryland; Jody Fitzpatrick, PhD, University of Texas, Austin; Allan Wallis, PhD, City University Graduate Center

Assistant Professors: George Busenberg, PhD, University of North Carolina at Chapel Hill; Gabriel Kaplan, PhD, Harvard University; Christine Martell, PhD, Indiana University; Jennifer A. Wade-Berg, PhD, University of Georgia

Wirth Chair: Sen. Gary Hart (Ret.), JD, Yale University

Research Professor: Stephen Block, PhD, University of Colorado-Denver

Clinical Professor: Malcolm Goggin, PhD, Stanford University

Research Associate: Robert Reichardt, PhD, Pardee RAND Graduate School

Lecturers: Todd Bryan, MPA, Harvard University; Floyd Ciruli, JD, Georgetown University; Wellington Webb, MA, University of Northern Colorado

Professors Emeritus: John Buechner, PhD, University of Michigan; Dale Neugarten, PhD, University of Southern California

The School of Public Affairs offers a program of advanced graduate study leading to the doctor of philosophy in public affairs. The program, based on the downtown Denver campus, permits elective work to be taken on any campus of the university if it is part of the approved program of study or degree plan.

The doctoral program was developed to meet the need for people with mastery in the scholarly theory, concepts and research skills of public administration, public policy and public management, and who are able to use such skills in careers of research, teaching and analysis of public-sector challenges. The PhD is designed to prepare students for leadership responsibilities in academia, senior research and senior public policy analysis. Accordingly, the PhD stresses the development of theoretical, conceptual and methodological knowledge.

Participants

The doctoral program is primarily designed to serve (1) people who desire to further the field of public policy, and public and nonprofit management through teaching and research; (2) scholar-practitioners working in government, private-sector organizations concerned with

government and nonprofit organizations; and (3) policy analysts in government, private-sector organizations concerned with government and nonprofit organizations.

Time Required for PhD Degree

The PhD program requires an intense commitment. Most courses and seminars are offered during the late afternoon, in the evenings or on an intensive basis. (Some electives are offered online, but core courses are not.) Anyone starting the PhD program with a master's degree in public administration can expect to take at least three but no more than eight years to complete all of the requirements for the PhD.

Students are required to enroll for a minimum of 6 semester hours of course work each fall and spring semester. All requirements for the PhD should be completed within eight years of admittance. Any student entering the program with no prior graduate work in public administration, public policy, or management should expect additional course requirements.

PhD Admission Requirements

Admission to the program is based on the personal and professional qualifications of the applicant. It is desirable that an applicant have a master's degree in public administration or a closely related field before undertaking doctoral work. Applicants should have a 3.5 GPA or above in master-level course work, as well as a combined score of 1,000 or better on the quantitative and verbal sections of the GRE. Successful applicants will also show the potential for productive careers of scholarship, research and analysis.

Meeting the minimum thresholds listed above does not assure admission. In unusual cases, students who fail to meet the thresholds may be admitted if high academic skills are demonstrated in other ways.

PhD Application Process

Applicants must submit the following items to the SPA office before they can be formally considered for admission. The application deadline is February 1; admitted students will begin in the fall semester.

- application forms
- official transcripts (two copies) from all degree granting institutions
- GRE scores (no more than three years old)
- a resume or vita
- three letters of recommendation from colleagues and previous professors, focusing on the potential for deriving benefit from the PhD program
- a 500–1,000 word statement of educational and career goals, focusing on research interests

In addition, students may also submit samples of research reports or publications. All application materials will be retained by SPA and will not be returned. A personal meeting with the PhD director or other faculty member is recommended.

PhD Degree Requirements

COURSE WORK

A total of 36 semester hours of course work is required past a master's degree in public administration or related degree. In some cases, additional prerequisite courses may be required to assure adequate preparation for doctoral studies. All PhD students are required to take a minimum of 6 credit hours of course work in both the fall and spring semesters, until their course work requirements are met, if they wish to maintain their full-time student status.

During their first year of study, all PhD students are required to take the following four doctoral seminars:

	<i>Semester Hours</i>
P AD 8010. Historical and Comparative Foundations of Public Administration	3
P AD 8020. Seminar in Public Management	3
P AD 8030. Seminar in Public Policy	3
P AD 8060. Seminar on Conduct of Empirical Inquiry	3
Total	12

During subsequent years, doctoral students are required to take:

P AD 8040. Critical Issues in Public Affairs	3
P AD 8070. Advanced Seminar in Research Methods	3
Total	6

Prerequisites for P AD 8070 include P AD 7330. Intermediate Statistical Analysis, P AD 8010, 8020 and 8030, and the successful completion of the comprehensive examination. These prerequisites may be waived with the permission of the doctoral director.

In addition, all PhD students must complete a second methodology course (as well as four elective courses) relevant to the student's dissertation plans.

COMPREHENSIVE EXAM AND DISSERTATION

In addition to course work, PhD students must pass a comprehensive exam no later than the beginning of their third year of study. Students are also required to complete and defend, before a faculty committee, a dissertation that makes a significant contribution to the literature and theory of public administration, management or policy.

Students advance to candidacy for the PhD once they have completed all required course work and examinations, have successfully presented their research colloquium, and have been certified for candidacy by the program director. After students are formally advanced to candidacy, they must register for a total of 30 hours of dissertation research credit to complete the PhD. Each fall and spring semester students are expected to register for 5 credit hours of dissertation research; if unable to register for at least five credit hours, students must request a leave of absence from the PhD program until able to complete the minimum dissertation requirement. Students may take up to two semesters' leave of absence before they are disenrolled from the program. Students then would need to reapply to the program.

Further details on the program can be found in the *Handbook for the Doctor of Philosophy in Public Affairs Program*, available from the SPA office on online at www.cudenver.edu/gspa.

THE INSTITUTE AND CENTERS

The centers at the School of Public Affairs create bridges between the research-driven world of academia and the public and nonprofit sectors. This is how SPA contributes to the community—and how we in turn seek to provide leadership, policy solutions and ideas for societal change. The centers also enable students to engage first-hand in public policy research, work with client organizations, participate in internships and attend conferences and seminars. The SPA centers involve themselves in an impressive array of projects, from working with the Colorado Trust to helping Colorado communities establish health-delivery partnerships and studying Colorado's homeless population.

SPA Centers

- Institute for Policy Research and Implementation
- Center on Domestic Violence
- Wirth Chair in Environmental and Community Development Policy
- Center for Education Policy Analysis
- Center for Public/Private Sector Cooperation
- Center for the Improvement of Public Management

For details about these centers, see the Information for Graduate Students chapter of this catalog.

Course Descriptions

COURSE ABBREVIATIONS

The abbreviation preceding the course number identifies the department offering the course. The first digit in the course number indicates the recommended class level of the course. The digit after the dash in the course number denotes the credit-hour value of the course. The 1-credit lecture/recitation period is 50 minutes long. A student who is enrolled in a 3-credit hour course will attend class for 150 minutes per week during a 16-week term. A 3-credit hour course will require six to nine hours of work each week outside of class. A laboratory credit includes two to four hours per week in the laboratory, drafting room, or field. Unless the course descriptions specify laboratory work, classes will consist of lectures and discussions.

Level of Courses	Student Classification
1000–2000	Lower-division
3000–4000	Upper-division
5000	Graduate students or qualified seniors who have instructor's or dean's permission
6000	Graduate degree students
7000	Master's and PhD students
8000	PhD students

Abbreviations are used in the course descriptions:

<i>Coreq.</i>	<i>Corequisite</i>
<i>Hrs.</i>	<i>Hours</i>
<i>Lect.</i>	<i>Lecture</i>
<i>Rec.</i>	<i>Recitation</i>
<i>Sem.</i>	<i>Semester</i>
<i>Wk.</i>	<i>Week</i>

Graduate School policy permits specifically approved courses to be offered concurrently at the 4000 and 5000 levels. Students should expect work at the graduate (5000) level to involve demonstration of greater maturity and critical skills than at the undergraduate level (4000).

ACCT: Accounting (Business)

ACCT 2200-3. Financial Accounting and Financial Statement Analysis. The financial accounting process, the role of the profession and the analysis of financial statements.

Principal focus on interpretation of financial statements, with emphasis on asset and liability valuation problems and the determination of net income. Prereq: MATH 1070 and sophomore standing. A grade of 'C' or better is required in this course to proceed to ACCT 2220.

ACCT 2220-3. Managerial Accounting and Professional Issues. *Fall, Spring, Summer.*

Introduces managerial accounting. Shows managers how to use accounting information to make decisions. Principal focus on cost behavior analysis, budgeting and product costing. Prereq: ACCT 2200 with a grade of 'C' or better and sophomore standing. Strictly enforced.

ACCT 3054-3. Accounting Systems and Data Processing. The design and analysis of accounting information systems, automated data processing methods. With special emphasis on computers and computer programming and the role of accounting in the management process. Must receive a grade of 'C' or better to qualify for graduation. Prereq: Completion of ACCT 2220 with a grade of 'C' or better. Strictly enforced.

ACCT 3220-3. Intermediate Financial Accounting I. An intensive analysis of generally accepted accounting principles, accounting theory and preparation of annual financial statements for public corporations. Must complete course with a 'C' to qualify in graduation requirements. Prereq: Completion of ACCT 2220 with a grade of 'C' or better. Strictly enforced.

ACCT 3230-3. Intermediate Financial Accounting II. Must complete course with a grade of 'C' to qualify in graduation requirements. Prereq: Fall, Spring. Selected topics not covered in ACCT 3220. ACCT 3220, completed with a grade of a 'C' or better. Strictly enforced.

ACCT 3320-3. Intermediate Cost Accounting. *Fall, Spring, Summer.* Cost analysis for purposes of control and decision making. Analysis of cost behavior, role of accounting in planning and control and managerial uses of cost accounting data. Includes use of computer assisted decision models. Must receive a 'C' grade to qualify in graduation requirements. Prereq: ACCT 2220, ACCT 3054 and DSCI 2010 completed with a grade of 'C' or better. Strictly enforced.

ACCT 3939-1 to 3. Internship/Cooperative Education. Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: senior standing and 3.5 GPA.

ACCT 4030-3. Financial Accounting. Analysis of financial accounting concepts, the development of accounting thought and principles and critical review of generally accepted accounting principles. (Not recommended for candidates planning to sit for the CPA examination.) Prereq: ACCT 2200 and 2220 or equivalent. Must have a 'C' or better in courses. Strictly enforced. Note: students who have taken ACCT 3220 or 3230 (or equivalent) may not take this course.

ACCT 4070-3. Management Accounting. *Spring.* Designed to provide students with a foundation in management accounting models and information, with emphasis on management decision making uses of accounting information. (Not recommended for candidates planning to sit for the CPA examination.) Prereq: ACCT 2200 and 2220 or equivalent with a grade of a 'C' or better. Note: students who have taken ACCT 3320 or its equivalent may not take this course.

ACCT 4240-3. Advanced Financial Accounting. Advanced financial accounting concepts and practices with emphasis on accounting for partnerships, business combinations and consolidations. Prereq: Completion of ACCT 3230 with a grade of a 'C' or better. Strictly enforced. Cross-listed with ACCT 6024.

ACCT 4330-3. Managerial Accounting Problems and Cases. Critical analysis of advanced topics in managerial accounting. Considerable use of cases and current readings. Prereq: Completion of ACCT 3320 with a grade of 'C'. Strictly enforced.

ACCT 4410-3. Income Tax Accounting. *Fall, Spring.* Provisions and procedures of federal income tax laws and requirements affecting individuals and business organizations, including problems of tax planning and compliance. Prereq: ACCT 3054 or ACCT 3220 completed with a grade of 'C' or better. Strictly enforced. Note: students cannot receive credit for both ACCT 4410 and ACCT 6140. Cross-listed with ACCT 6140.

ACCT 4620-3. Auditing. *Fall, Spring.* Generally accepted auditing standards and the philosophy supporting them; auditing techniques available to the independent public accountant. Pertinent publications of the AICPA reviewed. Prereq: ACCT 3054 or ACCT 3220, either course must be completed with a grade of a 'C' or better. Strictly enforced. Cross-listed with ACCT 6020.

ACCT 4780-3. Accounting IS Processes and Control. The course is designed to develop knowledge and skills used to understand and evaluate corporate accounting processes and systems. It focuses on financial and information

system internal controls and the flow of corporate information through an accounting system. A financial system objective and risk assessment approach is used to present concepts and techniques for evaluating the adequacy of system processes and controls. Prereq: Completion of ACCT 2200 and ACCT 2220 with a grade of 'C' or better. Strictly enforced. Cross-listed with ACCT 6510.

ACCT 4800-3. Accounting for Government and Nonprofit Organizations. Planning and control of government and nonprofit organizations. Includes program budgets, responsibility accounting and fund accounting. Prereq: Completion of ACCT 3220 with a grade of 'C' and permission of instructor, strictly enforced. Cross-listed with ACCT 6080.

ACCT 4840-1 to 8. Independent Study.

ACCT 4915-3. Accounting for the Public Interest. *Fall, Spring, Summer.* Applies accounting knowledge and concepts in a not-for-profit organization. Student volunteers help with functions or special projects and are supervised by both faculty members and personnel from the agency to which they are assigned. Prereq: permission of instructor. Cross-listed with ACCT 6015.

ACCT 4950-3. Special Topics. Research methods and results, special topics and professional developments in accounting. Consult the current 'Schedule Planner' for semester offerings. Prereq: varies according to topic and instructor requirements.

ACCT 6010-3. Income Tax Accounting. Provisions and procedures of federal income tax laws and requirements affecting individuals and business organizations, including problems of tax planning and compliance. Note: This class is rarely offered. Prereq: ACCT 3220 or 3054.

ACCT 6015-3. Accounting for the Public Interest. *Fall, Spring, Summer.* Applies accounting knowledge and concepts in a not-for-profit organization. Student volunteers help with functions or special projects and are supervised by both faculty members and personnel from the agency to which they are assigned. Prereq: permission of instructor. Cross-listed with ACCT 4915.

ACCT 6020-3. Auditing. *Fall, Spring.* Generally accepted auditing techniques and the philosophy supporting them; auditing techniques available to the independent public accountant. Pertinent publications of the AICPA reviewed. Prereq: ACCT 3054 or ACCT 3220 (or equivalent). Cross-listed with ACCT 4620.

ACCT 6024-3. Advanced Financial Accounting. *Fall, Spring.* Advanced financial accounting concepts and practice with emphasis on accounting for partnerships, business combinations and consolidations. Prereq: ACCT 3230 or equivalent. Cross-listed with ACCT 4240.

ACCT 6030-3. Financial Accounting. *Fall.* Accelerated analysis of financial accounting concepts, the development of accounting thought and principles and critical review of generally accepted accounting principles. (Not recommended for candidates planning to sit for the CPA examination.) Prereq: BUSN 6550 or equivalent. Note: students who have taken ACCT 3220 or ACCT 3230 (or equivalent) may not take this course.

ACCT 6033-3. Advanced Managerial Accounting. Critical analysis of advanced topics in managerial accounting. Prereq: ACCT 3320.

ACCT 6070-3. Management Accounting. *Spring.* Designed to provide M.B.A. students with a foundation in management accounting models and information, with emphasis on management decision making uses of accounting information. (Not recommended for candidates planning to sit for the CPA examination.) Prereq: BUSN 6550 or equivalent. Note: students who have taken ACCT 3320 or its equivalent may not take this course.

ACCT 6080-3. Accounting for Government and Nonprofit Organizations. *Spring.* Planning and control of government and nonprofit organizations. Includes program budgets, responsibility accounting and fund accounting. Prereq: ACCT 3220 or BUSN 6550 or permission of instructor. Cross-listed with ACCT 4800.

ACCT 6140-3. Tax Planning for Managers. *Fall, Spring.* A Federal tax survey course with an emphasis on tax planning for the graduate student who wants to understand the impact of taxation on individual and

business transactions. Course materials emphasize the application of individual, partnership and corporate tax principles to the decision making process. Prereq: BUSN 6550 or equivalent. Note: students cannot receive credit for both ACCT 4410 and 6140. Cross-listed with ACCT 4410.

ACCT 6250-3. Seminar: Financial Accounting. *Fall, Spring.* Nature and origin of accounting theory and the development of postulates, principles and practices. Methodology appropriate to development and evaluation of accounting theory, with special emphasis on accepted research standards and procedures. Prereq: ACCT 3230 and 4620/6020 or concurrent registration in ACCT 4620/6020.

ACCT 6260-3. Seminar: Managerial Accounting. *Spring.* Focuses on the conceptual foundations of managerial accounting. Behavioral and quantitative approaches regarding information for decision making, planning, control, performance evaluation and other issues are investigated. Prereq: ACCT 3320 or 6070 (or equivalent).

ACCT 6280-3. Professional Judgment and Decision Making in Accounting. Accounting is a process of providing economic information useful for decision making. This course provides (1) an opportunity to develop professional judgment skills and (2) tools to make better decisions through an active, case-oriented learning method. Cases involve representative problems professional accountants face in financial reporting, audit, tax, business services and practice management, including ethical conflicts and technical decisions. Participants learn to apply a structured decision model, incorporating critical, creative, evaluative and reflective judgment processes and learn how to recognize and avoid common decision errors and biases. Prereq: ACCT 4620 (or equivalent) or permission of instructor.

ACCT 6290-3. Management Control Systems. Focuses on the design and use of control systems which ensure that people in organizations behave consistently with the organizational goals. Controls for communication, motivation and performance evaluation (along with informational requirements) are stressed through analysis of cases and classroom discussion. Prereq: BUSN 6550 or equivalent.

ACCT 6340-3. Financial Statement Analysis. *Fall, Spring.* Financial statements are used as an information source on which to base investment, lending potential or even employment. Designed to develop skills in using, understanding, analyzing and interpreting financial statements and to make students aware of the value and limitations of financial statement information. Prereq: BUSN 6550 or equivalent.

ACCT 6350-3. Current Issues in Professional Accounting. *Fall.* An in-depth analysis of current issues in the accounting profession, including ethics development and validity of standards and regulations. Prereq: ACCT 3230 and 4620/6020 or permission of instructor.

ACCT 6370-3. International Accounting. *Spring.* Designed to expose students to the international aspects of accounting and financial management. Includes discussion of some of the different financial accounting practices across countries; financial statement analysis in a global context, international auditing practices and procedures, international tax implications and the implications of operating within the regulations of the Foreign Corrupt Practices Act, the European Union, North American Free Trade Agreement and General Agreement on Tariffs and Trade. Prereq: BUSN 6550 or equivalent. Note: students cannot receive credit for both ACCT 6370 and INTB 6370. Cross-listed with INTB 6370.

ACCT 6410-3. Advanced Tax For Individuals. *Spring.* An advanced federal individual income tax course stressing the methodology used in tax research and in tax planning. Includes use of specialized tax software to address compliance and planning issues by solving complex case-type real-life situations. Prereq: ACCT 4410 or 6140 (or equivalent). Note: students cannot receive credit for both ACCT 4410 and 6140.

ACCT 6420-3. Advanced Tax for Businesses. *Fall.* An advanced federal tax course stressing research and tax planning issues of corporate and partnership entities. Includes use of specialized tax software to address compliance and planning issues by solving complex case-type real-life situations. Prereq: ACCT 4410 or 6140 (or equivalent).

ACCT 6450-3. Research Problems in Income Tax Accounting. Study of the methodology used in tax research and in tax planning, together with a study of some aspects of tax administration and tax practice and of some aspects of the current law and proposals for its revision. Prereq: ACCT 4410 or permission of instructor.

ACCT 6510-3. Accounting IS Processes and Control. The course is designed to develop knowledge and skills used to understand and evaluate corporate accounting processes and systems. It focuses on financial and information system internal controls and the flow of corporate information through an accounting system. A financial system objective and risk assessment approach is used to present concepts and techniques for evaluating the adequacy of system processes and controls. Prereq: ACCT 3054 or ACCT 4620 or ISMG 3000 or equivalent professional experience. Cross-listed with ACCT 4780.

ACCT 6520-3. Issues in Oil and Gas Accounting. The Oil and Gas Accounting course is a course designed to give students an overview of the oil and gas industry and the particular accounting issues this industry faces. The focus is on the oil and gas industry but many of the issues discussed are appropriate and applicable to all energy-related entities. This is a valuable learning experience for those interested in acquiring an understanding of the accounting issues for energy management firms in preparation for entry into public accounting. The course enjoys support from the energy industry in the form of guest speakers and project ideas.

ACCT 6620-3. Advanced Auditing. Development of auditing as a profession, including evolution of standards and audit reports. Historical and contemporary literature in the field reviewed. Prereq: ACCT 4620 or equivalent.

ACCT 6800-3. Special Topics. Research methods and results, special topics and professional developments in accounting. Consult the current 'Schedule Planner' for semester offerings. Prereq: varies according to topics and instructor requirements.

ACCT 6840-1 to 8. Independent Study. Instructor approval required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study.

ACCT 6939-1 to 3. Internship/Cooperative Education. Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: 21 semester hours and 3.5 GPA.

ACCT 6950-1 to 8. Master's Thesis.

ANTH: Anthropology (Liberal Arts and Sciences)

ANTH 1000-3. Anthropology: Past and Present. Anthropology is the study of humankind in all of its diversity and complexity. Anthropologists have traditionally approached the study from four distinct perspectives: biological, cultural, linguistic and archaeological. This course considers how anthropologists study humankind from these four perspectives and the robust picture of humanity that emerges.

ANTH 1111-1 to 3. Freshman Seminar.

ANTH 1302-4. Introduction to Archaeology. Introduces the study of past cultures and their environments. Emphasis is on the scientific method, aspects of research design and analytical techniques used by archaeologists to determine chronology, taphonomy, source production areas, exchange networks and human-environment interactions. Note: Three hours of lecture and a two-hour laboratory each week.

ANTH 1303-4. Introduction to Biological Anthropology: GT-SC1. Introduces the study of human biological evolution, both processes and outcomes, from primate ancestors to fossil hominids to contemporary human populations. Methods of obtaining and interpreting data concerning the genetic, biological and evolutionary basis of physical variation in living and skeletal populations. Note: Three hours of lecture and a two-hour laboratory each week.

ANTH 2102-3. Culture and the Human Experience: GT-SS3. An application of the concept of culture to several aspects of the human experience, including gender relations, emotion and personality, cognition, language, health and healing and economic behavior. In exploring these dimensions of the human experience, the course focuses on selected cultures from each of the world's major geographic areas.

ANTH 2700 thru 2790-3. Current Topics in Anthropology.

Introductory level course offering a flexible format for dealing with a specific topic of special interest in anthropology, such as aging; race and prejudice; science and human values; warfare and aggression; ethnicity; cultural diversity through film, myth and folklore; anthropological approaches to world problems; and Colorado prehistory. Note: Specific topic published in the Schedule Planner.

ANTH 2840-1 to 3. Independent Study.

ANTH 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

ANTH 3006-3. Economic Development and Culture. Investigates theories, issues and problems in economic development and its relation to social problems. Considers the connections between development and underdevelopment, the successes and failures of development policies and five case studies in development. Prereq: Anthropology and microeconomics or macroeconomics.

ANTH 3101-3. Foundations of Cultural Anthropology. Covers current theories in cultural anthropology and discusses the nature of field work. Major schools of thought and actual field studies are explored with an emphasis on anthropological data gathering, analysis and writing. Prereq: Introductory course in cultural anthropology.

ANTH 3121-3. Language and Communication. Definitions of language and communication and their relationship to human behavior, thought and culture. The classification of languages, linguistic universals, language acquisition, multilingualism, and nonhuman communication, with consideration of the evolutionary implications of such studies.

Prereq: Introductory course in cultural anthropology.

ANTH 3142-3. Cultural Diversity in the Modern World. An in-depth analysis of the phenomena of culture and application of the culture concept to understanding cultural diversity in the modern world.

Applies the concept of culture to several basic aspects of human social life, for example: social class and gender relations, ethnicity, racism and sexism, education, health and economic behavior. Students explore these issues in the context of case studies of particular groups and/or communities, focusing primarily on the diversity of cultural expression in contemporary U.S.

ANTH 3200-3. Human Migration: Nomads, Sojourners and Settlers.

Explores the relationship between human migration, voluntary and forced and social organization and culture in the modern world. Case studies include pastoralists, foragers, refugees, immigrants, sojourners and settlers and their impact on health, culture, identity, ethnicity, tradition and nationality. Cross-listed with HBSC 3200.

ANTH 3301-3. World Prehistory. Explores of 3.5 million years of human cultural development that examines the prehistory of Africa, Asia, Europe and the Americas. Patterns and processes that underlie the earliest hominid expansion out of Africa, tool use, origins of fire, the peopling of the Americas, the development of metallurgy, the domestication of plants and animals and the rise of cities and the state are examined.

Emphasis is on both regional developments and landmark projects that have helped clarify prehistory. Prereq: Introductory course in archaeology.

ANTH 3310-3. Colorado Archaeology. A survey of the prehistoric and protohistoric peoples of the five major culture areas of Colorado: the Four Corners, Great Basin, Rocky Mountains, High Plains and Front Range. Of special interest will be the study of the initial peopling of Colorado, economic and political organization, ethnic interaction and the history of archaeological work in the region. Prereq: ANTH 1302.

ANTH 3330-3. Topics in Archaeology. A flexible format for addressing specific topics in archaeology. Examples include the archaeology of the Great Plains, the Mediterranean Region, etc. Prereq: An introductory course in archaeology.

ANTH 3500-3. Human Osteology. Provides in-depth knowledge of human osteology, including the following topics: skeletal anatomy; age, sex and stature determination; skeletal trauma/pathology; and taphonomy. Recitation component provides hands-on experience with skeletal material. Prereq: ANTH 1303.

ANTH 3512-3. Human Evolution. Provides an overview of the fossil and archaeological evidence for human origins. Theory and method in paleoanthropology is emphasized. The goal is to outline current knowledge of human biological evolution and the lifeways of our evolutionary relatives. Prereq: ANTH 1303.

ANTH 3910-3 to 6. Cross-Cultural Field Experience. An intensive contact with another culture through supervised travel in the U.S. or in a country other than the United States. Written reports required. Note: Class includes pre-trip orientation lectures; in-country lectures by local resource people and and supervising CU-Denver faculty.

ANTH 3939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. ANTH 4000-1 to 4. Special Topics in Anthropology. Designed to give students a chance to evaluate critically some practical or theoretical problem under faculty supervision and to present results of their thinking to fellow students and instructors for critical evaluation. Prereq: permission of instructor. Cross-listed with ANTH 5000.

ANTH 4010-3. Global Health Studies I: The Biocultural Basis of Health. This course is concerned with the underlying biological and cultural determinants of health throughout the human life cycle in global and cross-cultural perspective. Note: The first of a two course sequence in medical anthropology and global health studies; the second is ANTH 4020. Prereq: Upper division and/or graduate standing. Cross-listed with ANTH 5014, HBSC 4010 and 5010.

ANTH 4020-3. Global Health Studies II: Comparative Health Systems. The course has three parts: (1) examines the social and cultural construction of sickness, systems of etiology cross culturally, the therapeutic encounter, varying roles of healer and patient and the cultural basis of all healing systems; (2) considers health systems in the context of global health reform and the history, organization and roles of institutions of global health governance; and (3) considers the inter-relationship of health, foreign policy and global security. Prereq: Upper division and/or graduate standing. Cross-listed with ANTH 5024, HBSC 4020 and 5020.

ANTH 4030-3. Ethnobiology. Considers the relationship between human society and plants and animals in the natural world. Primary focus on the perception and cognitive organization of the environment and how that affects the definition and use of plants and animals as resources. Prereq: Introductory anthropology and/or biology. Cross-listed with ANTH 5030.

ANTH 4040-3. Anthropology of Food and Nutrition. Examines the myriad relationships between food as a biological necessity and eating as a socially and culturally conditioned activity. Takes a biocultural perspective that considers not only the tremendous variety of foods we eat, but also the complex meanings and importance attached to food and eating. Prereq: Introductory course in anthropology. Cross-listed with ANTH 5040.

ANTH 4050-3. Quantitative Methods in Anthropology. Surveys the ways of deriving meaning from anthropological data by numerical means, including, but not confined to basic statistical procedures. Prereq: College-level algebra or its equivalent. Cross-listed with ANTH 5053.

ANTH 4060-3. Evolutionary Medicine. Applies evolutionary principles to an understanding of human health and illness. The view complements perspectives on health and disease emanating from biological and social sciences, but considers the health or disease process from the perspective of pathogen and host, current and previous environments and various phases of the life cycle. Prereq: ANTH 1303. Cross-listed with ANTH 5060, HBSC 4060 and 5060.

ANTH 4070-3. Culture of Development and Globalization. Anthropological critiques of development and globalization point out that they have occurred without regard for the diversity of human culture and human need. Beginning with this analysis, this course goes one step further by examining culture and values of development and how they affect the way development gets done. Prereq: Upper division standing and permission of instructor. Cross-listed with ANTH 5070.

ANTH 4080-3. Global Health Practice. A travel-study course that provides students the opportunity to work on global health issues in the context of a supervised internship experience. In addition to a formal internship placement or directed research opportunity, students attend formal lectures and participate in seminars devoted to addressing those health issues most relevant to the country in which the course is being taught. Prereq: HBSC/ANTH 4010/5014, HBSC/ANTH 4020/5024, HLTH 6070 or equivalent. Cross-listed with ANTH 5080, HBSC 4080 and 5080.

ANTH 4090-3. Political Economy of Drug Culture. An anthropological study of how illegal drug use impacts the social, political, economic and medical sectors of any community. Examines the interplay between these sectors and drug users through the lens of political economy. Prereq: ANTH 2102. Cross-listed with ANTH 5090.

ANTH 4101-3. Applied Statistics Using SAS and SPSS I. Teaches the practical statistical tools social scientists use to analyze real-world problems. Split into four modules, each taught by a different instructor. The first module introduces SAS and SPSS; modules 2-4 are problem-based and cover topics such as ANOVA, multivariate regression and cluster analysis. Prereq: Any statistics course.

ANTH 4102-3. Applied Statistics Using SAS and SPSS II. (Continuation of ANTH 4101.) Students use the skills they learned in the previous semester to analyze a social issue of their choosing and present their findings. Note: In addition to lectures, weekly one-on-one meetings between faculty and students are required. Prereq: ANTH 4101.

ANTH 4130-3. Comparative Religious Systems. A cross-cultural analysis of religious belief and behavior. Emphasis is placed on religions found among non-Western cultural groups and includes consideration of how major religions of the world are manifested on local levels. Prereq: ANTH 2102 or equivalent. Cross-listed with ANTH 5130, RLST 4010.

ANTH 4140-3. Principles of Economic Anthropology. Both formalist and substantivist perspectives are used to examine economic organization in a cross-cultural perspective. Special attention is focused on gift-giving in pre-stratified societies, craft specialization in middle-range societies, specialized economies in non-market-oriented ancient states and economic organization in modern world systems. Prereq: ANTH 2102 or equivalent. Cross-listed with ANTH 5140.

ANTH 4150-3. Human Biocultural Adaptability. The chief concern of this course is the relationship between ourselves and our surroundings and the very immediate ways the environments in which we live affect us. The view is of ourselves as a part of, not apart from, these environments. Prereq: ANTH 1303 and 2102 or equivalent. Cross-listed with ANTH 5150.

ANTH 4160-3. Topics in Language, Society and Culture. A changing set of topics that addresses the nature of language in society and analysis of "languaculture." Topics may include: language and power, language and identity, conversational analysis, language and self, language socialization, nonverbal communication, evolution of language, ethnopoetics, language as social action, orality and literacy, linguistic hygiene, language and gender, discourse analysis, deception and truth. Prereq: ANTH 2102 or equivalent. Cross-listed with ANTH 5160.

ANTH 4170-3. Culture and the Environment. Examines the historical origins of Western and non-Western ideas of the environment and the place of people within it. The imposition of Western ideas on non-Western groups regarding environmental policy is also examined, with special attention given to practices of conservation, development and transnational monetary policy. Prereq: ANTH 2102 or equivalent. Cross-listed with ANTH 5170.

ANTH 4180-3. The Nature of Power. Introduces the major theories of power used in contemporary anthropology, with an emphasis on cross-cultural perspectives. Explores how power is defined, determined and exercised globally and locally and how different systems of power articulate with one another. Prereq: ANTH 2102 or equivalent. Cross-listed with ANTH 5180.

ANTH 4190-3. Ethnicity and Nationalism. Anthropological research on ethnicity and nationalism throughout the world, in both simple and complex societies; theoretical and ethnographic research will be

mutually reinforcing. Prereq: Senior or graduate standing, a course in anthropology, or permission of instructor. Cross-listed with ANTH 5190.

ANTH 4200-3. Gender in Cross-Cultural Perspective. A comparative analysis of gender-based status and social roles of women and men, with women's status and roles emphasized due to their near-universal construction as the "other" sex. Examines in cross- and sub-cultural context the relations among women's status and their subsistence and reproductive activities; and the division of labor by sex, ideology and political economy. Prereq: ANTH 2102 or equivalent. Cross-listed with ANTH 5200.

ANTH 4210-3. Archaeology of the American Southwest. Considers the origins, characteristics and interrelationships of the major culture areas in the American Southwest, including the Anasazi, Hohokam, Mogollon, Sinagua and Northern Mexico. Prereq: Introduction to archaeology. Cross-listed with ANTH 5210.

ANTH 4220-3. Community in Global Context. Presents the community study method from the perspective of anthropology and as a widely applicable research technique in planning, development and other areas of public affairs. Also includes analyses of case studies and student field research. Prereq: Introductory course in cultural anthropology. Cross-listed with ANTH 5220.

ANTH 4250-3. Culture Change in the Modern World. Processes and dilemmas of culture change using macro-level theories as well as models of change for communities and individuals. Conceptual and practical problems of modernity relating to globalization, urbanization, environmental degradation and technological change. Prereq: At least one course in cultural anthropology.

ANTH 4260-3. Human Reproductive Ecology. Considers the determinants of fertility variation within and among traditional human societies. Biocultural and ecological perspectives on pubertal timing, marriage patterns, birth seasonality, duration of birth intervals and reproductive senescence. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 5260.

ANTH 4320-3. Archaeology of Mexico and Central America. Surveys the major prehistoric and protohistoric cultures and societies of that area of Mexico and Central America identified with the evolution of Meso-American civilization. Major topics include early human colonization of the Americas, the domestication of plants and animals, the emergence of regionally-based cultures and societies, trade and exchange and the evolution of urbanism and the state. Primary emphasis on such ancient cultures and societies as those of the Olmec, Zapotec, Maya, Teotihuacan, Toltec and Aztec. Prereq: Introduction to archaeology. Cross-listed with ANTH 5320.

ANTH 4330-3. Lithic Analysis. Examines the theoretical basis and methodological tools used by archaeologists in the analysis of prehistoric stone tools. Topics of discussion include the mechanics of stone fracture, typologies, use wear analysis and core reduction techniques. Prereq: ANTH 1302. Cross-listed with ANTH 5330.

ANTH 4380-3. Archaeology of Hunters-Gatherers. Explores the theory and methods used by archaeologists to investigate prehistoric hunter gatherers. Topics of concern include mobility, subsistence, procurement and socio-political organization. Prereq: ANTH 1302. Cross-listed with ANTH 5380.

ANTH 4390-3. Laboratory Methods in Archaeology. Methods and theories of archaeology are used to scrutinize the collection and interpretation of data and the relationships of archaeology to other disciplines. Core materials emphasize the critique of basic archaeological assumptions. Note: Course content varies slightly each time it is offered, in response to student needs and the availability of projects (e.g., laboratory work, urban excavation, survey and mapping). May be repeated for credit when topics change. Prereq: ANTH 1302 or equivalent.

ANTH 4400-3. Archaeology of Power and Inequality. Addresses inequality and power through a long-term archaeological and theoretical perspective. Discusses explanations for the origins of power and inequality and their role in early small-scale societies and emerging complex politics. Prereq: ANTH 1302 or equivalent. Cross-listed with ANTH 5400.

ANTH 4450-3. Development and Conservation: Contemporary Issues. Applies the theoretical paradigms of political ecology to contemporary issues of sustainable development. Case studies are chosen illustrating topics based on faculty expertise and student interaction.

The first part of the course presents theoretical perspectives relevant to the chosen topic. In the second half, students participate in directed problem solving activities. Prereq: ANTH 4070, 4170 and graduate standing or permission of instructor. Cross-listed with ANTH 5450.

ANTH 4460-3. Development and Conservation: Theory and Practice. Examines the praxis of anthropological knowledge of human ecosystem interaction and development of economic opportunities. Issues of biodiversity, resource conservation, sustainable development and globalization are studied. Prereq: ANTH 4450 or permission of instructor. Cross-listed with ANTH 5460.

ANTH 4500-3. Advanced Issues in Human Evolution. This flexible course offers an advanced treatment of issues in human biological evolution. Topics may emphasize morphological evolution, behavioral evolution, the environment of human evolution, nonhuman primate comparative information. Prereq: ANTH 1303 and 3512 or equivalent. Cross-listed with ANTH 5500.

ANTH 4520-3. Human Biological Variation. Human biological variation and adaptation, considered from an evolutionary perspective. How we measure and classify human variation often affects the conclusions we draw. This course considers the causes and maintenance of human variability and adaptability, including cultural and social factors in the genesis and maintenance of normal and abnormal traits. Prereq: Introductory course in biological or physical anthropology. Cross-listed with ANTH 5520.

ANTH 4540-3. Forensic Anthropology. The goals of this course are to provide detailed knowledge of the human skeleton, as well as the methods employed in determination of biological characteristics that can predict an individual's identity. The application of human osteological knowledge to forensic and anthropological problems and research are discussed in the context of a "hands-on" session during each lecture period. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 5540.

ANTH 4550-3. Primate Comparative Anatomy. Examines human and nonhuman primate anatomical diversity. Students learn primate anatomy and the morphological differences among species. Explanations for the evolutionary origins of differences are reviewed, focusing on evolutionary theory, comparative methods and biomechanics. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 5550.

ANTH 4560-3. Human Ecology. Studies demographic and ecological variables as they relate to human populations. Aspects of natural selection, overpopulation and environmental deterioration are considered. Prereq: Introductory course in biological or physical anthropology. Cross-listed with ANTH 5560.

ANTH 4570-3. Landscape Archaeology. Introduces spatial archaeology through intrasite analysis and regional studies. Methods treated include site location and quantitative spatial organization. Theoretical topics include definitions of community, ancient urbanism and the impact of subsistence and politics on relations to the landscape. Prereq: ANTH 1302 or equivalent. Cross-listed with ANTH 5570.

ANTH 4580-3. Neanderthals and the Origin of Modern Humans. Focuses on the human fossil record for the taxon *Homo sapiens*, including the earliest members of this group ("early" or "archaic" *Homo sapiens*), the Neanderthals and so-called "anatomically modern" *Homo sapiens*. The goal of the course is to survey the major issues within the area of modern human origins and to learn about the evolutionary relationships, lifeways and behaviors of these groups. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 5580.

ANTH 4590-3. Primate Behavior. Studies nonhuman primate behavior with emphasis on understanding social behavior, ecology and issues related to human evolution. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 5590.

ANTH 4640-3. Darwinian Approach to Human Behavior. The evolution of human behaviors from a Darwinian perspective, focusing on the natural selection of behaviors that maximize reproductive

success. Includes topics such as male and female reproductive strategies, female mate choice, male violence and resource acquisition and control. Prereq: ANTH 1303. Cross-listed with ANTH 5640.

ANTH 4730-3. Peoples and Cultures of Sub-Saharan Africa. Covers various types of societies and civilizations that have existed in sub-Saharan Africa. Explores foragers, pastoralists, agricultural societies, chiefdoms, kingdoms and empires, as these emerged and interacted with each other. Details their ideas and social orders, including the following topics: race, ethnicity, kinship, politics, economics, religion, magic, witchcraft, sorcery, marriage, age, gender, stratification, art, literature and oral traditions. Also addresses the impact of colonialism, the rise of nations, changes in the post-colonial period, warfare and the impact of globalism on Africa today. Prereq: Upper division standing. Cross-listed with ANTH 5730, ETST 4730.

ANTH 4740-3. Ethnography of Mexico and Central America. Geographic affiliations, culture, history, traditional ways of life and culture change in Mexico and Central America. Cross-listed with ANTH 5740.

ANTH 4810-3. Integrating Anthropology. Designed to build on specialized course work in the subdisciplines of anthropology, this course emphasizes the basic concepts that integrate and unite the discipline and give it unique perspective. These are the concepts of culture, adaptation and human evolution. In the last several weeks of the course, students consider the applicability of the anthropological perspective to specific human issues. Note: Centers on the critical examination and discussion of presentations made by department faculty and graduate students. Prereq: junior or senior standing and course work equivalent to a minor in anthropology. Cross-listed with ANTH 5810.

ANTH 4840-1 to 3. Independent Study. Directed study based on a specific subfield of anthropology. Note: Permission of instructor required.

ANTH 4910-3 to 6. Field Experience in Archaeology. Students participate in archaeological field research and data recovery and conduct laboratory analysis of materials recovered in the field. Emphasis is placed on excavation technique and accuracy of record keeping. Prereq: Introductory course in archaeology. Cross-listed with ANTH 5910.

ANTH 4995-3 to 9. Travel Study. A flexible format that permits courses to be taught in various areas of the world. Prereq: permission of instructor. Cultures of the Himalayas. Concerned broadly with contemporary Himalayan culture. Focuses on Tibetan cultures and the Tibetan diaspora and the Nepalese (Newari) culture of the Katmandu Valley. The goals for this course are: to acquaint the student with social, political and cultural features of this part of the world; to teach, through directed field experiences, how cultural anthropology is practiced; to understand how the process of tourism differs from the study of anthropology; how tourism, however it is practiced, changes in fundamental ways those subject to it. The Arts of Self and Society in Contemporary China. An intensive introduction to contemporary conditions and issues in the People's Republic of China, including social relations, popular culture, eating practices, religious practices and everyday life. Uses a combination of readings, lectures, field trips to local sites and ethnographic field projects. Usually situated in Kunming, Yunnan province, in southwest China, but the location may vary. Note: Students enroll additionally in Chinese language classes at levels from beginning to advanced. Cross-listed with ANTH 5995.

ANTH 5000-1 to 6. Special Topics in Anthropology. Designed to give students a chance to evaluate critically some practical or theoretical problem under faculty supervision and to present results of their thinking to fellow students and instructors for critical evaluation. Prereq: permission of instructor. Cross-listed with ANTH 4000.

ANTH 5014-3. Global Health Studies I: The Biocultural Basis of Health. This course is concerned with the underlying biological and cultural determinants of health throughout the human life cycle in global and cross-cultural perspective. Note: The first of a two course sequence in medical anthropology and global health studies; the second is ANTH 5024. Prereq: Upper division and/or graduate standing. Cross-listed with ANTH 4010, HBSC 4010 and 5010.

Check for updates at <http://courses.cudenver.edu>.

ANTH 5024-3. Global Health Studies II: Comparative Health Systems.

The course has three parts: (1) examines the social and cultural construction of sickness, systems of etiology cross culturally, the therapeutic encounter, varying roles of healer and patient and the cultural basis of all healing systems; (2) considers health systems in the context of global health reform and the history, organization and roles of institutions of global health governance; and (3) considers the inter-relationship of health, foreign policy and global security. Prereq: Upper division and/or graduate standing. Cross-listed with ANTH 4020, HBSC 4020 and 5020.

ANTH 5030-3. Ethnobiology. Considers the relationship between human society and plants and animals in the natural world. Primary focus on the perception and cognitive organization of the environment and how that affects the definition and use of plants and animals as resources. Prereq: Introductory anthropology and/or biology and graduate standing. Cross-listed with ANTH 4030.

ANTH 5040-3. Anthropology of Food and Nutrition. Examines the myriad relationships between food as a biological necessity and eating as a socially and culturally conditioned activity. Takes a biocultural perspective that considers not only the tremendous variety of foods we eat, but also the complex meanings and importance attached to food and eating. Prereq: Introductory course in anthropology and graduate standing. Cross-listed with ANTH 4040.

ANTH 5053-3. Quantitative Methods in Anthropology. Surveys the ways of deriving meaning from anthropological data by numerical means, including, but not confined to basic statistical procedure. Prereq: College-level algebra and graduate standing. Cross-listed with ANTH 4050.

ANTH 5060-3. Evolutionary Medicine. Applies evolutionary principles to an understanding of human health and illness. The view complements perspectives on health and disease emanating from biological and social sciences, but considers the health or disease process from the perspective of pathogen and host, current and previous environments and various phases of the life cycle. Prereq: ANTH 1303. Cross-listed with ANTH 4060, HBSC 4060 and 5060.

ANTH 5070-3. Culture of Development and Globalization.

Anthropological critiques of development and globalization point out that they have occurred without regard for the diversity of human culture and human need. Beginning with this analysis, this course goes one step further by examining culture and values of development and how they affect the way development gets done. Prereq: Upper division standing and permission of instructor. Cross-listed with ANTH 4070.

ANTH 5080-3. Global Health Practice. A travel-study course that provides students the opportunity to work on global health issues in the context of a supervised internship experience. In addition to a formal internship placement or directed research opportunity, students attend formal lectures and participate in seminars devoted to addressing those health issues most relevant to the country in which the course is being taught. Prereq: HBSC/ANTH 5014/4010, HBSC/ANTH 5024/4020, HLTH 6070 or equivalent. Cross-listed with ANTH 4080, HBSC 5080 and 4080.

ANTH 5090-3. Political Economy of Drug Culture. An anthropological study of how illegal drug use impacts the social, political, economic and medical sectors of any community. Examines the interplay between these sectors and drug users through the lens of political economy. Prereq: ANTH 2102. Cross-listed with ANTH 4090.

ANTH 5130-3. Comparative Religious Systems. A cross-cultural analysis of religious belief and behavior. Emphasis is placed on religions found among non-Western cultural groups and includes consideration of how major religions of the world are manifested on local levels. Prereq: Background in cultural anthropology and graduate standing. Cross-listed with ANTH 4130 and RLST 4010.

ANTH 5140-3. Principles of Economic Anthropology. Both formalist and substantivist perspectives are used to examine economic organization in a cross-cultural perspective. Special attention is focused on gift-giving in pre-stratified societies, craft specialization in middle-range societies, specialized economies in non-market-oriented ancient states and economic organization in modern world systems. Prereq: Introductory course in cultural anthropology. Cross-listed with ANTH 4140.

ANTH 5150-3. Human Biocultural Adaptability. The chief concern of this course is the relationship between ourselves and our surroundings and the very immediate ways the environments in which we live affect us. The view is of ourselves as a part of, not apart from, these environments. Prereq: Background in cultural anthropology and graduate standing. Cross-listed with ANTH 4150.

ANTH 5160-3. Topics in Language, Society and Culture. A changing set of topics that addresses the nature of language in society and analysis of “languaculture.” Topics may include: language and power, language and identity, conversational analysis, language and self, language socialization, nonverbal communication, evolution of language, ethnopoetics, language as social action, orality and literacy, linguistic hygiene, language and gender, discourse analysis, deception and truth. Prereq: ANTH 3121 or 6133 or equivalent. Cross-listed with ANTH 4160.

ANTH 5170-3. Culture and the Environment. Examines the historical origins of Western and non-Western ideas of the environment and the place of people within it. The imposition of Western ideas on non-Western groups regarding environmental policy is also examined, with special attention given to practices of conservation, development and transnational monetary policy. Prereq: ANTH 2102 or equivalent. Cross-listed with ANTH 4170.

ANTH 5180-3. The Nature of Power. Introduces the major theories of power used in contemporary anthropology, with an emphasis on cross-cultural perspectives. Explores how power is defined, determined and exercised globally and locally and how different systems of power articulate with one another. Prereq: ANTH 2102 or equivalent. Cross-listed with ANTH 4180.

ANTH 5190-3. Ethnicity and Nationalism. Anthropological research on ethnicity and nationalism throughout the world, in both simple and complex societies; theoretical and ethnographic research will be mutually reinforcing. Prereq: Senior or graduate standing, a course in anthropology or permission of instructor. Cross-listed with ANTH 4190.

ANTH 5200-3. Gender in Cross-Cultural Perspective. A comparative analysis of gender-based status and social roles of women and men, with women’s status and roles emphasized due to their near-universal construction as the “other” sex. Examines in cross- and sub-cultural context the relations among women’s status and their subsistence and reproductive activities; and the division of labor by sex, ideology and political economy. Prereq: Graduate standing. Cross-listed with ANTH 4200.

ANTH 5210-3. Archaeology of the American Southwest. Considers the origins, characteristics and interrelationships of the major culture areas in the American Southwest, including the Anasazi, Hohokam, Mogollon, Sinagua and Northern Mexico. Prereq: Introduction to archaeology and graduate standing. Cross-listed with ANTH 4210.

ANTH 5220-3. Community in Global Context. Presents the community study method from the perspective of anthropology and as a widely applicable research technique in planning, development and other areas of public affairs. Also includes analyses of case studies and student field research. Prereq: Background in cultural anthropology and graduate standing. Cross-listed with ANTH 4220.

ANTH 5260-3. Human Reproductive Ecology. Considers the determinants of fertility variation within and among traditional human societies. Biocultural and ecological perspectives on pubertal timing, marriage patterns, birth seasonality, duration of birth intervals and reproductive senescence. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 4260.

ANTH 5320-3. Archaeology of Mexico and Central America. Surveys the major prehistoric and protohistoric cultures and societies of that area of Mexico and Central America identified with the evolution of Meso-American civilization. Major topics include early human colonization of the Americas, the domestication of plants and animals, the emergence of regionally-based cultures and societies, trade and exchange and the evolution of urbanism and the state. Primary emphasis on such ancient cultures and societies as those of the Olmec, Zapotec, Maya, Teotihuacan, Toltec and Aztec. Prereq: Introduction to archaeology. Cross-listed with ANTH 4320.

ANTH 5330-3. Lithic Analysis. Examines the theoretical basis and methodological tools used by archaeologists in the analysis of prehistoric stone tools. Topics of discussion include the mechanics of stone fracture, typologies, use wear analysis and core reduction techniques. Prereq: ANTH 1302. Cross-listed with ANTH 4330.

ANTH 5380-3. Archaeology of Hunters-Gatherers. Explores the theory and methods used by archaeologists to investigate prehistoric hunter gatherers. Topics of concern include mobility, subsistence, procurement and socio-political organization. Prereq: ANTH 1302. Cross-listed with ANTH 4380.

ANTH 5400-3. Archaeology of Power and Inequality. Addresses inequality and power through a long-term archaeological and theoretical perspective. Discusses explanations for the origins of power and inequality and their role in early small-scale societies and emerging complex politics. Prereq: ANTH 1302 or equivalent. Cross-listed with ANTH 4400.

ANTH 5450-3. Development and Conservation: Contemporary Issues. Applies the theoretical paradigms of political ecology to contemporary issues of sustainable development. Case studies are chosen illustrating topics based on faculty expertise and student interaction. The first part of the course presents theoretical perspectives relevant to the chosen topic. In the second half, students participate in directed problem solving activities. Prereq: ANTH 4070, 4170 and graduate standing or permission of instructor. Cross-listed with ANTH 4450.

ANTH 5460-3. Development and Conservation: Theory and Practice. Examines the praxis of anthropological knowledge of human ecosystem interaction and development of economic opportunities. Issues of biodiversity, resource conservation, sustainable development and globalization are studied. Prereq: ANTH 5450 or permission of instructor. Cross-listed with ANTH 4460.

ANTH 5500-3. Advanced Issues in Human Evolution. This flexible course offers an advanced treatment of issues in human biological evolution. Topics may emphasize morphological evolution, behavioral evolution, the environment of human evolution, nonhuman primate comparative information. Cross-listed with ANTH 4500.

ANTH 5520-3. Human Biological Variation. Human biological variation and adaptation, considered from an evolutionary perspective. How we measure and classify human variation often affects the conclusions we draw. This course considers the causes and maintenance of human variability and adaptability, including cultural and social factors in the genesis and maintenance of normal and abnormal traits. Prereq: Background in physical or biological anthropology and graduate standing. Cross-listed with ANTH 4520.

ANTH 5530-3. Anthropological Genetics. An advanced survey of molecular and population genetics and their applications in anthropology. Topics vary, including but not limited to: genetic epidemiology, genetic distance studies, behavioral genetics, developmental genetics, sociobiology and use of mitochondrial DNA to reconstruct population histories. Emphasis is on applications of new technology and methodology, as well as new genetic paradigms replacing classical models of genetic causation. Prereq: Undergraduate course work in biological anthropology or general genetics.

ANTH 5540-3. Forensic Anthropology. The goals of this course are to provide detailed knowledge of the human skeleton, as well as the methods employed in determination of biological characteristics that can predict an individual’s identity. The application of human osteological knowledge to forensic and anthropological problems and research are discussed in the context of a “hands-on” session during each lecture period. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 4540.

ANTH 5550-3. Primate Comparative Anatomy. Examines human and nonhuman primate anatomical diversity. Students learn primate anatomy and the morphological differences among species. Explanations for the evolutionary origins of differences are reviewed, focusing on evolutionary theory, comparative methods and biomechanics. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 4550.

ANTH 5560-3. Human Ecology. Studies demographic and ecological variables as they relate to human populations. Aspects of natural

selection, overpopulation and environmental deterioration are considered. Prereq: Background in biological or physical anthropology and graduate standing. Cross-listed with ANTH 4560.

ANTH 5570-3. Landscape Archaeology. Introduces spatial archaeology through intrasite analysis and regional studies. Methods treated include site location and quantitative spatial organization. Theoretical topics include definitions of community, ancient urbanism and the impact of subsistence and politics on relations to the landscape. Prereq: ANTH 1302 or equivalent. Cross-listed with ANTH 4570.

ANTH 5580-3. Neanderthals and the Origin of Modern Humans. Focuses on the human fossil record for the taxon *Homo sapiens*, including the earliest members of this group (“early” or “archaic” *Homo sapiens*), the Neanderthals and so-called “anatomically modern” *Homo sapiens*. The goal of the course is to survey the major issues within the area of modern human origins and to learn about the evolutionary relationships, lifeways and behaviors of these groups. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 4580.

ANTH 5590-3. Primate Behavior. Studies nonhuman primate behavior with emphasis on understanding social behavior, ecology and issues related to human evolution. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 4590.

ANTH 5640-3. Darwinian Approach to Human Behavior. The evolution of human behaviors from a Darwinian perspective, focusing on the natural selection of behaviors that maximize reproductive success. Includes topics such as male and female reproductive strategies, female mate choice, male violence and resource acquisition and control. Prereq: ANTH 1303. Cross-listed with ANTH 4640.

ANTH 5730-3. Peoples and Cultures of Sub-Saharan Africa. Covers various types of societies and civilizations that have existed in sub-Saharan Africa. Explores foragers, pastoralists, agricultural societies, chiefdoms, kingdoms and empires, as these emerged and interacted with each other. Details their ideas and social orders, including the following topics: race, ethnicity, kinship, politics, economics, religion, magic, witchcraft, sorcery, marriage, age, gender, stratification, art, literature and oral traditions. Also addresses the impact of colonialism, the rise of nations, changes in the post-colonial period, warfare and the impact of globalism on Africa today. Prereq: Upper division standing. Cross-listed with ANTH 4730, ETST 4730.

ANTH 5740-3. Ethnography of Mexico and Central America. Geographic affiliations, culture, history, traditional ways of life and culture change in Mexico and Central America. Prereq: Graduate standing. Cross-listed with ANTH 4740.

ANTH 5810-3. Integrating Anthropology. Designed to build on specialized course work in the subdisciplines of anthropology, this course emphasizes the basic concepts that integrate and unite the discipline and give it unique perspective. These are the concepts of culture, adaptation and human evolution. In the last several weeks of the course, students consider the applicability of the anthropological perspective to specific human issues. Note: Centers on the critical examination and discussion of presentations made by department faculty and graduate students. Cross-listed with ANTH 4810.

ANTH 5840-1 to 6. Independent Study. Directed study based on a specific subfield of anthropology. Prereq: permission of instructor required.

ANTH 5910-3 to 6. Field Experience in Archaeology. Students participate in archaeological field research and data recovery and conduct laboratory analysis of materials recovered in the field. Emphasis is placed on excavation technique and accuracy of record keeping. Prereq: Background in archaeology and graduate standing. Cross-listed with ANTH 4910.

ANTH 5939-1 to 6. Internship/Cooperative Education.

ANTH 5995-3 to 9. Travel Study. A flexible format that permits courses to be taught in various areas of the world. Prereq: permission of instructor. Cultures of the Himalayas. Concerned broadly with contemporary Himalayan culture. Focuses on Tibetan cultures and the Tibetan diaspora and the Nepalese (Newari) culture of the Katmandu Valley. The goals for this course are: to acquaint the student with social,

political and cultural features of this part of the world; to teach, through directed field experiences, how cultural anthropology is practiced; to understand how the process of tourism differs from the study of anthropology; how tourism, however it is practiced, changes in fundamental ways those subject to it. The Arts of Self and Society in Contemporary China. An intensive introduction to contemporary conditions and issues in the People’s Republic of China, including social relations, popular culture, eating practices, religious practices and everyday life. Uses a combination of readings, lectures, field trips to local sites and ethnographic field projects. Usually situated in Kunming, Yunnan province, in southwest China, but the location may vary. Note: Students enroll additionally in Chinese language classes at levels from beginning to advanced. Cross-listed with ANTH 4995.

ANTH 6000-1 to 3. Seminar in Current Research Topics. An inquiry into current research of critical and general interest to anthropologists. Variable format. Prereq: permission of instructor.

ANTH 6040-1 to 4. Advanced Topics in Medical Anthropology. A flexible seminar format for dealing with topics of special interest in medical anthropology on an advanced graduate level. Topics to be considered vary from semester to semester. Examples include high altitude adaptation, anthropological perspectives on substance abuse, epidemiology, environmental and occupational health, the health consequences of cultural change and cross-cultural psychiatry. Note: Topics vary from semester to semester. Prereq: permission of instructor.

ANTH 6041-3. Human Genetics: Legal, Ethical and Social Issues. Examines legal, ethical and social issues that have come about with advances in human genetics. Topics include privacy, informed consent, discrimination, forensics, medical malpractice and property rights. Prereq: Graduate standing. Cross-listed with HBSC 6320 and 7320.

ANTH 6063-3. Qualitative Research Design and Methods. Much of the data collected in the social sciences is interview- and text-based. This course explores methods for collecting and analyzing these data and theoretical paradigms that underlie these methods. Cross-listed with HBSC 7051.

ANTH 6103-3. Current Theory in Ethnography. An in-depth inquiry into important theories in cultural anthropology through extensive primary source reading. Practice in formulating theory, critical thinking and theoretical writing are emphasized. Note: First course in a two-course required graduate sequence. Prereq: Undergraduate course work in cultural anthropology.

ANTH 6133-3. Anthropological Perspectives on Language. An intensive introduction to linguistic anthropology. Following a brief survey of technical linguistics, focus is on: the roles of language in society; multilingualism; language and identity; language and worldview; language, gender, class and power; language as social action; and other topics. Students carry out investigations based on models from their reading, as well as responding to the theoretical approaches of the field. Prereq: Undergraduate course work in cultural anthropology.

ANTH 6307-3. Contemporary Perspectives in Archaeology. Explores contemporary theoretical methodological perspectives in archaeology. Structured to proceed from a survey of the history of archaeological thought based on recent retrospectives, to an analysis of works reflecting current perspectives and directions. Topics include: archaeological interpretation, classical versus scientific archaeology, versus culture-history, functionalist and materialist paradigms, ethno-archaeological and text-based studies, neo-evolutionism, interactionist models, Marxist perspectives, processual theory. Prereq: Undergraduate course work in archaeology.

ANTH 6317-3. Archaeological Research Design and Analysis. Examines the methods and techniques used in archaeology, including theory-building, hypothesis testing and middle range theory. Core materials emphasize the learning and critique of basic archaeological assumptions and the methods and theories used to scrutinize the collection and interpretation of data. Topics include chronometric applications and paleo environmental reconstruction. Prereq: ANTH 6307 or equivalent.

ANTH 6503-3. Biological Anthropology Core I. Examines the historical development and modern practice of biological anthropology, including the theoretical and methodological foundations of this field. Emphasis is placed on the evidence for human and nonhuman primate evolution and the processes that influenced this evolution.

ANTH 6513-3. Biological Anthropology Core II. Considers the theory and methods used in investigations of biological variation in contemporary human populations. This includes the biological and cultural sources responsible for creating and maintaining contemporary variation as well as their functional consequences. Methods of research design and how to write a grant and scientific articles are considered. Prereq: ANTH 6503 and graduate standing.

ANTH 6520-3. Seminar: Selected Topics in Physical Anthropology. A flexible seminar format for dealing with topics of special interest in physical anthropology on an advanced graduate level. Topics vary from semester to semester. Examples include: anthropology of nutrition, paleoecology, primate evolution, field experience in paleontology, advanced osteology and advanced human ecology. Prereq: Undergraduate work in biological/physical anthropology and graduate standing.

ANTH 6840-1 to 3. Independent Study.

ANTH 6950-1 to 6. Master's Thesis.

ARCH: Architecture (Architecture and Planning)

ARCH 5000-3. Math and Physics for Architects. Provides the review of mathematics and physics prerequisites to other beginning graduate technology courses. Does not count toward the required credits for the MARCH degree.

ARCH 5110-6. Design Studio I. This first of four core design studios introduces the basic strategies and techniques of architectural design. Focuses on the languages of design, as well as on traditional and digital methods of visualizing architectural ideas and forms. Prereq: must have completed the College's woodshop training program; coreq: ARCH 5111.

ARCH 5111-3. Design Seminar I. Supports fuller discussion of the key themes and concepts in ARCH 5110. Coreq: ARCH 5110.

ARCH 5120-4. Design Studio II. The second of the four core design studios focuses on concepts of small-scale building design, sitting and climate. Through a number of design exercises, students learn how these factors help shape buildings. Prereq: ARCH 5110 and 5111; coreq: ARCH 5121.

ARCH 5121-2. Design Seminar II. Supports fuller discussion of the key themes and concepts in ARCH 5120. Prereq: ARCH 5110 and 5111; coreq: ARCH 5120.

ARCH 5130-4. Design Studio III. The third of the four core studios focuses on concepts of program, architectural meaning and human behavior in buildings. Through a number of design exercises, students learn how these factors help shape buildings. Prereq: ARCH 5120 and 5121; coreq: ARCH 5131.

ARCH 5131-2. Design Seminar III. Supports fuller discussion of the key themes and concepts in ARCH 5130. Prereq: ARCH 5120 and 5121; coreq: ARCH 5130.

ARCH 5140-4. Design Studio IV. The last of the four core design studios focuses on concepts of building technology, context and environmental sustainability. Through a number of design exercises, students learn how technology helps shape buildings. Prereq: ARCH 5130 and 5131; coreq: ARCH 5141.

ARCH 5141-2. Design Seminar IV. Supports fuller discussion of the key themes and concepts in ARCH 5140. Prereq: ARCH 5130 and 5131; coreq: ARCH 5140.

ARCH 5210-3. Introduction to Architecture. Introduces important ways of looking at architecture and acquaints students with the various perspectives that they will later find in the rest of the curriculum.

ARCH 5220-3. History of Architecture I. Introduces world architecture and urbanism from prehistory to the Italian Renaissance. The course helps students understand the various cultural, technological, philosophical and aesthetic ideas that helped shape buildings through history. Buildings and settlements on all continents and in all of the major world cultures are discussed. Prereq: ARCH 5210.

ARCH 5230-3. History of Architecture II. Examines world architecture and urbanism from the Italian Renaissance to the present. Helps students understand the various cultural, technological, philosophical and aesthetic ideas that helped shape buildings through history. Buildings and settlements on all continents and in all of the major world cultures are discussed. Prereq: ARCH 5220.

ARCH 5240-3. Human Factors in Design. Focuses on the ethical, social, cultural and psychological principles, processes which people bring to the perception and design of the built environment. Its major topics include: ethical values; cultural patterns and values; privacy and community; social, cultural and personal ritual; the symbolic content of form and environment; and programming and post-occupancy evaluation.

ARCH 5310-3. Introduction to Building Technology. Provides an overview of the structure, systems, assemblies and processes that make a building. Provides a broad view of building technology and an understanding of the interrelationship of all the parts, upon which subsequent technology courses are based.

ARCH 5320-3. Building Construction and Methods. Discusses the principles and processes of building construction and introduces the major constructional systems. Stresses the relationship between architectural concepts and building technology and helps students understand how to choose building systems and materials. Prereq: ARCH 5310.

ARCH 5330-3. Environmental Control Systems I. The first course in the environmental control systems sequence introducing the concepts and methods of environmental control in residential buildings. Discusses the thermal behavior of buildings, climate as a determinant of building design, energy use in buildings, natural and mechanical means of environmental control, plumbing, electrical, communication systems, water supply and sanitation systems. Prereq: ARCH 5320.

ARCH 5340-3. Environmental Control Systems II. The second course in the environmental control systems sequence focusing on the environmental systems in commercial and other nonresidential buildings. Discusses natural and artificial lighting, HVAC systems, acoustics, vertical transportation and fire protection. Prereq: ARCH 5330.

ARCH 5350-3. Structures I. The first course in the structures sequence introduces the analysis and design of structural elements and focuses on the principles of statics and the strength of materials. Topics include stress determination, deflection and the behaviors of tension, compression and shear in various structural elements. Coreq: ARCH 5340.

ARCH 5360-3. Structures II. Focuses on the relationship between architectural concepts and the selection of structural systems. Addresses the qualitative and quantitative analysis of reinforced concrete, steel and wood structural systems and members. Prereq: ARCH 5350.

ARCH 5410-3. Professional Practice. Introduces the essential elements of professional practice through topics such as internship, licensing, services, modes of practice, fees, marketing, documents, specification and production procedures. Examines traditional and emerging forms of practice.

ARCH 6150-4. Comprehensive Design Studio. A required studio focusing on an architectural project from schematic design through detailed development including structural, environmental systems, life safety, wall sections and building assemblies. A comprehensive program will inform the architectural project. Prereq: ARCH 5140 and 5141; coreq: ARCH 6151.

ARCH 6151-2. Comprehensive Design Seminar. Supports fuller discussion of the key themes and concepts in ARCH 6150. Prereq: ARCH 5140 and 5141; coreq: ARCH 6150.

ARCH 6160-3. Architectural Photography. Introduces the key concepts and techniques of photography in general and architectural photography in particular. Students learn basic principles of exposure, focal length, composition and darkroom procedures and then undertake a number of photographic exercises.

ARCH 6161-3. Precedents in Architecture. Explores a number of traditional answers to recurring design issues, such as how to approach and enter a building or how to design a facade. In a seminar setting, students examine traditional ideas for their underlying principles and

design new architectural compositions based on those principles.

Prereq: completion of ARCH 5110.

ARCH 6162-3. Furniture Design. Students learn how to design and build furniture in the College's woodshop. Topics include ergonomics, properties of materials, principles and techniques of joinery and techniques of hand and machine tools. Prereq: must have completed the college's woodshop training program.

ARCH 6170-4. Advanced Design Studio. Students enter the advanced design studio after successfully completing the four core design studios and comprehensive studio (ARCH 6150). Students must take two advanced studios (unless they wish to undertake a thesis; see ARCH 6950). Topics vary according to faculty interests. Prereq: ARCH 6150 and 6151; coreq: ARCH 6171.

ARCH 6171-2. Advanced Design Seminar. Supports fuller discussion of key themes and concepts in ARCH 6170. Students must take two advanced design seminars (unless they wish to undertake a thesis; see ARCH 6950). Prereq: ARCH 6150, 6151; coreq: ARCH 6170.

ARCH 6190-3. Special Topics in Design Studies. Various topics in design, according to current faculty and student interests. Prereq: completion of ARCH 5110.

ARCH 6210-3. History of American Architecture. Examines the history of American architecture from prehistoric times to the present, mainly within the geographical borders of the present-day United States. Helps students understand the various cultural, technological, philosophical and aesthetic ideas that helped shape American buildings.

ARCH 6212-3. History of Modern Architecture. Examines the various theories, accomplishments and ideals of modern architecture in the 20th century. Issues include the relationship between theory and practice, architecture and ideology, technology, abstraction and representation, functionalism and formalism, utopianism and social responsibility.

ARCH 6220-3. History of Architectural Theory. Investigates the history of architectural theories in the West from antiquity to the present. Explores the various ideas that have been proposed to explain or to direct architectural design and examines the relationship between the theories and the buildings themselves.

ARCH 6221-3. Post-Structuralist Architecture. Examines the ways in which architecture has responded to the philosophical changes introduced during the 1960s French post-structuralism. Evaluates how the new metaphysical outlooks have affected architectural theory and design methods.

ARCH 6290-3. Special Topics in Cultural Studies. Various topics in cultural studies, according to current faculty and student interests. Prereq: ARCH 5210, 5220 and 5230.

ARCH 6370-3. Introduction To Design Build. Introduces to Design Build project delivery methods important to architects. Lecture, research on the, industry and an individual student project are the methods used to introduce ethical questions, role of the architect, owner, consultant and subcontractors. Work leads to studio project or case study.

ARCH 6371-3. Maintaining Quality and Managing Risks: Design Build. A lecture and seminar on approaches to risk management including contracts, insurance, financial analysis, dispute resolution and client relationships. Utilizing case study approach, quality assurance will be defined and studied in the design and building phase of workings. Prereq: ARCH 6370.

ARCH 6372-3. Architecture in a Single Source Project Delivery. Directed to the practice of architecture with design build and other single source delivery systems. This course examines requirements of codes, zoning, building systems and legal questions for the architect. Prereq: ARCH 6370.

ARCH 6373-3. Construction in Design Build. Using a single project, students fully explore the design phase, estimating, scheduling and project management skills in traditional construction. Course is concurrent with an advanced studio and builds a project on a site. Prereq: ARCH 6370.

ARCH 6390-3. Special Topics in Technology. Various topics in technology, according to current faculty and student interests. Prereq: ARCH 5310 and 5320.

ARCH 6412-3. Construction Documents. Introduces the concepts and techniques of construction documents.

ARCH 6490-3. Special Topics in Professional Studies. Various topics in professional studies according to current faculty and student interests.

ARCH 6520-1 to 9. Architecture in Other Cultures. Various studies of architecture and urbanism in foreign countries.

ARCH 6624-3. The Built Environment in Other Cultures I: Research Design. The intent is to broaden students' perspectives by asking them to examine design within another culture. Each student prepares a proposal of study including a statement of the problem to be addressed, the type of field research to be undertaken and the nature of the report to be produced. Cross-listed with L A 6624.

ARCH 6840-1 to 3. Independent Study. Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to architecture. Prereq: permission of instructor.

ARCH 6910-3. Teaching Assistantship. Work with a faculty member in a course to help with class preparation and delivery. This is intended for students who may be considering a career in teaching architecture. Prereq: permission of instructor.

ARCH 6930-3. Architecture Internship. Designed to provide professional practice experience. The internship is composed of eight hours per week working in a practicing professional's office during the regular semester. Students must complete the second-year level before taking this course.

ARCH 6931-3. Architecture Internship. Designed to provide professional practice experience. The internship is composed of eight hours per week working in a practicing professional's office during the regular semester. Students must complete the second-year level before taking this course.

ARCH 6950-6. Thesis Preparation. In place of the final advanced design studio, students may choose to develop a specialized thesis in some topic related to architecture. The thesis will normally take three semesters, starting with the three-credit hour ARCH 6490, Thesis Research Tools, in the spring semester, this course in the fall semester and finishing with a six-credit thesis class in the third semester. A thesis may culminate in a design or in a written report. A thesis is expected to advance the field in some way by offering new insights into aspects of design, technology, history or professional principles. Prereq: ARCH 6490 and completion of at least one advanced design studio (ARCH 6170/6171).

ARCH 6951-6. Architecture Thesis. Development of a master's thesis (see ARCH 6950 above). Prereq: completion of two advanced design studios ARCH 6150 and 6950.

ARCH 7840-1 to 3. Independent Study.

ARTS: Arts (Arts & Media)

ARTS 1000-3. Arts in Our Time. Multidisciplinary course designed to introduce students to the ways in which arts work and how the arts shape our perception of the world around us. Each student selects three four-week modules designed to examine each of the disciplines of fine arts, music and theatre, in the context of the creative process, audience perception and historical perspective. Every five weeks, students from each of the modules join forces in a week of "inter-arts" sessions—lectures and discussions about the relationship of the arts to each other and to our contemporary culture. Topics which are addressed in the modules include such things as American musical theatre, perception of jazz, public sculpture, light as art, sonic explorations, photography, history of production design, women in American music and censorship.

ARTS 1150-1 to 3. Topics in Cross-Disciplinary Arts I. Designed to explore the ways in which the arts are a part of daily life. Research and observation of the variety of ways in which the arts are utilized. Prepares students to participate in special projects. Specific topics and projects change each semester.

ARTS 2150-1 to 3. Topics in Cross-Disciplinary Arts II. Provides opportunities for students to apply artists' methods and media in a

nonpresentation setting. Experiential research is centered around a specific topic each semester, but enable students to discover a broader understanding of the arts.

ARTS 3150-1 to 3. Topics in Cross-Disciplinary Arts III. Focuses on the ways in which the arts are engaged in communities as expressions of identity as well as agents of change. Historical research and applied projects provide a foundation for participation in designated team projects.

ARTS 3300-3. Introduction to Performing Arts and Events Management. Students gain knowledge and first hand experience in the fundamentals of state and production management in the performing arts.

ARTS 4150-1 to 3. Topics in Cross-Disciplinary Arts IV. Investigates the historical and critical perspectives of the arts in a variety of contexts. Specific topics provide a focus for students to discover the ways in which the arts inform each other and are shaped by the events of the world.

ARTS 5150-1 to 3. Topics in Cross-Disciplinary Arts. Investigates the historical and critical perspectives of the arts in a variety of contexts. Specific topics provide a focus for students to discover the ways in which the arts inform each other and are shaped by the events of the world.

BIOL: Biology (Liberal Arts and Sciences)

BIOL 1111-1 to 3. Freshman Seminar.

BIOL 1115-1 to 3. Biology Content. Covers content areas of undergraduate biology. Topics include cell chemistry, reproduction and structure; genetics and heredity; evolution and bio-diversity; bio-energetics; and human body systems.

BIOL 1136-3. Human Biology. Topics include: basic human body chemistry, healthy internal body balance, new disease treatments, human inheritance and human beings as part of Earth's living systems. Note: For students who are not majoring in biology.

BIOL 1352-3. Basics of Cancer Biology. Explores the biological nature of cancer, a disease that strikes one in three Americans. Offers an overview of what recent research has revealed about the causes of cancer, about how it can be treated and how it might be prevented. This overview is based on a foundation of knowledge gained from basic research into the behavior and activities of cells, both normal and cancerous. The emphasis is on the biology of cancer at the cellular and molecular level. Note: For students who are not majoring in biology.

BIOL 1550-4. Basic Biology: Ecology and the Diversity of Life: GT-SC1. Lecture, laboratory. Introduces important biological concepts, including: the process of science, biological diversity, evolution, basic ecological principles and environmental issues. Lectures emphasize current issues. Note: For students who are not majoring in biology. Biology and health career majors should take BIOL 2061 and 2081.

BIOL 1560-4. Basic Biology: From Cells to Organisms: GT-SC1. Lecture, laboratory. Introduces students to cell structure and function, survey of representative human systems, genetics and applications of biotechnology. Immune systems featured with an emphasis on AIDS, cancer and other human diseases prevalent in today's world. Note: For students who are not majoring in biology. Biology and health career majors should take BIOL 2051 and BIOL 2071.

BIOL 2051-3. General Biology I: GT-SC1. Lecture. Introduces four major areas of study: (1) the chemistry of biological systems; (2) the structure and function of the cell; (3) cellular energy transformations (photosynthesis and respiration); and (4) genetics (mitosis, meiosis, patterns of inheritance, molecular genetics). Note: Biology and health science (pre-med, pre-vet, pre-physical therapy, etc.) majors must also take the accompanying laboratory - BIOL 2071. Prereq: CHEM 1000 or high school chemistry required.

BIOL 2061-3. General Biology II: GT-SC1. Lecture. This course is a continuation of BIOL 2051. Introduces four major areas of study: (1) evolution, (2) animal structure and function, (3) plant structure and function and (4) ecology. Note: Biology and health science (pre-med, pre-vet, nursing, etc.) majors must also take the accompanying laboratory - BIOL 2081. Prereq: BIOL 2051 or equivalent with a grade of "C" (2.0) or higher.

BIOL 2071-1. General Biology Laboratory I: GT-SC1. Laboratory. Introduces the basic scientific approach and report preparation through exercises and experiments in cell biology, basic biochemical techniques, genetics, molecular genetics and applications of biotechnology. Note: Exercises corresponding to topics in BIOL 2051. Coreq: BIOL 2051.

BIOL 2081-1. General Biology Laboratory II: GT-SC1. Laboratory. Study of evolution, plant and animal anatomy, developmental biology; includes two off-campus ecology field trips. Note: Exercises corresponding to topics in BIOL 2061. Prereq: BIOL 2071 or equivalent with a grade of "C" (2.0) or higher; Coreq: BIOL 2061.

BIOL 2840-1 to 3. Independent Study. Note: registration by special processing form only. Prereq: One semester of general biology with a grade of "C" (2.0) or higher and permission of instructor.

BIOL 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

BIOL 3122-3. Natural History of Colorado. Lecture. The ecosystems of the plains, mountains and plateaus of Colorado, including topography, climate, habitats, plants and animals, are studied. Plant and animal adaptations to their environments are discussed. Glacial and geomorphic processes that have shaped the mountains are considered. Intended for non-majors. Note: Will not fulfill biology major requirements.

BIOL 3134-1 to 8. Advanced Topics. Periodic examination of current topics in the field of biology. (See Schedule Planner for current topics).

BIOL 3225-4. Human Physiology. Lecture, laboratory. The basic orientation of the course is toward understanding the functioning of the body as a set of homeostatic mechanisms. Particular emphasis is placed on membrane potentials, muscle, circulation, respiration, digestion, the kidney, the control of metabolism and acid-based balance. Prereq: One year of general biology, general cell biology and one year of chemistry with grades of "C" (2.0) or higher.

BIOL 3244-4. Human Anatomy. Lecture, laboratory. Introduces the structural aspects of the human body. Anatomical models, microscope slides and dissections, including human cadavers are used in the laboratory. Prereq: one year of general biology with a grade of "C" (2.0) or higher.

BIOL 3254-3. Introduction to Animal Behavior. Surveys the behavior of nonhuman animals, emphasizing the evolution through natural selection. Note: Will not fulfill biology major requirements. Prereq: One semester of general biology, biological anthropology or other course emphasizing evolutionary perspective. Cross-listed with PSY 3254.

BIOL 3330-3. Plant Diversity. Surveys all major plant groups using evolutionary and ecological principles to interpret patterns of diversity in form and function. Topics include reproduction and life cycles, adaptations and ecological interactions, paleobotany and biogeography, classification and taxonomy and evolution. Prereq: One year of general biology with a grade of "C" (2.0) or higher.

BIOL 3411-3. Principles of Ecology. A lecture course that examines the interrelationships between organisms and their environments. Subject matter includes organism, population and ecosystem levels of study and application to current environmental issues. The emphasis is on the underlying principles of ecology that involve all types of organisms. Note: Satisfies core ecology requirement for biology major. May not be used as an upper division biology elective. No co-credit with BIOL 3412. Prereq: one year of general biology with a grade of "C" (2.0) or higher.

BIOL 3412-3. Fundamentals of Applied Ecology. Ecology is the science of interrelationships between organisms, including humans and their environment. This lecture course examines applications of ecological principles to human needs and environmental protection. Covers the ecology of humans and managed systems. Note: Satisfies core ecology requirement for biology major. May not be used as an upper division biology elective. No co-credit with BIOL 3411. Prereq: One year of general biology with a grade of "C" (2.0) or higher.

BIOL 3520-3. Invertebrate Zoology. Most species on earth are invertebrate animals that, by definition, lack backbones. This course examines the biology, taxonomy, anatomy, ecology and evolution of these important creatures, which occupy a diversity of terrestrial, freshwater and marine habitats. Prereq: One year of general biology with a grade of "C" (2.0) or higher.

BIOL 3521-3. Vertebrate Biology. The subphylum vertebrata consists of fish, amphibians, reptiles, birds and mammals—some of the most fascinating and most threatened species on earth. This course covers the geological record, evolution, taxonomy, anatomy, physiology, ecology and conservation of these organisms. Prereq: One year of general biology with a grade of “C” (2.0) or higher.

BIOL 3611-3. General Cell Biology. Covers the structure and function of the cell including bioenergetics, membranes, secretion, respiration and the cell cycle. Prereq: One year of general biology with a grade of “C” (2.0) or higher and one year of general chemistry.

BIOL 3612-3. Cell and Molecular Biology Laboratory. Laboratory course covering topics in cell and molecular biology, such as protein folding, membrane potential, organelle function, cell signaling and fertilization; as well as associated methods, including microscopy, cell culture and PCR. Basic skills are emphasized in recitation and laboratory. Prereq: General cell biology with a grade of “C” (2.0) or higher or permission of instructor.

BIOL 3654-4. General Microbiology. Lecture, laboratory. Covers all aspects of the biology of microorganisms: their cellular structures and function, growth and metabolism, general and molecular genetics, diversity and interactions with other organisms and the environment (ecology). The objective is to provide students with a thorough introduction to microbiology including basic micro-biological laboratory techniques. Note: General cell biology or general genetics is recommended. Prereq: One year of general biology and one year of general chemistry with grades of “C” (2.0) or higher.

BIOL 3832-4. General Genetics. Lecture, recitation. Introduces molecular, classical, developmental and population genetics. Prereq: One year of general biology with a grade of “C” (2.0) or higher.

BIOL 3840-1 to 3. Independent Study. Note: Registration by special processing form only. Prereq: One year of general biology with a grade of “C” (2.0) or higher and written consent of instructor; registration by special processing form only.

BIOL 3939-1 to 3. Internship/Cooperative Education. Designed experience involving application of specific, relevant concepts and skills in supervised employment situations Prereq: Junior standing and 2.75 GPA.

BIOL 4024-3. Introduction to Biotechnology. Introduces aspects of biotechnology within a historical context, including medical, forensic, agricultural and microbial biotechnology. Addresses principles behind state-of-the-field techniques in recombinant DNA technology, bioinformatics, proteomics and genomics. Biotechnology regulations and ethics will also be discussed. Prereq: BIOL 4024: one year of general biology with a grade of “C” (2.0) or higher. BIOL 5024: graduate standing or permission of instructor. Cross-listed with BIOL 5024.

BIOL 4050-1 to 8. Advanced Biology Topics. Examines current topics in the field of biology. Topics vary from term to term. See Schedule Planner for current topics. Prereq: One year of general biology with grades of “C” (2.0) or higher. Cross-listed with BIOL 5050.

BIOL 4051-3. Advanced Topics in Microbiology. An in-depth study of microbial concepts, including prokaryotic and eukaryotic structure and function; properties of biological macromolecules; microbial growth kinetics; and microbial diversity. Emphasis is on one of the following: virology, microbial physiology, environmental microbiology, microbial biotechnology and nucleic acids. Prereq: General microbiology with a grade of “C” (2.0) or higher. Cross-listed with BIOL 5051.

BIOL 4052-3. Advanced Ecology. This combination seminar and lecture course focuses on state-of-field knowledge, current theories and recent models in selected areas of ecology, such as theoretical ecology, evolutionary ecology, population biology and ecosystems ecology. Prereq: Introductory ecology with a grade of “C” (2.0) or higher (BIOL 3411 or BIOL 3412 or equivalent). Cross-listed with BIOL 5052.

BIOL 4054-3. Developmental Biology. Covers gametogenesis, fertilization, cleavage and development of the embryo with an emphasis on the biochemical and biophysical aspects. Prereq: General cell biology with a grade of “C” (2.0) or higher. Cross-listed with BIOL 5054.

BIOL 4064-3. Advanced Cell Biology. Builds on the foundations laid in the prerequisite courses. Major topics include the functions of cell membranes, energy transduction and regulation of metabolic pathways. A major emphasis is the control and integration of cellular activities. Prereq: General cell biology and one semester of biochemistry with grades of “C” or higher. Cross-listed with BIOL 5064.

BIOL 4074-3. Human Reproductive Biology. Comprehensive study of anatomy and physiology of human reproduction. Embryogenesis of male and female reproductive systems and detailed analysis of contraception, world population growth, population control and implications of population growth are also covered. Prereq: One year of general biology with a grade of “C” (2.0) or higher. Cross-listed with BIOL 5074.

BIOL 4104-3. Behavioral Genetics. Interdisciplinary course on relationships between behavior and heredity, with emphasis on human behavioral genetics. Note: Will not satisfy core genetics requirement for biology major. Prereq: One year of general biology with a grade of “C” (2.0) or higher or one year of general psychology. Cross-listed with PSY 4104.

BIOL 4124-3. Molecular Biology. Examines the structure and function of genetic material, DNA replication and recombination, regulation of gene expression and protein synthesis for both prokaryotic and eukaryotic systems. Also addresses contemporary recombinant DNA technology and applications of molecular cloning techniques. Prereq: General cell biology and general microbiology with grades of “C” (2.0) or higher; biochemistry strongly recommended. Cross-listed with BIOL 5124.

BIOL 4125-3. Molecular Biology Laboratory. Provides hands-on experiences in molecular biology and an appreciation for using the tools of molecular biology to study biological systems. Emphasis is placed on DNA cloning, PCR, mutagenesis and protein purification techniques. Experimental design and the theories underlying the techniques are also discussed. Prereq: General microbiology with a grade of “C” or higher and molecular biology with a grade of “C” (2.0) or concurrent registration in molecular biology. Cross-listed with BIOL 5125.

BIOL 4126-3. Molecular Genetics. Examines molecular techniques and their application to experimental genetics, specifically organization and mapping of genomes, application and model systems in defining hereditary components of disease and mechanisms of identifying mutations and their implications for disease. Also addresses application of recombinant DNA technology. Prereq: General genetics and one year of organic chemistry (or equivalent) with grades of “C” (2.0) or higher; biochemistry strongly recommended. Cross-listed with BIOL 5126.

BIOL 4134-3. Human Genetics. Advanced survey of the current status of the field. Emphasis on understanding, diagnosis and treatment of genetic disease and on the impact of molecular biology on human genetics. Prereq: General genetics with a grade of “C” (2.0) or higher. Cross-listed with 5134.

BIOL 4144-3. Medical Microbiology. Provides an understanding of the relationship between pathogenic organisms and their host. Emphasis is placed on the area of medical bacteriology, with attention given to mechanisms of pathogenesis, genetics of disease, serology and treatment. Prereq: general microbiology with a grade of “C” (2.0) or higher. Cross-listed with BIOL 5144.

BIOL 4154-3. Conservation Biology. Basic concepts and theories in population biology and genetics as they apply to issues relating to the preservation of biodiversity, such as the genetics of small populations, captive propagation, restoration ecology and the design of nature reserves. Prereq: Introductory ecology (BIOL 3411, 3412 or equivalent) with a grade of “C” (2.0) or higher. Cross-listed with BIOL 5154.

BIOL 4165-3. Neurobiology. Overview of neuroscience, covering the cellular basis of neuronal activity, muscle, sensory structures and the structure and function of the human brain. Prereq: One year of general biology and general cell biology with grades of “C” (2.0) or higher. Cross-listed with BIOL 5165.

BIOL 4250-3. Mechanisms of Animal Behavior. The proximate and ultimate mechanisms of animal behavior are analyzed using comparative animal examples from the scientific literature. Proximate mechanisms include genetic and physiological processes. Ultimate mechanisms

include the role of natural and sexual selection in the evolution of behavior. Prereq: One year of general biology with a grade of "C" (2.0) or higher. Genetics and human physiology are recommended. Cross-listed with BIOL 5250.

BIOL 4315-4. Plant Systematics. Lecture, laboratory and field trips. Extensive introduction to the basic principles and concepts of vascular plant systematics. Topics include principles of taxonomy, nomenclature, methods, systems of classification and field and herbarium procedures. Emphasis on plant structure and identification using fresh, frozen and pressed plant specimens. Prereq: One year of general biology with a grade of "C" (2.0) or higher. Cross-listed with BIOL 5315.

BIOL 4335-4. Plant Science. Lecture, laboratory and field trips. An in-depth study of flowering plants, including embryology, structure, function, reproduction, ecology and evolution of the group. Emphasis is placed upon morphology and anatomy at all stages of plant development. Prereq: One year of general biology with a grade of "C" (2.0) or higher. Cross-listed with BIOL 5335.

BIOL 4345-4. Flora of Colorado. Lecture, laboratory and field trips. Introduces the vascular plant flora of Colorado, including ferns, gymnosperms and flowering plants. Emphasis on field identification of species representing a range of natural communities from grassland to alpine tundra, as well as nonnatives. Field and herbarium techniques covered. Prereq: One year of general biology with a grade of "C" (2.0) or higher. Cross-listed with BIOL 5345.

BIOL 4415-3. Microbial Ecology. An in-depth study of ecology as it relates to microorganisms; abiotic and biotic interactions within microbial populations in macro- and microhabitats; and the role of microorganisms in maintaining steady state conditions in natural ecosystems. Emphasis is placed on how the ecology of microorganisms affects the human condition. Prereq: General microbiology with a grade of "C" (2.0) or higher. Cross-listed with BIOL 5415.

BIOL 4416-3. Aquatic Ecology. This advanced ecology course examines the inter relations of biological (including humans), physical and chemical components of wetlands, streams, rivers, lakes, reservoirs and groundwater. Learning is facilitated through lectures, discussions, student presentations, laboratory and field exercises. Prereq: Introductory ecology (BIOL 3411, 3412 or equivalent) with a grade of "C" (2.0) or higher. Cross-listed with BIOL 5416.

BIOL 4450-3. Marine Biology. Looks at the fascinating organisms that inhabit the oceans, which represent 99% of the living space of earth. While the focus is on the ecology of marine organisms, taxonomy, physiology and anatomy are also covered. Prereq: One year of general biology with a grade of "C" (2.0) or higher. Cross-listed with BIOL 5450.

BIOL 4455-3. Comparative Environmental Physiology. Explores the physiological adaptations of different animals to the environment with emphasis on metabolic, cardiovascular and respiratory adaptations to temperature and oxygenation. Prereq: Human or animal physiology with a grade of "C" (2.0) or higher. Cross-listed with BIOL 5455.

BIOL 4465-3. Cardiovascular Physiology. Explores the structure and physiological function of the cardiovascular system. The emphasis is on human physiology, with comparative and pathophysiological aspects presented to enhance principles. Prereq: Human physiology with a grade of "C" (2.0) or higher. Cross-listed with BIOL 5465.

BIOL 4474-3. Ecological Methods. Lecture, laboratory. Deals with the empirical aspects of an ecological study. Students learn sampling techniques that are used in plant and animal ecology. Emphasis is placed on hypothesis testing, data analysis and experimental field designs. Prereq: Introductory ecology (BIOL 3411, 3412 or equivalent) with a grade of "C" (2.0) or higher. Cross-listed with BIOL 5474.

BIOL 4475-3. Mechanisms of Human Pathology. Studies physiological, cellular and biochemical processes in human diseases, with particular focus on noncommunicable diseases such as diabetes, cardiovascular disease and diseases of aging such as osteoporosis and macular degeneration. Prereq: Human physiology with a grade of "C" (2.0) or higher; general cell biology or general microbiology strongly recommended. Cross-listed with BIOL 5475.

BIOL 4494-3. Population and Evolutionary Genetics. Introduces the genetic processes underlying evolutionary change in microbial, plant and animal populations. Topics include: sources of variation, Hardy-Weinberg equilibrium, population genetic structure, natural selection and other evolutionary forces, quantitative genetics and molecular phylogenetics. Emphasis on experimental data. Prereq: One year of general biology and general genetics with grades of "C" (2.0) or higher. Cross-listed with BIOL 5494.

BIOL 4550-3. Cell Signaling. Lecture by faculty and student presentations cover mechanism of hormones and regulation of various cellular processes through second messenger systems. Prereq: General cell biology with a grade of "C" (2.0) or higher; one semester of biochemistry recommended. Cross-listed with BIOL 5550.

BIOL 4560-3. Seminar: Nervous System Disorders. Opening lectures cover the scientific process and how to review original scientific literature. Students present seminars on original research focusing on the neural bases of diseases such as Parkinson's, Alzheimer's and schizophrenia. Prereq: General cell biology with a grade of "C" (2.0) or higher; neurobiology strongly recommended. Cross-listed with BIOL 5560.

BIOL 4621-3. Immunology. Studies antibody-antigen interactions, the immune system, inflammation, hypersensitivity, autoimmunity and recovery from infection. Prereq: One year of general biology and general cell biology with grades of "C" (2.0) or higher; general genetics strongly recommended. Cross-listed with BIOL 5621.

BIOL 4634-3. Biology of Cancer. Cancer is the second leading cause of death in the United States. This course offers an overview of recent research into the causes, treatments and possible prevention of cancer. Includes a detailed look at the mechanisms of action of various oncogenes. Prereq: General genetics with a grade of "C" (2.0) or higher. Cross-listed with BIOL 5634.

BIOL 4640-3. Mammalogy. A general overview of the biology of mammals: their diversity, distribution, economic importance and other characteristics that make them of special interest to humans. Coverage is worldwide, with special emphasis on the mammals of Colorado. Prereq: One year of general biology with a grade of "C" (2.0) or higher. Cross-listed with BIOL 5640.

BIOL 4674-3. Mammalian Endocrinology. This systematic survey of the endocrine system looks at the cellular basis and biochemical characteristics of individual endocrine tissues. Their function in the regulation of other endocrinological, physiological and behavioral events is analyzed. The course emphasizes the human system and complements studies in physiology, behavior and neurobiology. Prereq: Human physiology with a grade of "C" (2.0) or higher. Cross-listed with BIOL 5674.

BIOL 4705-3. Introduction to Research. An overview of all aspects of scientific research. Topics covered include the scientific method, experimental design, the role of statistics, scientific writing, publication and sources of funding. Several guest faculty lectures are scheduled. Prereq: One year of general biology with a grade of "C" (2.0) or higher; junior or senior standing. Cross-listed with BIOL 5705.

BIOL 4750-2. Technology Transfer and Biotechnology. An innovative hybrid course combining traditional classroom presentations with discussions and assignments on a Web-based classroom management system. Covers the process from academic discovery to commercialization of a product, including clinical trials, patent law, entrepreneurship, ethics, venture capital funding, marketing and product development. Note: Will not fulfill biology major requirements. Cross-listed with BIOL 5750.

BIOL 4840-1 to 6. Independent Study. Note: registration by special processing form only. Prereq: One year of general biology with a grade of "C" (2.0) or higher and written permission of instructor.

BIOL 4910-3. Field Studies. Field studies of individuals, populations and communities comprising a specified ecosystem. Emphasis on field identification of vascular plant and vertebrate animals. Topics include the physical environment, biotic and abiotic interactions, life history, ecological adaptations and biogeography. Note: Lectures and a week-long field trip. Prereq: One year of general biology and ecology with grades of "C" (2.0) or higher; permission of instructor. Cross-listed with BIOL 5910.

BIOL 4974-3. Evolution. A capstone course that draws upon concepts from all fields of biology. Topics include the fossil record, mass extinctions, the historical development of the modern synthesis, principles and mechanisms of evolution, current viewpoints and controversies. Prereq: One year of general biology and general genetics with grades of "C" (2.0) or higher; junior or senior standing strongly recommended. Cross-listed with BIOL 5974.

BIOL 4990-1. Undergraduate Research Seminar. Introduces research in the biological sciences. Students read current scientific literature, attend related seminars and participate in discussions. This course offers students a chance to interact with visiting scientists, who will present state-of-the-field biological research in a seminar setting. Prereq: Senior standing, satisfactory completion of all biology core courses, overall GPA of 3.0 or higher and permission of instructor.

BIOL 5001-4. RM-MSMSP: Cells, Human Systems and Heredity. Systematic study of key concepts in cell structure and function; energy transformations in living systems, functioning of human systems in health or disease, patterns or process of human inheritance and biotechnology impacts on human society. Concepts are linked to other scientific, mathematical, societal and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: permission of project director.

BIOL 5002-4. RM-MSMSP: Ecology, Biodiversity and Adaptation. Systematic study of biological concepts including ecosystems, population dynamics, food chains, biodiversity and evolutionary processes. Instruction is inquiry-based and interactive. Concepts are linked to other scientific, mathematical, societal and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: permission of project director.

BIOL 5024-3. Introduction to Biotechnology. Introduces aspects of biotechnology within a historical context, including medical, forensic, agricultural and microbial biotechnology. Addresses principles behind state-of-the-field techniques in recombinant DNA technology, bioinformatics, proteomics and genomics. Biotechnology regulations and ethics will also be discussed. Prereq: BIOL 4024: one year of general biology with a grade of "C" (2.0) or higher. BIOL 5024: graduate standing or permission of instructor. Cross-listed with BIOL 4024.

BIOL 5050-1 to 8. Advanced Biology Topics. Examines current topics in the field of biology. Topics vary from term to term. See Schedule Planner for current topics. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4050.

BIOL 5051-3. Advanced Topics in Microbiology. An in-depth study of microbial concepts, including prokaryotic and eukaryotic structure and function; properties of biological macromolecules; microbial growth kinetics; and microbial diversity. Emphasis is on one of the following: virology, microbial physiology, environmental microbiology, microbial biotechnology and nucleic acids. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4051.

BIOL 5052-3. Advanced Ecology. This combination seminar and lecture course focuses on state-of-field knowledge, current theories and recent models in selected areas of ecology, such as theoretical ecology, evolutionary ecology, population biology and ecosystems ecology. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4052.

BIOL 5054-3. Developmental Biology. Covers gametogenesis, fertilization, cleavage and development of the embryo with an emphasis on the biochemical and biophysical aspects. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4054.

BIOL 5064-3. Advanced Cell Biology. Builds on the foundations laid in the prerequisite courses. Major topics include the functions of cell membranes, energy transduction and regulation of metabolic pathways. A major emphasis is the control and integration of cellular activities. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4064.

BIOL 5074-3. Human Reproductive Biology. Comprehensive study of anatomy and physiology of human reproduction. Embryogenesis of

male and female reproductive systems and detailed analysis of contraception, world population growth, population control and implications of population growth are also covered. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4074.

BIOL 5099-3. Biology For Computer Scientists, Engineers and Mathematicians. Designed to give a foundation in molecular biology for work in the field of computational biology or bioinformatics. The goal of this new field is to provide predictive capability for diagnosing disease and discovering therapeutics. Prereq: B.S. in computer science, engineering, mathematics or a related discipline.

BIOL 5124-3. Molecular Biology. Examines the structure and function of genetic material, DNA replication and recombination, regulation of gene expression and protein synthesis for both prokaryotic and eukaryotic systems. Also addresses contemporary recombinant DNA technology and applications of molecular cloning techniques. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4124.

BIOL 5125-3. Molecular Biology Laboratory. Provides hands-on experiences in molecular biology and an appreciation for using the tools of molecular biology to study biological systems. Emphasis is placed on DNA cloning, PCR, mutagenesis and protein purification techniques. Experimental design and the theories underlying the techniques are also discussed. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4125.

BIOL 5126-3. Molecular Genetics. Examines molecular techniques and their application to experimental genetics, specifically organization and mapping of genomes, application and model systems in defining hereditary components of disease and mechanisms of identifying mutations and their implications for disease. Also addresses application of recombinant DNA technology. Prereq: General genetics and one year of organic chemistry (or equivalent) with grades of "C" (2.0) or higher; biochemistry strongly recommended. Cross-listed with BIOL 4126.

BIOL 5134-3. Human Genetics. Advanced survey of the current status of the field. Emphasis on understanding, diagnosis and treatment of genetic disease and on the impact of molecular biology on human genetics. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4134.

BIOL 5144-3. Medical Microbiology. Provides an understanding of the relationship between pathogenic organisms and their host. Emphasis is placed on the area of medical bacteriology, with attention given to mechanisms of pathogenesis, genetics of disease, serology and treatment. Prereq: graduate standing or permission of instructor. Cross-listed with BIOL 4144.

BIOL 5154-3. Conservation Biology. Basic concepts and theories in population biology and genetics as they apply to issues relating to the preservation of biodiversity, such as the genetics of small populations, captive propagation, restoration ecology and the design of nature reserves. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4154.

BIOL 5165-3. Neurobiology. Overview of neuroscience, covering the cellular basis of neuronal activity, muscle, sensory structures and the structure and function of the human brain. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4165.

BIOL 5250-3. Mechanisms of Animal Behavior. The proximate and ultimate mechanisms of animal behavior are analyzed using comparative animal examples from the scientific literature. Proximate mechanisms include genetic and physiological processes. Ultimate mechanisms include the role of natural and sexual selection in the evolution of behavior. Prereq: One year of general biology with a grade of "C" (2.0) or higher. Genetics and human physiology are recommended. Cross-listed with BIOL 4250.

BIOL 5315-4. Plant Systematics. Lecture, laboratory and field trips. Extensive introduction to the basic principles and concepts of vascular plant systematics. Topics include principles of taxonomy, nomenclature, methods, systems of classification and field and herbarium procedures. Emphasis on plant structure and identification using fresh, frozen and pressed plant specimens. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4315.

BIOL 5330-3. Evolution and Diversification of Plants. Surveys the diverse assemblage of green algae and land plants. Ecological and evolutionary principles are used to interpret patterns of form and function within the context of their phylogeny as revealed from molecular systematics.

Prereq: Graduate standing or permission of instructor.

BIOL 5335-4. Plant Science. Lecture, laboratory and field trips. An in-depth study of flowering plants, including embryology, structure, function, reproduction, ecology and evolution of the group. Emphasis is placed upon morphology and anatomy at all stages of plant development.

Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4335.

BIOL 5345-4. Flora of Colorado. Lecture, laboratory and field trips. Introduces the vascular plant flora of Colorado, including ferns, gymnosperms and flowering plants. Emphasis on field identification of species representing a range of natural communities from grassland to alpine tundra, as well as nonnatives. Field and herbarium techniques covered. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4345.

BIOL 5415-3. Microbial Ecology. An in-depth study of ecology as it relates to microorganisms; abiotic and biotic interactions within microbial populations in macro- and microhabitats; and the role of microorganisms in maintaining steady state conditions in natural ecosystems. Emphasis is placed on how the ecology of microorganisms affects the human condition. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4415.

BIOL 5416-3. Aquatic Ecology. This advanced ecology course examines the inter- relations of biological (including humans), physical and chemical components of wetlands, streams, rivers, lakes, reservoirs and groundwater. Learning is facilitated through lectures, discussions, student presentations, laboratory and field exercises. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4416.

BIOL 5445-3. Applied Environmental Biology. Examines the reciprocal relationships of organisms and the environment at scales from microbes to ecosystems. Explores the impact of human-caused perturbations on organisms as well as the impact of living systems on the flow of energy and materials (natural and man-made) through the environment. Prereq: Graduate standing or permission of instructor; one year of general biology and one year of general chemistry; introductory ecology recommended.

BIOL 5450-3. Marine Biology. Looks at the fascinating organisms that inhabit the oceans, which represent 99% of the living space of earth. While the focus is on the ecology of marine organisms, taxonomy, physiology and anatomy are also covered. Prereq: One year of general biology. Cross-listed with BIOL 4450.

BIOL 5455-3. Comparative Environmental Physiology. Explores the physiological adaptations of different animals to the environment with emphasis on metabolic, cardiovascular and respiratory adaptations to temperature and oxygenation. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4455.

BIOL 5465-3. Cardiovascular Physiology. Explores the structure and physiological function of the cardiovascular system. The emphasis is on human physiology, with comparative and pathophysiological aspects presented to enhance principles. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4465.

BIOL 5474-3. Ecological Methods. Lecture, laboratory. Deals with the empirical aspects of an ecological study. Students learn sampling techniques that are used in plant and animal ecology. Emphasis is placed on hypothesis testing, data analysis and experimental field designs. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4474.

BIOL 5475-3. Mechanisms of Human Pathology. Studies physiological, cellular and biochemical processes in human diseases, with particular focus on noncommunicable diseases such as diabetes, cardiovascular disease and diseases of aging such as osteoporosis and macular degeneration. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4475.

BIOL 5494-3. Population and Evolutionary Genetics. Introduces the genetic processes underlying evolutionary change in microbial, plant and animal populations. Topics include: sources of variation, Hardy-Weinberg equilibrium, population genetic structure, natural selection and other evolutionary forces, quantitative genetics and molecular phylogenetics. Emphasis on experimental data. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4494.

BIOL 5550-3. Cell Signaling. Lecture by faculty and student presentations cover mechanism of hormones and regulation of various cellular processes through second messenger systems. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4550.

BIOL 5560-3. Seminar: Nervous System Disorders. Opening lectures cover the scientific process and how to review original scientific literature. Students present seminars on original research focusing on the neural bases of diseases such as Parkinson's, Alzheimer's and schizophrenia. Prereq: Graduate standing or permission of instructor. BIOL 5165 or 4165 is strongly recommended. Cross-listed with BIOL 4560.

BIOL 5621-3. Immunology. Studies antibody-antigen interactions, the immune system, inflammation, hypersensitivity, autoimmunity and recovery from infection. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4621.

BIOL 5634-3. Biology of Cancer. Cancer is the second leading cause of death in the United States. This course offers an overview of recent research into the causes, treatments and possible prevention of cancer. Includes a detailed look at the mechanisms of action of various oncogenes. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4634.

BIOL 5640-3. Mammalogy. A general overview of the biology of mammals: their diversity, distribution, economic importance and other characteristics that make them of special interest to humans. Coverage is worldwide, with special emphasis on the mammals of Colorado. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4640.

BIOL 5674-3. Mammalian Endocrinology. This systematic survey of the endocrine system looks at the cellular basis and biochemical characteristics of individual endocrine tissues. Their function in the regulation of other endocrinological, physiological and behavioral events is analyzed. The course emphasizes the human system and complements studies in physiology, behavior and neurobiology. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4674.

BIOL 5705-3. Introduction to Research. An overview of all aspects of scientific research. Topics covered include the scientific method, experimental design, the role of statistics, scientific writing, publication and sources of funding. Several guest faculty lectures are scheduled. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4705.

BIOL 5750-2. Technology Transfer and Biotechnology. An innovative hybrid course combining traditional classroom presentations with discussions and assignments on a Web-based classroom management system. Covers the process from academic discovery to commercialization of a product, including clinical trials, patent law, entrepreneurship, ethics, venture capital funding, marketing and product development. Note: Will not fulfill biology major requirements. Cross-listed with BIOL 4750.

BIOL 5840-1 to 3. Independent Study. Note: Registration by special processing form only. Prereq: Written permission of instructor.

BIOL 5910-3. Field Studies. Field studies of individuals, populations and communities comprising a specified ecosystem. Emphasis on field identification of vascular plants and vertebrate animals. Topics include the physical environment, biotic and abiotic interactions, life history, ecological adaptations and biogeography. Note: Lectures and a week-long field trip. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4910.

BIOL 5939-1 to 6. Internship/Cooperative Education. Designed experience involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Graduate standing.

BIOL 5974-3. Evolution. A capstone course that draws upon concepts from all fields of biology. Topics include the fossil record mass extinctions, the historical development of the modern synthesis, principles and mechanisms of evolution, current viewpoints and controversies. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4974.

BIOL 6655-1. Seminar. Prereq: Graduate standing or permission of instructor.

BIOL 6950-1 to 8. Master's Thesis.

BLAW: Business Law (Business)

BLAW 3000-3. Legal and Ethical Environments of Business I. *Fall, Spring, Summer.* Addresses the ways the legal and ethical environments of business affect managers. Students are taught to identify legal issues, make ethical judgments about business conduct and understand the ways ethical and social issues are developed. Topics include actual analysis of legal and ethical issues; ethical theory and its application; law-making processes; contracts (and related topics); torts; product liability; criminal law and constitutional law. This is a business core course therefore a grade of 'C' or better must be earned to satisfy Business graduation requirements and prerequisites for other business courses. Prereq: junior standing.

BLAW 4120-3. Legal and Ethical Environments of Business II. *Fall, Spring, Summer.* Skills in legal and factual analysis and the application of ethical theories are advanced and refined through integrative cases. Cases are drawn from a variety of functional areas such as accounting, information systems, finance, management, marketing and production. Topics include property law, agency, business organizations, securities, employment law, consumer law and international law. Prereq: BLAW 3000.

BLAW 6500-3. Legal Issues for CPAs. Examines advanced legal issues affecting accounting financial reporting. Designed for graduate students who want to understand and improve the links between accounting disclosures and legal requirements. Prereq: BLAW 3000 or BUSN 6540 (or equivalent).

BUSN: Business (Business)

BUSN 5939-1 to 3. Cooperative Education.

BUSN 6520-3. Managing Individuals and Teams. Students learn the strengths and weaknesses of their management style and how to work effectively with individual differences. Students also learn how to form teams around purpose/task, diagnose problems, identify and implement solutions by utilizing leadership skills such as setting goals, processes, measures, interpersonal communication, motivation and conflict management. Students develop an understanding of the effect of the organizational and social context on the behavior of individuals and teams.

BUSN 6521-3. Managing Individuals and Teams (Health Section). Students learn the strengths and weaknesses of their management style and how to work effectively with individual differences. Students also learn how to form teams around purpose/task, diagnose diagnose problems and identify and implement solutions by utilizing leadership skills such as setting goals, processes and measures, interpersonal communication, motivation and conflict management. Students develop an understanding of the effect of the organizational and social context on the behavior of individuals and teams. The emphasis is on health care issues and is intended for health care students.

BUSN 6530-3. Data Analysis for Managers. *Fall, Spring, Summer.* Provides an overview of techniques for data analysis, including multiple regression, sampling theory and applications of probabilistic inference from sample data. The emphasis is upon the applications of these techniques to management problems. Students are required to analyze data sets, present their analyses in written or oral form and defend their conclusions. Note: students cannot receive credit for both BUSN 6530 and FNCE 6290.

BUSN 6540-3. Legal and Ethical Environment of Business. *Fall, Spring, Summer.* Students develop a working knowledge of legal and

ethical parameters for business decision making. The course addresses the legal system and mechanisms for resolving disputes. Topics include constitutional law, torts, product liability, contracts, property law, consumer protection, intellectual property, business entities and employment law. It stresses the influence of legal issues on organization decision making. Note: Health Administration students must take BUSN 6541.

BUSN 6541-3. Legal and Ethical Environment of Business (Health Section). *Spring.* Students develop a working knowledge of legal and ethical parameters for business decision making. Addresses the legal system and mechanisms for resolving disputes. Topics include business entities, torts, contracts, employment relationships, litigation and alternative dispute resolution. It stresses the influence of legal issues on organization and decision making. The emphasis is on health care issues and is intended for health care students.

BUSN 6550-3. Analyzing and Interpreting Accounting Information. *Fall, Spring, Summer.* Emphasizes the use of accounting statements and data in making business decisions. External financial accounting information and concepts are used for investment and credit decisions. Internal managerial accounting information and concepts are used for product costing, cost analysis and management control.

BUSN 6560-3. Marketing Management. *Fall, Spring, Summer.* Focuses on the formulation and implementation of a marketing plan in the context of the firm's strengths, overall strategy and competitive environment. Emphasis is on understanding the marketing environment and on decision making skills regarding market selection, pricing, promotion, product configuration and management of distribution channels. Prereq: BUSN 6530 and 6550 - strictly enforced. (May be taken concurrently).

BUSN 6610-3. Information Systems Management and Strategy. Examines the strategic, technological, financial and organizational issues involved with the effective management of information technology. Topics include: (1) role and importance of IT in modern organizations (e.g., IT impact on competitiveness, alignment of corporate and IT strategies, IT infrastructures and IT-enabled organizational processes), (2) alternative methods to develop, acquire and implement information systems (e.g.) evaluation of IT investments, implementing and managing complex IT projects), (3) nature of IT management (e.g., the evolving roles of enterprise IT management, IT sourcing and contractual relationships) and (4) ethical and security issues associated with IT. Note: students cannot receive credit if they have taken BUSN 6810 or ISMG 6180. Cross-listed with ISMG 6180.

BUSN 6620-3. Applied Economics for Managers. After taking this course, students should be able to apply economic principles to make optimal decisions given firm cost, demand and market circumstances. Also, they should be able to analyze the firm's interactions with its competitive market environment. Students will learn basic aspects of federal macroeconomic policy designed to achieve stable prices and economic growth. Also, they will learn to understand the measurement of output (GDP), employment and prices; the conduct of monetary and fiscal policy; and the balance of trade. Prereq: BUSN 6530 or FNCE 6290 and BUSN 6550, both may be taken concurrently.

BUSN 6621-3. Applied Economics for Managers (Health Section). After taking this course, students should be able to apply economic principles to make optimal decisions given firm cost, demand and market circumstances. Also, they should be able to analyze the firm's interactions with its competitive market environment. Students should understand basic aspects of federal macroeconomics policy designed to achieve stable prices and economic growth. Also, they should understand basic aspects of government regulation of business. The emphasis is on healthcare issues and is intended for healthcare students. Prereq: BUSN 6530 or FNCE 6290 and BUSN 6550, both may be taken concurrently.

BUSN 6630-3. Management of Operations. *Fall, Spring, Summer.* This course is concerned with the production and delivery of goods and services. It provides an overview of a variety of key Operation Management issues including scheduling, capacity determination, facility location and layout, distribution and related topics. The use of model-assisted decision making is emphasized. Prereq: BUSN 6530.

BUSN 6631-3. Management of Operations (Health Section). This course focuses on managing and evaluating the processes that produce and deliver health services. Particular emphasis is on quantitative techniques to support health care operations including Monte Carlo simulation, decision analysis, quality improvement methods, forecasting, capacity planning, project management and inventory and supply chain management. While this course is intended for health care students, it is open to all. Prereq: BUSN 6530.

BUSN 6640-3. Financial Management. This course is concerned with the business firm's decisions to make investments and to finance its operations. Students learn to use the tools and theories underlying cost of capital, capital budgeting and capital structure. Students will learn to evaluate a firm's financial position through the examination of its financial statements and to prepare pro forma statements for the firm. Prereq: BUSN 6530 or FNCE 6290, BUSN 6620 (both may be taken concurrently) and BUSN 6550 completed prior and strictly enforced.

BUSN 6710-3. Strategic Management. *Fall, Spring, Summer.* Concerned with the development of a general management perspective in establishing the strategic direction for an enterprise. Students gain an understanding of strategy formulation and implementation within the context of the global environment. Emphasis is on the integration of knowledge acquired in the previous functional area courses. Note: This course is intended as a final semester capstone course. Prereq: BUSN 6560 and 6640 -strictly enforced; BUSN 6630 strongly recommended.

BUSN 6711-3. Strategic Management (Health Section). *Spring.* Concerned with the development of a general management perspective in establishing the strategic direction for a health delivery organization. Students gain an understanding of strategy formulation and implementation within the context of the managed care environment. Emphasis is on the integration of knowledge acquired in the previous functional area courses. Note: This course is intended as a final semester course. Required of Health Administration majors; open to others. Prereq: BUSN 6560 and 6640 - strictly enforced; BUSN 6630 strongly recommended.

BUSN 6800-3. Topics in Business. Current topics in business are occasionally offered. Prerequisites vary depending on the material covered. Consult the current 'schedule planner' for specific offerings and prerequisites.

BUSN 6811-3. IT and New Business Paradigms. Introduces graduate students to the relationship between information technology and the other functional areas of the business. During the course, students have an opportunity to listen and learn from guest speakers who have been involved with either guiding or interpreting the impact of information technology among functional areas of existing or new business. Through the use of current readings, guest lectures and case analysis, students examine various models of IT and new business paradigms to determine the decisions and success criteria for integrating IT in ongoing business. A unique feature of the class will be the opportunity for students to present proposals and projects to be critiqued by individuals with IT or business experience. Those individuals provide feedback and perspectives regarding potential IT or new business paradigm activities. Prereq: permission of instructor.

BUSN 6820-3. Project Management. Introduces the knowledge and skills of Project Management (PM) in a business environment. Emphasis will be on the entire project life cycle, the project management process groups and the knowledge areas as presented in the Project Management Body of Knowledge (PMBOK) from the Project Management Institute (PMI). Managerial aspects, quantitative tools and traditional techniques of Project Management will be covered. Application to various industries will be included. Cross-listed with DSCI 6820.

BUSN 6822-3. Services Operations. Examines the unique issues involved in the management of service operations. Operations Management principles specific to service industries are given in depth coverage. In addition, simulation is introduced as a technique for studying service industries. Prereq: BUSN 6530. Cross-listed with DSCI 6822.

BUSN 6824-3. Business Forecasting. Modern businesses use forecasts in marketing, finance, accounting, human resources management and

supply chain and production management decision making. This course focuses on practical application of forecasting techniques, choosing and comparing appropriate methods and applying the results to the business application. Prereq: BUSN 6530 or FNCE 6290. Cross-listed with DSCI 6230 and FNCE 6372.

BUSN 6826-3. Supply Chain Management. Introduces the application of purchasing, operations and logistics to the entire supply chain of an organization. Because of globalization and the rapid advancement of information technology, emphasis is placed on integration management of processes and systems, relationship management of upstream and downstream players and strategies that incorporate current and future trends. Prereq: BUSN 6530 and 6630. Cross-listed with DSCI 6826.

BUSN 6828-3. Business Applications of Data Mining. Addresses statistical approaches to the very large data sets increasingly common in business applications such as Internet-based business, fraud detection, credit scoring and market segmentation. Topics include limitations of classical statistical when applied to large data sets, alternative approaches and applications of key data mining algorithms such as logistic regression, decision trees and cluster analysis. Emphasis is placed on proper choice of method, interpretation of the results and understanding of the strengths and limitations of the methods. Students are expected to analyze and report on a variety of data sets drawn from business applications areas. Prereq: BUSN 6530 or permission of instructor. Cross-listed with DSCI 6828.

BUSN 6830-3. Business and the Natural Environment. Class considers the impact of economic activity on the natural environment and the regulatory, market and corporate voluntary responses to reducing this impact. Topics include externalities, life cycle assessment, environmental accounting, corporate environmental reporting, ISP 14000 certification and sustainability.

BUSN 6832-3. Quality and Process Improvement. This course studies various techniques to identify, measure and improve quality and productivity in organizations and the practical issues related to quality management. Topics include historic and contemporary views of quality, including Six-Sigma, statistical quality control tools and methods and process flow and design. Prereq: BUSN 6530 or permission of instructor. Cross-listed with DSCI 6440.

BUSN 6840-1 to 3. Independent Study.

Business Law: BLAW (Business)

CE: Civil Engineering (Engineering)

CE 1800-183X-1 to 6. Special Topics.

CE 1840-1 to 6. Independent Study. This category is intended for topics which students may wish to pursue on their own initiative, with guidance from a professor who agrees to limited consultation on the work and to award credit when the project is completed. Departmental approval is required.

CE 2121-3. Analytical Mechanics I. A vector treatment of force systems and their resultants; equilibrium of trusses, beams, frames and machines, including internal forces and three-dimensional configurations, static friction, properties of areas, distributed loads and hydrostatics. Prereq: PHYS 2311; prereq or coreq: ENGR 1025, MATH 2422. Cross-listed with M E 2023.

CE 2200-3. Computing Methods in Civil Engineering. Introduces Fortran computer programming and advanced spreadsheet methods of solving civil engineering problems. Prereq: ENGR 1025 and MATH 2411.

CE 2212-3. Plane Surveying. Observation, analysis and presentations of basic linear, angular, area and volume field measurements common to civil engineering endeavors. Prereq or coreq: MATH 1401.

CE 2800-283X-1 to 6. Special Topics.

CE 2840-1 to 6. Independent Study. This category is intended for topics which students may wish to pursue on their own initiative, with guidance from a professor who agrees to limited consultation on the work and to award credit when the project is completed. Departmental approval is required.

C E 3111-3. Analytical Mechanics II. A vector treatment of dynamics of particles and rigid bodies, including rectilinear translation, central-force, general motion of particles, kinematics of rigid bodies, the inertia tensor, plane motion of rigid bodies; energy and momentum methods for particles, systems of particles and rigid bodies. Prereq: C E 2121. Cross-listed with M E 2033.

C E 3121-3. Mechanics of Materials. Mechanical properties of materials, stresses and strains in members subjected to tension, compression and shear, combined stresses, flexural and shearing stresses in beams, deflections of beams, column analysis, principal stresses. Prereq: C E 2121. Cross-listed with M E 3043.

C E 3131-3. Applied Mechanics. A limited study of particle and rigid body mechanics. Subject coverage introduces vector concepts of force, moment and equilibrium, then concentrates on kinematics and kinetics of particles in motion, including oscillatory and orbital and finally discusses rigid body motion with emphasis on energy and momentum methods. Prereq: MATH 2422 and PHYS 2311. (Not for Civil Engineer or Mechanical Engineer majors.)

C E 3141-2. Materials Testing Laboratory. One hour of lecture and one 3-hour laboratory per week. Emphasizes mechanical properties of commonly used structural materials such as, steel, aluminum, timber and concrete and the testing and research techniques necessary to obtain these properties. Prereq or coreq: C E 3121.

C E 3154-2. Water Quality Laboratory. Lecture and laboratory weekly, discussing techniques and making measurements of water purity parameters. Prereq: CHEM 1130/2031 and 2038; prereq or coreq: MATH 2411.

C E 3313-3. Theoretical Fluid Mechanics. Introduces the fundamentals of fluid mechanics. Subject matter includes fluid properties, hydrostatics, the continuity principle, the energy principle, the momentum principle, similitude and dimensional analysis, for C Es on immersed bodies and laminar and turbulent flow in a closed conduit. Prereq: C E 2121.

C E 3323-3. Applied Fluid Mechanics. Applies the principles of fluid mechanics to analysis and design of hydraulic systems involving pressurized pipelines, open channels and pumps. Introduces fluid measurements which includes laboratory demonstrations and experiments. Prereq: C E 2200 and C E 3313.

C E 3401-3. Introduction to Environmental Engineering. An introductory course that provides a unique systems approach to environmental engineering, examining the source-to-receptor feedback loop for pollution control. Physical, chemical and biological processes are integrated across atmospheric, wastewater and sub-surface systems. Four laboratory exercises provide direct experiential learning of key concepts. Prereq: CHEM 1130 or equivalent. Cross-listed with C E 5401.

C E 3414-3. Design of Water and Wastewater Systems. Covers the design of water distribution and wastewater collection systems. Topics include the design process, estimation of water demand and sewage flows, analysis of pipe networks and sewer systems, cost estimating and design selection. Field trips are required. Prereq or coreq: C E 3323.

C E 3505-3. Structural Analysis. Principles of structural analysis applied to statically determinate and indeterminate structures. Prereq: C E 3121.

C E 3602-3. Transportation Engineering. Introduces the technology, operating characteristics and relative merits of highway, airway, waterway, railway, pipeline and conveyor transportation systems. Recent transportation systems innovations. Prereq: junior standing or permission of instructor.

C E 3708-3. Introduction to Geotechnical Engineering. Index properties of soils, soil classification, clay minerals, compaction and other soil improvement methods; shrinkage, swelling and frost action; permeability and seepage analysis, consolidation settlement and time rate of consolidation, shear strength of soils, bearing capacity and lateral earth pressure. Prereq: C E 3121; prereq or coreq: C E 3313.

C E 3800-383X-1 to 6. Special Topics.

C E 3840-1 to 8. Independent Study. This category is intended for topics which students may wish to pursue on their own initiative, with guidance from a professor who agrees to limited consultation on the work and to award credit when the project is completed. Departmental approval is required.

C E 4000-0. Senior Seminar. Offered each fall and spring semester. Required of all Civil Engineering majors. Each student shall take the state-administered Fundamentals of Engineering (F.E.) examination. This course must be taken prior to the semester of graduation. Prereq: C E 3111, ENGR 3012, E E 3030, senior standing and approved 30 credit hour check.

C E 4067-3. Senior Design Project. Senior civil engineering students, working in teams, are assigned significant open-ended design problems requiring the synthesis of material learned in previous engineering courses for solution. Design teams work independently under the supervision of a civil engineering faculty member. Prereq: an approved graduation agreement.

C E 4077-3. Engineering Economy. Applies economic and financial principles to evaluation of engineering alternatives. Calculation of annual costs, present worth and prospective rates of return on investment. Review of systems analysis techniques, including simulation, linear programming and project scheduling. Prereq: junior standing. Cross-listed with M E 4147.

C E 4087-3. Engineering Contracts. Laws met by the practicing engineer, types of contracts, specification writing, laws on contracts, agency, partnership, sales and property, with primary emphasis on rights and duties of the engineer. Prereq: senior standing.

C E 4115-3. Introduction to Structural Dynamics. Single degree-of-freedom systems, two degree-of-freedom systems. Complex representation, step and impulse loads, many degrees of freedom, influence coefficients, matrix methods, stability of solution, vibration of strings, beams and membranes, approximate methods. Prereq: C E 3111, MATH 3191 and 3200.

C E 4427-3. Storm Water System Design. Covers the derivations of hydraulic and hydrologic principles for small urban watershed analysis, reviews storm water drainage policy and design criteria and emphasizes the design of flood quantity and quality control facilities. Hydrologic modeling principles are applied to the assessment of the urbanization impacts on storm runoff peak rates and volumes. Design procedures, methods and criteria for determining the storm water storage volume, detention basin shaping, inlet works, low flow outlets and emergency spillway are presented with hands-on practices through design examples. Design considerations for open pond detention systems, infiltration or percolation basins and storm water treatment by sedimentation process are also discussed in this course. Prereq: C E 3323.

C E 4537-3. Numerical Methods for Engineers. Introduces numerical analysis. Solution of linear and nonlinear equation systems. Numerical methods for ordinary and partial differential equations. Engineering applications. Prereq: CSC1100/1410, MATH 3191 and 3200.

C E 4565-3. Timber Structure Design. Design of wood floor systems, beams, columns, trusses, diaphragms and form work. Connection design, glued-laminated members, plywood. Prereq: C E 3505.

C E 4575-3. Structural Steel Design. Design of structural steel members and their connections. Prereq: C E 3505.

C E 4585-3. Reinforced Concrete Design. Ultimate strength methods for design of reinforced concrete structures. Prereq: C E 3505.

C E 4602-3. Highway Engineering. Evaluates alternate highway routes. Discusses highway drainage, finance, maintenance, pavement design, traffic operations and principles of economic analysis. Analyses the impact of the highway on the environment. Prereq: C E 3602 and 3708.

C E 4718-2. Intermediate Soils Engineering. Continuation of C E 3708 into selected topics in soils engineering. Laboratory experiments are performed to assess index properties of soils including gradation, soil consistency and specific gravity; moisture/density relations; soil classification, permeability, compressibility; and shear strength of soils. These soil parameters are then used in a design project required for the course. Prereq or coreq: C E 3708.

C E 4738-3. Intermediate Foundation Engineering. Applies principles of soil mechanics to the analysis and design of foundations and earth structure. Theories of consolidation, earth pressure, slope stability and bearing capacity. Studies settlement of structures, shallow and deep foundations, retaining walls and excavations. Prereq: C E 3708.

C E 4780-3. Engineering Geology. Studies geology as utilized in engineering and environmental practice. Emphasizes a conceptual integration of geologic materials, processes and rates of change as a basis for successful application of geologic knowledge to environmental planning and engineering design projects. Prereq: MATH 2411 and C E 2121. Cross-listed with C E 5780 and GEOL 4780/5780.

C E 4800-483X-1 to 6. Special Topics. Supervised study of special topics of interest to students under guidance of instructor. Prereq: permission of instructor.

C E 4840-1 to 6. Independent Study. This category is intended for topics which students may wish to pursue on their own initiative, with guidance from a professor who agrees to limited consultation on the work and to award credit when the project is completed. Departmental approval is required.

C E 5111-3. Structural Dynamics. Vibration and dynamic response of simple linear and nonlinear structures to periodic and general disturbing forces. Frequency domain analysis, response analysis of multi-degree-of-freedom systems. Wind and earthquake effects. Prereq: C E 3505 and 4115.

C E 5121-3. Intermediate Mechanics of Materials. Intermediate-level course in the mechanics of deformable bodies. Plane stress and strain; stress-strain relation with emphasis on elastic and inelastic behavior of members and theories of failure. Discussion of basic methods of structural mechanics, with applications to asymmetric and curved beams, thick walled pressure vessels, torsion of members of noncircular section and other selected problems in stress analysis. Prereq: C E 3121, MATH 3191 and 3200.

C E 5313-3. Environmental Fluid Mechanics. Analysis of kinematics and dynamics of incompressible fluid flow with emphasis on hydraulic and hydrologic Engineering practice. Application of potential flow theory to seepage and groundwater motions, examination of viscous effects in a real flow and introduction to diffusion and dispersion processes in a turbulent flow. Prereq: C E 3323.

C E 5333-3. Applied Hydrology. Engineering application of principles of hydrology. Subject matter includes precipitation measurement and data analysis, stream flow measurement and water budget analysis, evaporation and evapotranspiration, infiltration and rainfall-runoff relationships, hydrograph properties and unit hydrograph analysis, flood frequency, analysis and flood routing. Prereq: permission of instructor.

C E 5334-3. Groundwater Hydrology. Topics include groundwater occurrence, hydrologic cycle and budget, interactions with surface waters, principles of groundwater flow, well hydraulics, well field design, regional flow systems, water and pollutant chemistry, computer modeling and groundwater management. Emphasis is on quantitative analysis methods for groundwater resource inventory, design and management. Prereq: graduate standing or permission of instructor.

C E 5343-3. Open Channel Hydraulics. Engineering analysis and design of natural and artificial open channels. Application of uniform flow concept to design of erodible and non-erodible channels. Application of energy and momentum principles to conditions of gradually varied flow, spatially varied flow and rapidly varied flow. Prereq: C E 3323 or permission of instructor.

C E 5344-3. Unsteady Open Channel Hydraulics. Derivation of basic principles of unsteady open channel flow. Application of kinematic wave, diffusive wave and dynamic wave approaches to open channel, including overland flow and flow in a drainage or river network. Introduction of numerical finite difference methods, characteristic method and simplified analytical method for the solution of unsteady open channel flow problems. Evaluation of computer simulation models such as DWOPER and SWMM. Prereq: C E 5343 and 5333 or permission of instructor.

C E 5381-3. Introduction to Geographic Information Systems. Provides an over-view exposure and experience with various aspects of GIS technology and its uses for natural resource and infrastructure, planning, design and management. This course involves a survey of GIS software and hardware, review of cartographic mapping principles, hands on applications to environmental impact assessment, municipal facilities management, transportation, water resources and demographics.

GIS project management factors are addressed. Prereq: graduate and/or upper division standing.

C E 5382-3. GIS Spatial Database Development. This second GIS course builds on the introductory course and addresses principles and technologies for development and conversion of spatial databases, including photogrammetry, surveying and geodesy, coordinate systems and transformations and remote sensing. Prereq: graduate and/or upper division standing; completion of C E 5381 (or equivalent) and MEng-GIS program prerequisites (especially surveying, mapping and computing); background in algebra, calculus fundamentals and facility to compute DOS/UNIX, spreadsheet and FORTRAN; familiarity with various CAD (e.g., AutoCAD) and GIS (e.g., ArcInfo, GRASS), software is also required.

C E 5383-3. GIS Analyses—Theory and Practice. This third course reviews GIS software functions and terminology, including data entry (input, editing), manipulation (projection, merge, window, aggregate), analysis (map algebra, overlay, Boolean, interpolation network, measurements, distance, terrain modeling, statistical analysis), query (spatial, attribute) and display/reporting. Integration of various domain-specific systems analysis models with GIS databases is also addressed. Laboratory activities involve programming applications using available GIS. Prereq: graduate and/or upper division standing; completion of C E 5381 (or equivalent) and completion of MEng-GIS prerequisites (especially applied Statistics); background in algebra, calculus fundamentals, facility to compute DOS/UNIX, OS/UNIX, spreadsheet and FORTRAN; familiarity with various CAD (e.g., Autocad) and GIS (e.g., ArcInfo, GRASS), software is also required.

C E 5384-3. GIS Management and Policies. This fourth course addresses aspects of GIS planning and development. These include topics of benefit-cost and financial analysis, scheduling, project management, internal and external marketing. Also, addressed are issues of GIS institutional acceptance, the role of computerized spatial data systems in decision making, application of planning techniques for accomplishing resource goals, administrative structure which enhances efficiency of use and legal considerations involved with development and use of such databases. Prereq: graduate and/or upper division standing; completion of C E 5381 (or equivalent); familiarity with various CAD (e.g., AutoCAD) and GIS (e.g., ArcInfo, GRASS), software is also required.

C E 5385-3. GIS Relational Database Systems. Introduces database concepts with emphasis on GIS. Includes examination of relational database systems from conceptual design through relational schema design and physical implementation. Topics include database design and implementation for large database systems, transaction management, concurrency control, object-oriented and distributed database management systems. Prereq: graduate and/or upper division standing; completion of C E 5381 or equivalent and completion of the MEng-GIS program prerequisites; background in algebra, calculus fundamentals and facility to compute DOS/UNIX, spreadsheet and FORTRAN; familiarity with various CAD (e.g., AutoCAD) and GIS (e.g., ArcInfo, GRASS) software is also required.

C E 5386-3. GIS Laboratory. Provides in-depth experience with use and programming of a particular GIS software, including ArcGIS and related object-oriented programming languages. Advanced functionality for user authoring of software interface, data management and analysis functions and output generation. Exact content will vary by semester. Prereq: Computing and Introduction to GIS or their equivalent.

C E 5387-3. Advanced Remote Sensing. Addresses remote sensing concepts including 1) imaging sensors and geo-referencing; 2) image processing for radiometric, multi-spectral image enhancement and multi-sensor image fusion; and 3) multi-spectral image classification, including feature extraction, supervised and unsupervised classification and extensions to hyper-spectral data. Prereq: Calculus II, Statistics, Surveying and Mapping, Introduction to GIS, GIS Spatial Data Development (C E 5382) or Introduction to Remote Sensing.

C E 5393-3. Water Resources Development and Management. A multidisciplinary exploration of the principles governing water resources planning and development. Emphasis is on the sciences of water (physical, engineering, chemical, biological and social) and their interrelationships.

C E 5394-3. Water Resources Systems. Addresses the concepts, general processes and quantification methods used in planning and analysis of water resource system planning and operations problems and goals, analysis methods, computer simulation and optimization. Prereq: graduate standing or permission of instructor.

C E 5401-3. Introduction to Environmental Engineering. Provides a broad overview of the environmental environmental engineering and pollution control system. Offers a unique systems approach to environmental engineering, examining the source-to-receptor feedback loop system of pollution control. Process principles underlying pollutant, transport, abatement and control are presented in a unified manner, cross-cutting atmospheric, wastewater and sub-surface systems. Prereq: graduate standing in MSC E or MSES programs or permission of instructor. Cross-listed with C E 3401.

C E 5402-3. Multi-Media Transport and Fate of Environmental Pollutants. Provides unified understanding of fundamental physical, chemical and biological processes that govern the transport and ultimate fate of chemical pollutants in all three environmental media—air, water and soil. Course content is essential for environmental engineering projects involving siting of hazardous waste facilities, assessment at contaminated sites and the planning and design of remediation systems. Prereq: C E 5401.

C E 5404-3. Chemical Processes in Water Quality Engineering. Design and analysis of chemical processes in water and wastewater treatment and water quality management. Incorporates physical, equilibrium, coordination and oxidation-reduction chemistry concepts. Prereq: graduate standing or permission of instructor.

C E 5414-3. Physical Processes in Water Quality Engineering. Design and analysis of physical processes used in treatment of water and wastewater. Prereq: graduate standing or permission of instructor.

C E 5424-3. Advanced Water Quality Laboratory. Includes conducting pilot and laboratory scale studies on water and wastewater and evaluating various unit operations and processes, including coagulation/flocculation/sedimentation/filtration, aeration, sludge processes, complete analysis of water and wastewater and bioremediation. Prereq: C E 5404, C E 5414, or C E 5434 and C E 3154 and graduate standing or permission of instructor.

C E 5434-3. Biological Processes in Water Quality Engineering. Design and analysis of biological processes used in treatment of wastewater and water quality management. Prereq: graduate standing or permission of instructor.

C E 5444-3. Design of Solid Residuals and Natural Treatment Systems. Solid residuals treatment topics include thickening, dewatering, digestion, land application and composting. Natural treatment systems topics include slow rate, rapid and overland flow land treatment systems; and constructed wetlands. Field trip required. Prereq: graduate standing, MATH 2411, PHYS 2311 and ability to use spreadsheets.

C E 5456-3. Engineering Practice. Consulting Engineering Practice and management. Professional practice and organization. Marketing, ethics, personnel selection and training. Planning, budgeting, work scheduling, resource allocation and balancing. Oral and written communication, quality standards and engineering management. Prereq: graduate standing or permission of instructor.

C E 5457-3. Administration of Public Works. A descriptive course concerned with the administration of engineering and planning aspects of urban public works. Prereq: graduate standing in civil engineering or public administration, or permission of instructor.

C E 5464-3. Microbial Engineering and Bioremediation. Topics include: microbial processes, stoichiometry and conservation principles, physical processes affecting microbial processes, microbial reactor analysis, application of bioremediation to hazardous wastes in various media. Prereq: CHEM 1130 and graduate standing or permission of instructor.

C E 5480-3. Hazardous Wastes and Site Remediation. Students learn to: (1) define and classify hazardous wastes encountered at hazardous waste-contaminated sites, (2) learn basic principles underlying currently available technologies for site remediation, (3) use EPA's technology screening

matrix for technology selection and (4) provide engineering design for selected remediation systems, e.g. ground-water pump-and-treat, soil vapor extraction, soil washing and bioremediation. Prereq: C E 5402.

C E 5494-3. Risk Assessment. The process of determining the likelihood and extent of harm that may result from an activity or event. Topics covered are: hazard identification, dose-response evaluation, exposure assessment and risk characterization. The subjects of risk management, risk perception and risk communication are also discussed. Prereq: graduate standing or permission of instructor. Cross-listed with ENV5 6200, HBSC7340.

C E 5514-3. Matrix Analysis of Structures. Matrix analysis of skeletal structures. Systematic formulation of stiffness and flexibility methods of analysis of skeletal structures. Application of modern computational tools to structural analysis, including introduction to the finite element method. Prereq: C E 3505.

C E 5515-3. Introduction to Finite Element Analysis. Systematic formulation and application of the finite element approximation to the solution of engineering problems. Topics include one- and two-dimensional elasticity problems, two-dimensional heat flow and irrotational fluid flow. Elements considered include triangular and quadrilateral elements formulated by elementary and isoparametric techniques. Prereq: graduate standing or permission of instructor.

C E 5537-3. Numerical Methods in Civil Engineering. Introduces numerical analysis. Solution of linear and nonlinear equation systems. Numerical methods for ordinary and partial differential equations. Engineering applications. Differs from C E 4537 by the addition of individual student projects. Prereq: CSC1100/1410, MATH 3191 and 3200. Cross-listed with E E 5210, M E 5110.

C E 5575-3. Advanced Topics in Structural Steel Design. Plate buckling, plate girder design and other topics determined by class interest. Prereq: C E 4575.

C E 5585-3. Advanced Topics in Reinforced Concrete. Advanced topics relating to design and analysis of reinforced concrete structures. Prereq: C E 4585.

C E 5602-3. Advanced Highway Design. Design and location of various classes of rural and urban highways. Development of theory as a rational basis of design for highway alignment, cross-section, intersections and interchanges is stressed. Prereq: C E 4602.

C E 5611-3. Traffic and Safety Data Analysis. Covers statistical analysis methods for engineering studies in general and for highway accident and traffic flow data in particular. Topics include data needs, sampling designs, survey methods, hypothesis testing, tests of proportions, nonparametric tests, analysis of variance, multivariate regression and other tests of fit. Introductory overview of state and federal accident databases. Comparisons of accident rates by highway type, vehicle speeds, vehicle types, weather conditions and other factors also presented. Prereq: graduate standing or permission of instructor.

C E 5612-3. Traffic Impact Assessment. Covers (1) procedures to satisfy state and local requirements for transportation impact studies, (2) methods to perform trip generation, distribution and traffic assignment for impact analyses and (3) analysis of transportation impacts on residential communities, mode choice, regional business (downtown or suburban), peak and off-peak travel times, noise, safety, parking and pedestrians. A course project requires students to develop an application of analysis software to a case study area. Prereq: graduate standing or permission of instructor.

C E 5613-3. Traffic Flow Theory and Fundamentals. Emphasizes the mathematical and probabilistic aspects of traffic flows on interrupted (signalized) and uninterrupted (unsignalized) roadways. The course examines the properties of vehicle motion in traffic streams and then examines the traffic interactions affected by the relationship between supply (signal timings and road designs) and demand (vehicle arrival rates and traffic patterns). Both macroscopic and microscopic models of traffic flow characteristics are presented, as well as queuing models and statistical distributions of headways. Prereq: C E 5611 and 5621 or permission of instructor.

C E 5621-3. Highway Capacity Analysis. Covers the principles and applications of highway capacity analysis for freeways and arterials, ramps and interchanges, weave and merge sections, signalized and unsignalized intersections, roundabouts, pedestrian areas and transit. Emphasis is on level-of-service analysis procedures in the Highway Capacity Manual, although other approaches are also discussed. Additional topics include roadway characteristics, vehicle dynamics, human factors, speed and volume studies, travel time surveys and traffic flow characteristics.

Prereq: graduate standing or permission of instructor.

C E 5622-3. Traffic Operations and Control. Covers principles of traffic flow and analysis methods for surface street traffic systems. Emphasis is on network modeling and simulation of coordinated signal systems, together with unsignalized intersections and freeway junctions using modern software tools. Additional topics include alternative signal timing plans, signal controllers, vehicle detection systems for volume, speed, occupancy and ramp metering. A course project requires students to develop and apply modeling software to a case study area. Prereq: C E 5621 or permission of instructor.

C E 5631-3. Transportation Planning Methods. Introduces the urban transportation planning process as conducted by metropolitan planning organizations throughout the U.S. Course covers the four-step modeling process (trip generation, trip distribution, mode split and assignment). Topics also include data needs, survey methods and statistical models for origin-destination estimation and travel demand forecasting. Prereq: graduate standing or permission of instructor.

C E 5632-3. Urban Transportation Modeling. An advanced coverage of urban and regional transportation planning models, procedures and software. Mathematical formulations, properties and solution algorithms are presented. Additional topics include methods of data acquisition from public domain databases for use in modeling software. A course project requires students to develop an application of modeling software to a case study area. Prereq: C E 5631 or permission of the instructor.

C E 5652-3. Airport Planning and Design. National airport system plan, air travel demand, geometric design of airport facilities, design of airport pavement and drainage structures and airport environmental impact. Prereq: C E 3602 and graduate standing or permission of instructor.

C E 5662-3. Transportation System Safety. Safety aspects of highway, railroad and airway transportation systems. Accident analysis, accident prevention, economic consequences of accidents. Prereq: C E 3602 and graduate standing or permission of instructor.

C E 5682-3. Pavement Design. Design of flexible and rigid pavements for highways and airports; stress analysis in flexible and rigid pavements; design of joints and reinforcing steel for rigid pavements; principles of subgrade stabilization. Prereq: C E 3602 and 4718.

C E 5692-3. Urban Traffic Workshop. Selected laboratory problems related to urban traffic. Prereq: C E 5642 or equivalent.

C E 5708-3. Advanced Soils Engineering. A unified treatment of the foundation of soil engineering analysis. Topics include stress-strain-strength of soils; generalized limiting equilibrium analysis; stability analyses of earth-retaining structures, slopes and shallow foundations; probabilistic approach of stability assessment; computation of settlement of foundations in sand and clay and time-rate of consolidation and critical state concept. Special attention is directed toward the illustration of theory through practical examples. Prereq: C E 3708, 4718 and graduate standing or permission of instructor.

C E 5709-3. Settlement Analysis. A unified treatment of settlement analysis on sand and clay. Topics include settlement of shallow foundation, settlement of deep foundation and settlement of embankments, walls and excavations. Conventional methods of analysis and the finite element method of analysis are covered. Critical design implications are emphasized.

C E 5718-3. Engineering Properties of Soils. Engineering properties of soils, including index properties, permeability, stress-strain behaviors, shear strength, compressibility, critical state soil models and their application in interpreting soil behaviors. Attention also is directed to laboratory and in-situ tests to examine the validity of shear strength and compressibility theories and their application to stability and settlement analysis. Prereq: C E 3708, 4718 and graduate standing or permission of instructor.

C E 5719-3. Design and Construction of Geosynthetic-Reinforced Soil Structures. Theory of reinforced soil; mechanical and hydraulic properties of geosynthetics; soil-geosynthetic interaction behavior; design concepts of GRS structures; design and construction of GRS retaining walls; design and construction of GRS embankments and slopes; design and construction of GRS foundations. Prereq: C E 5708.

C E 5728-3. Groundwater and Seepage. Principles governing flow of water through soils. Approximate methods for confined and unconfined seepage problems, including flow nets, analog models, numerical methods and method of finite elements. Analytical solutions for unconfined flow problems. Drainage filter design. Seepage toward wells. Stability of earth structures due to seepage. Prereq: C E 3708, 4718 and graduate standing or permission of instructor.

C E 5738-3. Foundation Engineering. Methods of subsurface exploration and sampling of soils, lateral support in open cuts, control of groundwater, analysis and design of shallow foundations, analysis and design of deep foundations, bridge abutments and cofferdams, underpinning and application of modern computational techniques to analysis and design of foundations. Prereq: C E 5708, 5718 and graduate standing or permission of instructor.

C E 5748-3. Design of Earth Embankment Dams. Theory, design and construction of earth embankments. Use of published data, field exploration, laboratory tests on soils and rock in investigating foundations and construction materials. Principles of compaction and settlement. Slope stability analysis, landslide, recognition and control, use of benches and beams. Prereq: C E 3708, 4718 and graduate standing or permission of instructor.

C E 5758-3. Foundations on Expansive Soils. Expansive soils swell upon wetting because of the swelling nature of constituent clay minerals, particularly montmorillonite. This course studies swelling nature of different clay minerals, effects of wetting, swelling potential, swelling pressures and design of different foundation systems. Prereq: C E 4738, B.S.C.E. or permission of instructor.

C E 5768-3. Theoretical and Applied Rock Mechanics. Nature of rock masses, geological exploration, deformability and strength of rock and joint materials, slope stability in hard rocks, physical models in geological engineering, in-situ tests of deformability and strength, in-situ stresses and deformation, rock hydraulics. Prereq: C E 3708, 4718 and graduate standing or permission of instructor.

C E 5778-3. Applied and Experimental Rock Mechanics. Surface exploration and characterization of rock masses, slope stability, analysis of rock masses; rock mass reinforcement; tunnel and shaft designs, design of underground rock chambers; foundations on rocks; and dam design. Prereq: C E 5768 or permission of instructor.

C E 5780-3. Engineering Geology. Studies geology as utilized in engineering and environmental practice. Emphasizes a conceptual integration of geologic materials, processes and rates of change as a basis for successful application of geologic knowledge to environmental planning and engineering design projects. Prereq: MATH 2411 and C E 2121. Cross-listed with C E 4780 and GEOL 4780/5780.

C E 5788-3. Design and Construction of Municipal Solid Waste Disposal Facilities. NIMBY (Not In My Back Yard) and environmental regulations demand that all landfills receive proper engineering design. This course covers regulations, management (reduction, collection, transportation, transformation, recycling, incineration, disposal) and disposal facility design. Prereq: senior in C E, B.S.C.E. or permission of instructor.

C E 5798-3. Dynamics of Soils and Foundations. Principles of vibrations of and wave propagation in, elastic, homogeneous, isotropic media; laboratory and in-situ measurements of soil properties; applications of these principles and properties to the design of foundations subject to dynamic loading generated by machinery, earthquakes, or blasts. Prereq: C E 5708, 5718 and graduate standing or permission of instructor.

C E 5800-583X-1 to 6. Special Topics. Topical courses offered once or on irregular intervals. Typical topics include: computer-aided structural engineering, pre-stressed concrete, nonmatrix structural analysis, geotechnical aspects of hazardous waste management, geographic

information systems and facility management, groundwater hydrology, engineering project management, structural planning, engineering practice, spreadsheet application, field instrumentation, hazardous wastes engineering, advanced steel design, hydraulic transients, foundations—expansive soils, sludge process design. Prereq: variable.

C E 5840-1 to 6. Independent Study. Available only through approval of the graduate advisor. Subjects arranged to fit needs of particular student.

C E 5950-1 to 8. Master's Thesis.

C E 5960-1 to 8. Master's Report.

C E 6110-0. PhD Seminar. Introduces PhD students to the process of doctoral research, addresses important milestones and hurdles in the PhD process and provides advanced doctoral students with the opportunity for presenting and discussing their research with peers. Prereq: admission to the PhD program.

C E 6111-3. Dynamics of Structures. Linear and nonlinear dynamic matrix analysis of multi-degree-of-freedom structural systems. Analysis and design for wind and earthquake loads including modal analysis and sub structuring techniques. Computer programming. Prereq: C E 5111.

C E 6131-3. Theory of Elasticity. Mathematical theory of elasticity and its applications to engineering problems. Discussion of the basic analytical and numerical methods of solutions. Prereq: C E 5121.

C E 6165-3. Buckling in Structures. Buckling of columns, beams, frames, plates and shells in the elastic and plastic range. Post-buckling strength of plates. Beam-columns. Analysis by exact and approximate methods with special emphasis on practical implications and application of solutions. Prereq: C E 3121.

C E 6353-3. Hydraulic Design. Design of small dams, including reservoir sizing, spillways and energy dissipaters. Design of urban drainage and flood control facilities such as culvert transitions, roadside ditches, street inlets, detention/retention ponds, storm sewer systems, drainage channels and channel erosion controls including vegetation, concrete, riprap protection. Design of floodplain encroachment, natural channel improvement and bridge hydraulics. Prereq: C E 5333 and 5343.

C E 6515-3. Advanced Theory of Structures. Generalized approaches to the analysis of civil engineering and continuous elastic structures (such as plates and plane stress bodies) by force and displacement methods. Emphasis is on formulation by finite elements and solution by matrix methods. Prereq: C E 5515 and basic knowledge of computer programming.

C E 6738-3. Finite Element Method in Geotechnical Engineering.

C E 6840-1 to 6. Independent Study.

C E 7800-783X-1 to 6. Special Topics. Credit and subject matter to be arranged. Prereq: variable.

C E 7840-1 to 3. Independent Study. Available only through approval of the graduate advisor. Subjects arranged to fit needs of particular student.

C E 7990-1 to 10. Doctoral Dissertation.

C E 8990-1 to 10. Doctoral Dissertation.

Chancellor's Scholars & Leaders: CSL

CHEM: Chemistry (Liberal Arts and Sciences)

CHEM 1000-3. Foundations for General Chemistry. Lecture. This course prepares for CHEM 2031 or 1130. Note: For students with no previous chemistry or with inadequate background. Prereq: MATH 1110 or high school equivalent.

CHEM 1111-1 to 3. Freshman Seminar.

CHEM 1115-1 to 3. Chemistry Content. Covers content areas of undergraduate chemistry. Topics include periodicity; the mole and chemical bonding; the kinetic theory and states of matter; chemical reactions; solutions and chemical equilibria.

CHEM 1130-5. Engineering General Chemistry. A one-semester non-laboratory version of general chemistry for engineers and those science majors who do not require laboratory credit and do not plan to take a second semester of chemistry. Prereq: One year of high school chemistry or CHEM 1000 and MATH 1110 (or high school equivalent).

CHEM 1474-4. Core Chemistry: Chemistry For the Consumer: GT-SC1. Focuses on the common household chemicals that affect us on a daily basis. Students learn the underlying chemistry of nuclear power, sunscreens, food, cleaning agents, etc. Home-based laboratory experiments with safe, common substances.

CHEM 2031-3. General Chemistry I: GT-SC1. Topics include chemical structure, atomic and molecular properties, molecular geometry and bonding, and gas laws. Prepares students to take upper division chemistry courses. Note: A beginning course for science majors, medical technologists, pre-medical and pre-dental students. Prereq: One year of high school chemistry or CHEM 1000 and MATH 1110 (or high school equivalent); Coreq: CHEM 2038.

CHEM 2038-1. General Chemistry Laboratory I: GT-SC1. Students perform laboratory experiments on topics covered in CHEM 2031 and gain experience in observing, recording and interpreting physical and chemical phenomena. Note: Laboratory to accompany CHEM 2031. Coreq: CHEM 2031.

CHEM 2061-3. General Chemistry II: GT-SC1. (Continuation of CHEM 2031.) Topics include kinetics, equilibria and thermodynamics. Prereq: CHEM 2031; Coreq: CHEM 2068.

CHEM 2068-2. General Chemistry Laboratory II: GT-SC1. Students gain experience with laboratory technique and elementary chemical instrumentation. Note: Laboratory to accompany CHEM 2061 and a continuation of CHEM 2038. Prereq: CHEM 2038; Coreq: CHEM 2061.

CHEM 2300-3. Nutritional Chemistry. Introduces nutrition intended primarily for majors in nursing, physical therapy, physical education. Topics include structure and metabolism of carbohydrates, lipids and proteins, functions of vitamins and minerals and food constituents. Prereq: CHEM 1000, 1474 or high school chemistry.

CHEM 2840-1 to 3. Independent Study.

CHEM 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

CHEM 3011-3. Inorganic Chemistry. The fundamentals of inorganic chemistry, including: atomic, molecular and crystal structures; the energetics of reactions, acid-base interactions; and the chemistry of main group and transition metal elements, including coordination and organometallic chemistry. Prereq or Coreq: CHEM 3421 or 3491.

CHEM 3018-2. Inorganic Chemistry Laboratory. Combines theoretical concepts with hands-on laboratory experience and introduces students to modern inorganic chemistry. Experiments cover both main group and transition metal chemistry with an emphasis on synthesis, characterization and application of inorganic compounds. Prereq or Coreq: CHEM 3011.

CHEM 3111-3. Analytical Chemistry. Fall. Topics include sampling, volumetric analyses, instrumental analyses and statistical treatment of data. Note: Lecture course for chemistry, biology, medical technology and environmental students. Prereq: CHEM 2061.

CHEM 3118-2. Analytical Chemistry Laboratory. Fall. Students gain experience with technique of sampling and analysis, including an introduction to instrumental methods. Note: Laboratory course to be taken concurrently with CHEM 3111. Prereq: CHEM 2068; Coreq: CHEM 3111.

CHEM 3411-4. Organic Chemistry I. Lecture course designed to introduce the study of structure, reactions, properties and mechanisms of organic molecules. Prereq: CHEM 2061.

CHEM 3418-1. Organic Chemistry Laboratory I. Laboratory course to augment concepts of CHEM 3411, illustrating the practical aspects of organic chemistry. Prereq: CHEM 2068; Prereq or Coreq: CHEM 3411.

CHEM 3421-4. Organic Chemistry II. Lecture course designed to introduce the study of structure, reaction, properties and mechanisms of organic molecules. Note: Continuation of CHEM 3411. Prereq: CHEM 3411.

CHEM 3428-1. Organic Chemistry Laboratory II. Laboratory course to augment concepts of CHEM 3421, illustrating the practical aspects of organic chemistry. Prereq: CHEM 3418; Prereq or Coreq: CHEM 3421.

CHEM 3491-4. Honors Organic Chemistry II. Second semester organic chemistry. Theoretical concepts and practical aspects of organic structure, mechanism, synthesis and analysis. Note: Required for chemistry majors and open to all students. No joint credit with CHEM 3421. Prereq: CHEM 3411; Coreq: CHEM 3498.

CHEM 3498-2. Honors Organic Chemistry Laboratory II. In small groups, students use the chemical literature to devise multi-step syntheses and determine reaction mechanisms for organic compounds. Note: Laboratory course required for chemistry majors. Open to non-majors on approval of the instructor. Prereq or Coreq: CHEM 3491.

CHEM 3810-4. Biochemistry. Introduces the principles of biochemistry for science and health science-oriented majors. Designed to cover the important aspects of modern biochemistry. Prereq: BIOL 2061 and CHEM 3411.

CHEM 3840-1 to 3. Independent Study.

CHEM 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and at least a 2.75 GPA.

CHEM 4121-3. Instrumental Analysis. *Spring.* Surveys instrumental methods of analysis. Emphasis on spectrophotometry, electrochemistry, chromatography and radiochemical techniques. Prereq: CHEM 3111, 3421 or 3491 and PHYS 2331; Coreq for Chemistry majors: CHEM 4128.

CHEM 4128-2. Instrumental Analysis Laboratory. *Spring.* Laboratory practice to accompany CHEM 4121. One hour of discussion and three hours of laboratory, with an emphasis on writing laboratory reports. Note: Required of chemistry majors and open to other students in CHEM 4121. Coreq: CHEM 4121.

CHEM 4511-3. Physical Chemistry I. *Fall.* Includes study of the laws of thermodynamics, thermochemistry, chemical equilibria, solutions and statistical mechanics. Prereq: PHYS 2331; Coreq: MATH 3511.

CHEM 4518-2. Physical Chemistry I Laboratory. Instruction in the experimental techniques of physical chemistry with emphasis on the properties of gases, thermodynamics and chemical equilibrium. Prereq: CHEM 3118; Coreq: CHEM 4511.

CHEM 4521-3. Physical Chemistry II. *Spring.* Continuation of CHEM 4511, with emphasis on chemical kinetics, quantum mechanics, molecular structure and spectroscopy. Prereq: CHEM 4511 and MATH 3511.

CHEM 4538-2. Physical Chemistry II Laboratory. Instruction in the experimental techniques of physical chemistry with emphasis on quantum chemistry, spectroscopy and chemical kinetics. Prereq: CHEM 4518; Coreq: CHEM 4521.

CHEM 4700-3. Environmental Chemistry. A discussion of the sources, reactions, transport, effects and fates of chemical species in the water, soil and air environments. Prereq: CHEM 3111 or 3411. Cross-listed with CHEM 5700.

CHEM 4810-3. General Biochemistry I. Topics include structure, conformation and properties of proteins; enzymes, mechanisms and kinetics; carbohydrates, lipids and membranes and energetics. Prereq: CHEM 3421 or 3491. Cross-listed with CHEM 5810.

CHEM 4820-3. General Biochemistry II. *Spring.* Topics include biosynthesis and metabolism of carbohydrates, lipids and amino acids, information processing. Note: continuation of CHEM 4810. Prereq: CHEM 4810. Cross-listed with CHEM 5820.

CHEM 4828-2. Biochemistry Laboratory. Focuses on modern laboratory techniques for biochemical research, with an emphasis on methods for protein isolation, purification and identification. Students perform experiments involving (but not limited to) chromatography, electrophoresis, spectrophotometry and protein activity assays. Prereq: CHEM 3810 or 4810.

CHEM 4835-3. Biochemistry of Cancer. Explores the biochemical aspects of cancer causation and treatment. Topics include DNA and protein damage, oncogenes and tumor suppressors, the chemistry of chemotherapeutic agents and the mechanisms of resistance to anticancer drugs. Prereq: CHEM 3810, 4810, or 5810. Cross-listed with CHEM 5835.

CHEM 4840-1 to 6. Independent Study. Prereq: permission of instructor required.

CHEM 5010-3. Modern Inorganic Chemistry. Advanced concepts of chemical bonding, molecular symmetry and structures and reactivity of main-group and transition metal compounds; introduction to bioinorganic chemistry. Prereq: CHEM 3011 (or equivalent) and CHEM 4521.

CHEM 5071-4. RM-MSMSP: Atoms and Properties of Matter. Systematic study of the structure of the atom, how atoms interact to form bonds, how matter behaves at the molecular level, the periodic table and the macroscopic properties of matter. Concepts are linked to other scientific, mathematical, societal and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: permission of project director.

CHEM 5072-4. RM-MSMSP: Interactions of Elements and Compounds. Systematic study of solubility (physical and chemical properties of solutions and the chemistry of acids, bases, pH and buffer solutions), oxidation or reduction reactions, reaction energetics (thermodynamics and kinetics) and applications of chemistry to environmental, biochemical and nutritional problems. Concepts are linked to other scientific, mathematical, societal and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: CHEM 5071 (or equivalent) and permission of project director.

CHEM 5110-3. Advanced Analytical Chemistry. Advanced analytical theories and practices in electrochemistry and separation techniques. Prereq: One year of analytical chemistry.

CHEM 5130-3. Surface Analytical Techniques. Surveys widely used techniques for surface analysis, including thermal desorption, mass spectrometry, X-ray photoelectron spectroscopy and surface electrochemistry. Applications to catalyst and organic or biological surfaces are included. Prereq: CHEM 4121 or equivalent.

CHEM 5250-3. Chemometrics: Data Analysis. Provides chemists and environmental scientists with the basic statistical skills for effective data analysis and experimental design. Minimal theoretical detail is provided; practical applications and graphical techniques are emphasized.

CHEM 5310-3. Advanced Organic Chemistry I. Surveys types of chemical bonds and molecular structure and how these affect organic reactions. Prereq: CHEM 3421 and 4511.

CHEM 5510-3. Computational Chemistry. Classical and ab initio molecular dynamics are covered from theory to application. Students have access to high-performance computational resources and cover current topics in the field. Prereq: CHEM 4521 or permission of instructor.

CHEM 5520-3. Molecular Structure and Spectra. Applies quantum mechanics to the understanding of molecular structure and spectroscopy. Prereq: CHEM 4521.

CHEM 5530-4. Advanced Physical Chemistry. Explores fundamental properties of molecules (bond length and strength, the potential energy surface, reaction rates, etc.) and examines how these properties are measured, using original literature as the primary source and culminating in written and seminar presentations of individual projects. Prereq: CHEM 4511, 4521 and 4538 or equivalent.

CHEM 5550-3. Applications of Group Theory in Chemistry. Introduces the basic principles of the group theoretical method as well as its applications in organic, inorganic and physical chemistry. Covers MOs for main-group and transition metal compounds, ligand field theory, molecular vibrations and electron absorption spectroscopy. Prereq: CHEM 4521 or permission of instructor.

CHEM 5600-1 to 6. Topics in Chemistry. Note: Topics vary from year to year. Prereq: Graduate standing.

CHEM 5700-3. Environmental Chemistry. A discussion of the sources, reactions, transport, effects and fates of chemical species in the water, soil and air environments. Prereq: CHEM 3111, 3411 and graduate standing. Cross-listed with CHEM 4700.

CHEM 5710-3. Air Pollution Chemistry. Chemical processes occurring in the atmosphere are discussed. Includes application to air pollution problems, including urban air pollution, air quality standards, nonurban air pollution, acid deposition and stratospheric pollution. Prereq: CHEM 4521 or 4700.

CHEM 5720-3. Atmospheric Sampling and Analysis. Fundamentals of environmental sampling specifically applied to the atmosphere are discussed. Includes a variety of techniques for the measurement of monitoring gaseous, semi-volatile and particulate air pollutants, techniques for the measurement of criteria pollutants, chemical and physical measurements of particulate and air toxins. Prereq: CHEM 4700 or 5710 or permission of instructor.

CHEM 5810-3. General Biochemistry I. Topics include structure, conformation and properties of proteins; enzymes, mechanisms and kinetics; carbohydrates, lipids and membranes and energetics. Prereq: CHEM 3421 or 3491. Cross-listed with CHEM 4810.

CHEM 5820-3. General Biochemistry II. Spring. Topics include biosynthesis and metabolism of carbohydrates, lipids and amino acids, information processing. Note: Continuation of CHEM 5810. Prereq: CHEM 5810. Cross-listed with CHEM 4820.

CHEM 5835-3. Biochemistry of Cancer. Explores the biochemical aspects of cancer causation and treatment. Topics include DNA and protein damage, oncogenes and tumor suppressors, the chemistry of chemotherapeutic agents and the mechanisms of resistance to anticancer drugs. Prereq: CHEM 3810, 4810, or 5810. Cross-listed with CHEM 4835.

CHEM 5840-1 to 3. Independent Study.

CHEM 5950-1 to 8. Master's Thesis.

CHEM 6000-1 to 3. Chemistry Seminar. Faculty and student presentations of CU-Denver research projects and other current chemistry topics. Note: All chemistry students are encouraged to attend, but credit is given only to those who present seminars. Prereq: Graduate standing.

CHEM 6001-1. Master's Research Seminar. Students present a formal seminar to the department describing their master's research work. Note: Required for all students completing a thesis-based master's degree; optional for those completing master's projects. Prereq: Participation in master's thesis or project research; CHEM 6000.

CHEM 6002-1. Chemistry Seminar I. The art of listening to and giving a chemistry seminar. Introduces the chemical literature, the pedagogical techniques of seminar giving and the critical thinking skills required to understand a technical presentation. Note: Seminar presentations by faculty, outside speakers and advanced graduate students are analyzed by the students participating in the course. Prereq: Graduate standing.

CHEM 6003-1. Chemistry Seminar II. Students prepare and give a chemical seminar based on a literature paper. Note: Seminar presentations by students and outside speakers are analyzed by students in the course. Prereq: Graduate standing.

CHEM 6840-1 to 6. Independent Study.

CHEM 6950-1 to 3. Master's Thesis.

CHEM 6960-1 to 6. Master's Report.

CHIN: Chinese (Liberal Arts and Sciences)

CHIN 1010-5. Beginning Chinese I. A basic introduction to Chinese language and culture. Students study pronunciation, vocabulary, grammar and simple writing techniques. Note: No previous study of Chinese is required. Students who have studied Chinese prior to enrolling at CU-Denver should consult with a department advisor.

CHIN 1020-5. Beginning Chinese II. (Continuation of CHIN 1010.) Further practice of pronunciation, study of vocabulary, grammar and simple writing techniques. Prereq: CHIN 1010.

CHIN 1111-1 to 3. Freshman Seminar.

CHIN 2110-5. Second Year Chinese I. Continuing development of listening, speaking, reading and writing skills in practical Chinese, with grammar review and introduction of the Chinese dictionary. In addition

to contemporary Chinese, there is some emphasis on Chinese classical materials, such as proverbs. Prereq: CHIN 1020.

CHIN 2120-5. Second Year Chinese II. (Continuation of CHIN 2110.) Satisfies the fourth semester language requirement at most graduate schools. Prereq: CHIN 2110.

CHIN 2840-1 to 3. Independent Study.

CHIN 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

CHIN 2970-3. Contemporary Chinese Cinema. Introduces students to Chinese cinema, one of the most powerful and often controversial modes of representing society, culture, history and politics in China. Note: Taught in English and all films have English subtitles. No prior knowledge of the Chinese language or culture is required.

CHIN 3840-1 to 3. Independent Study.

Chinese Studies: CNST (Liberal Arts and Sciences)

Civil Engineering: C E (Engineering)

C J: Criminal Justice (Public Affairs)

CJ 1001-3. Introduction to Criminal Justice. This course is designed to provide an overview of the criminal justice process and the criminal justice system in general. Concepts of crime, deviance and justice are discussed and general theories of crime causality are examined. Special emphasis is placed on the components of the criminal justice system: the police, the prosecutorial and defense functions, the judiciary and the field of corrections.

CJ 2041-3. Crime Theory and Causes. This course provides a general survey of the nature and causes of crime and efforts of the criminal justice system to predict, prevent, modify and correct this behavior. This course involves a critical appraisal of various theories of crime causation including an examination of biological, psychological economic and sociological perspectives that explain crime and deviance.

CJ 2110-3. Drugs, Alcohol and Crime. This course looks at the socially constructed nature of drugs and drug policy and focuses on the variety of ways drugs and crime is connected and the socio-historical context of contemporary U.S. drug policy. The course discusses the relationships between drugs and alcohol abuse and criminal offending, including the historical and contemporary criminal justice system responses to illegal substances.

CJ 2210-3. Probation and Parole. This course is appropriate for students who have a specific interest in the role of probation and parole as correctional sanctions in community settings. Particular attention is paid to evaluations research evidence on the success of probation and parole factors that contribute to the successful completions of probation and parole and the role that the community and citizens play in the community corrections process.

CJ 2320-3. Police-Community Relations. This course focuses on the police and community response to crime. Course content includes an overview of the major concepts and issues involved in what many consider to be a major fundamental shift in the approach and operations of modern policing. The origins meaning, development and experiences of community policing and various assessments of the advantages and disadvantages of community policing are emphasized.

CJ 2510-3. Juvenile Justice Administration. This course examines the development, change and operation of the American juvenile justice system and the social factors that shape the identification and treatment of juvenile offenders. Special emphasis is placed on the nature of juvenile law and methods of dealing with youthful offenders.

CJ 3100-3. Criminal Justice Research Methods. This course introduces students to the formulation of research questions covering crime and justice research designs, data collection and the interpretation and reporting of these data in criminological and justice-system settings. Course content also includes experimental and nonexperimental

research designs, probability and nonprobability sampling techniques and construction of scales and indexes for research purposes.

CJ 3150-3. Statistics for Criminal Justice. This course serves as an introduction to descriptive and inferential statistics and the computer analysis of criminology and criminal justice data. Course content includes basic procedures of hypothesis testing, correlation and regression analysis and the analysis of continuous and binary dependent variables. Emphasis is placed on the examination of research problems and issues in the field of criminology and criminal justice.

CJ 3160-3. White-Collar Crime. This course introduces students to a variety of topics and issues in white-collar crime including types causes and the measurement of white-collar crime. The class examines the debate surrounding the definition of white-collar crime, provides an overview the costs of white-collar crime and corporate crime to society considers competing theories that explain white-collar criminality and explores the use of criminal sanctions to deter misconduct involving corporations and elite offenders.

CJ 3220-3. Community-Based Corrections. This course focuses on innovative community-based strategies for dealing with criminal offenders. Correctional alternatives to imprisonment discussed in this course include probation and parole and various community programs such as day reporting centers, electronic monitoring, half-way houses and boot camp programs.

CJ 3250-3. Violent Offenders. This course consists of a historical overview of violence in American society. Course content includes an examination of violent crime rates over time, societal explanations for changes in rates and an examination of the theoretical causes and preventative strategies for acts of violence.

CJ 3310-3. Police in Contemporary Society. This course examines law enforcement's role in contemporary society and the impact of police interaction on other segments of the criminal justice system. Special attention is paid to controversies related to police training and education, career development and community relations.

CJ 3420-3. Pleas, Trials and Sentences. This course focuses on analysis of case materials involving pleas, trials and sentences. Course content includes an examination of the basic dimensions of criminality, the specific elements of major crimes, the use of confessions, fair trial procedures and the nature of criminal sanctions including cruel and unusual punishments.

CJ 3540-3. Crime and Delinquency Prevention. This course provides students with an overview of issues related to crime and delinquency prevention, both from criminological and criminal justice points of view. Crime prevention programs that encompass both the individual and community levels are examined. Responses to juvenile offenders ranging from prevention and diversion to institutional corrections and aftercare are explored in context of youth policy generally.

CJ 4042-3. Corrections. This course consists of an overview of the field of penology and corrections. Attention is paid to conflicting philosophies of punishment, criminological theory as it applies to the field of corrections, the selectivity of the process through which offenders move prior to their involvement in correctional programs, alternative correctional placements and empirical assessments of the short and long-term consequences of one's involvement in correctional programs.

CJ 4043-3. Law Enforcement. This course presents an overview of the role of police in American society today. Attention is on the origins of policing, the nature of police organizations and police work, patterns of relations between the police and the public, discretion and police role in a sociological context.

CJ 4044-3. Courts and Judicial Process. This course examines the basic functions, structure and organization of the federal and state court system, with special attention on the criminal court system. This course also focuses on the influence of judicial behavior on the court process by examining judges' policy preferences, legal considerations, group processes within courts and courts' political and social environments.

CJ 4120-3. Race, Class and Crime. This course examines the relationships between race, social class and crime. Attention is given to theoretical explanations, empirical research and patterns of criminal behavior and

focuses on historical frameworks that are relevant to current perspectives on the impact and interactions of race, class and crime in the field.

Prereq: CJ 3041.

CJ 4130-3. Poverty and Crime. This course involves an economic analysis of crime and the criminal justice system. Topics include empirical and theoretical analysis of the economic causes of criminal behavior, the social costs of crime and its prevention and the design of crime enforcement policies.

CJ 4140-3. Domestic Violence and Crime. This course examines the criminal justice systems response to intimate partner violence by focusing on the interactions between victims, offenders and the individual components of the criminal justice system (law enforcement and the judiciary). By exploring the dynamics of intimate partner violence this course addresses the theory, history, research, legislation and policy implications related to the criminal justice system's response to violence against women.

CJ 4170-3. Victim Studies. This course involves the scientific study of crime victims and focuses on the physical, emotional and financial harm people suffer at the hands of criminals. Focus is placed on the victim-offender relationships, interactions between victims and the criminal justice system and connections between victims and other social groups and institutions. The theory, history, research, legislation and policy implications related to the social construction of "the victim" are explored.

CJ 4180-3. Comparative Study of Criminal Justice Systems. This course analyzes the dynamics of criminality and the social response to criminality across countries. Special emphasis is placed on the methods of comparative legal analysis utilized to examine international differences in crime and justice, international cooperation in criminal justice and crime and development. Prereq: CJ 1001.

CJ 4230-3. Corrections and Treatment. This course examines the origins and historical development of prisons and jails in America. Particular attention is given to the impact of reform movements, the rise of centralized correctional systems and regional variations in the practice of punishment.

CJ 4410-3. Criminal Law and Constitutional Procedures. This course focuses on substantive criminal law and constitutional rights of the accused in criminal proceedings. Course content includes legal aspects of the investigation and arrest processes as well as the rules governing the admissibility of evidence in court.

CJ 4430-3. Law and Society. This course introduces students to the scholarly study of law. Students will have an opportunity to become familiar with social science perspectives of the law, legal institutions, the legal process and the impact of law on behavior, with particular emphasis on the study of criminal behavior and the criminal justice process in American society. Additional topics include theories of law and legality, comparative legal systems, lawyers, judges and juries and the use of social science in the courts.

CJ 4440-3. Courts and Social Policy. This course involves the study of emerging trends and issues in the administration of the courts, the emerging role of the judiciary in the administration of programs in the public and private sectors and the implications of court administration on social policy. Course content includes the history of the judicial approaches to the criminal justice administrative process and substantive social policy.

CJ 4520-3. Gangs and Criminal Organizations. This course traces the origins and historical development of the activities known as "organized crime." These crimes are some of the most dangerous to American society and range from the commonly known offenses of gambling and narcotics to the more subtle and sophisticated, less understood but equally serious, crimes of extortion, commercial bribery and political corruption.

CJ 4530-3. Families and Intergenerational Crime. This course focuses on the family as the primary institutional mechanism of social control. The course is structured around social learning theory and explores the relationships between exposure to childhood violence and violence in dating relationships during adolescence and later violent marital relationships. The "cycle of violence" is also discussed in terms of the impact on early childhood violence on juvenile delinquency, adult criminality and violent behavior in general.

CJ 4600-3. Special Topics in CJ. This highly specialized seminar addresses cutting-edge and emerging developments in the field of criminal justice and provides students and faculty with the opportunity to explore significant themes, issues and problems from a broad interdisciplinary perspective. Topics vary from semester to semester. Prereq: CJ 1001 and 2041.

CJ 4840-1 to 6. Independent Study. This course consists of faculty-guided research in an area of mutual interest to the student and instructor. Students are responsible for selecting their area of inquiry prior to contacting the instructor. Instructor approval is required.

CJ 4939-1 to 3. Internship/Cooperative Education. Internships involve a career-related supervised experiential course in a criminal justice agency. Permission to enroll must be preceded by an application for an internship. Approval by the instructor and advisor is required for undergraduate students.

CJ 5000-3. Law and Social Control. Provides an overview of the theory and application of criminal law in the context of social control. The course reviews various theoretical perspectives on law and society, focusing on the relationship between law and the structure and function of other social institutions. The course also examines aspects of the criminal law in action, assessing how legal definitions and sanctions are differentially interpreted and applied. Cross-listed with CJ 7000.

CJ 5100-3. Administration of Criminal Justice. Analyzes the policies and practices of agencies involved in the criminal justice process, from the detection of crime and arrest of suspects through prosecution, adjudication, sentencing and imprisonment, to release. The patterns of decisions and practices are reviewed in the context of a systems approach. Cross-listed with CJ 7100.

CJ 5120-3. Nature and Causes of Crime. Analyzes the social origins of criminal behavior and the impact of crime on society. Various categories of deviant, delinquent and criminal behaviors are examined and attempts to control such behavior are assessed. Connections between social institutions, social problems and illegal activities and the response of the public to the threat of crime are examined. Cross-listed with CJ 7120.

CJ 5320-3. Seminar: Police Administration. Considers the major issues confronting police executives, such as professionalism, recruitment, selection, training, deployment, innovation, evaluation and charges of brutality, inefficiency and corruption. Cross-listed with CJ 7320.

CJ 5321-3. Research Methods in Criminal Justice. Provides an assessment of research strategies in criminal justice through an examination of applied research designs and analytical models. The logic and rationale of these various strategies are contrasted and their relative merits are critiqued. Selected research problems in the criminal justice system are utilized to illustrate the application and interpretation of alternative strategies. Cross-listed with CJ 7321.

CJ 5325-3. Qualitative Methods for Criminal Justice. Focuses on qualitative methods applicable to research in the field of criminal justice. The primary focus is on ethnographic approaches employing such fieldwork techniques as observation, participant observation, interviews, content analysis, life histories and case studies. Cross-listed with CJ 7325.

CJ 5510-3. Seminar: Contemporary Issues in Law Enforcement. Examines current thinking and experience with respect to changing and reforming police programs and practices. The course focuses primarily on the American police experience, reviewing major innovations, exploring their rationale and examining organizational impediments to their implementation. Cross-listed with CJ 7510.

CJ 5520-3. Seminar: Corrections. Provides a critical examination of the development and implementation of correctional systems in America. The course presents the origins of correctional efforts and the evolution of the prison; reviews punishment and rehabilitation rationales in the context of sentencing models; examines the social organization of the prison, including inmate subcultures and staff work strategies; and assesses the inmates' rights movement and the impact of judicial intervention in correctional settings. Cross-listed with CJ 7520.

CJ 5530-3. Seminar: Community Corrections. Analyzes the theories and practices of probation and parole, responses of paroling authorities

to public pressures and court controls and their implications for rehabilitation. Efforts to bridge institutional settings and community life, as well as the feasibility and effectiveness of treating individuals under sentence in the community, are reviewed. Cross-listed with CJ 7530.

CJ 5540-3. Seminar: Juvenile Justice Administration. Examines the policies and practices of agencies in processing youthful offenders through the juvenile court system, reviews trends in juvenile justice policymaking and assesses changes in response to juvenile crime by both the juvenile justice and criminal justice systems. Cross-listed with CJ 7540.

CJ 5550-3. Seminar: Criminal Justice Policy Analysis. Provides a survey of conceptual and design strategies in criminal justice policy analysis. The logic and rationale of these various strategies are contrasted, and their relative merits are critiqued. Selected policy issues in the criminal justice system are utilized to illustrate the application and interpretation of alternative strategies. Cross-listed with CJ 7550.

CJ 5551-3. Seminar: Judicial Administration. Analyzes judicial organization, court administration, and criminal court judicial decision making practices within the context of the broader operation of the criminal justice system. Special attention is paid to the social organization of the courtroom, examining the special roles of judges, prosecutors and defense attorneys. Cross-listed with CJ 7551.

CJ 5552-3. Seminar: Criminal Justice Ethics. Offers a normative framework within which to explore ways to increase sensitivity to the demands of ethical behavior among criminal justice personnel. The application of a normative perspective enhances the possibility that moral problems are better understood, more carefully analyzed and rendered more tractable. Applied ethics forces a reflection not just on ethics, but also on the nature and operation of the criminal justice system itself. Cross-listed with CJ 7552.

CJ 5553-3. Seminar: Women and Criminal Justice. Explores issues surrounding women as offenders, victims and criminal justice professionals. Investigates explanations for the involvement of women in illegal activities. Analyzes the plight of battered women, rape victims and other female victims. Examines the participation of women in law enforcement judicial processes, corrections and lawmaking. Cross-listed with CJ 7553.

CJ 5554-3. Seminar: Criminal Justice Reform. Provides an overview of reform efforts in the criminal justice system. Selected theoretical approaches and policies are examined and assessed in light of their assumptions and programmatic applications. The rational and process underlying selected reform strategies are explored. The implications of the effects of reform in criminal justice policy making and decision making are analyzed. Cross-listed with CJ 7554.

CJ 5571-3. Advanced Seminar: The Social Organization of Crime. Explores the relationship of neighborhood social disorganization to the dynamics of crime from a social ecology perspective. The course examines the underlying social causes of phenomena such as criminal victimization, violent and property crime, neighborhood fear, neighborhood deterioration and recidivism. The course examines social, structural, and ecological characteristics of neighborhoods and communities in affecting crime. Cross-listed with CJ 7571.

CJ 5572-3. Advanced Seminar: Race, Crime and Justice. Examines the role of race in criminal justice processing. This course examines the research findings, interpretations, issues and implications in assessing the impact of race in the administration of criminal justice. Explores the policy implications concerning the nature and extent of racial disparities in the criminal justice system and lays out a research agenda to more strategically address these issues within criminal justice policy making. Cross-listed with CJ 7572.

CJ 5573-3. Advanced Seminar: Organized Crime. Examines the issues involved in understanding those economic activities by which persons involved in "organized crime" make money. Major topics include: the structure of drug trafficking; the operations of illegal gambling activities; the culture and functions of loan sharking; the economics of labor racketeering; and the role of criminal groups in fencing stolen goods and providing other services to hijackers and burglars. Cross-listed with CJ 7573.

CJ 5574-3. Advanced Seminar: White Collar Crime. Employs both the social science and legal approaches to examine crime committed by corporations as well as by individuals in white collar occupations. The course covers how such crimes are socially defined, who commits them, who is victimized by them, which social contexts promote them and how society and the criminal justice system respond to them. Cross-listed with CJ 7574.

CJ 5575-3. Advanced Seminar: The Mentally Disordered Offender. Examines the offender who may be mentally disordered. A survey is made of the various phases of the criminal justice system where psychiatrists are involved, e.g., diversion, fitness, insanity and sentencing. Dangerous sex offender legislation, "not guilty by reason of insanity" and "guilty but mentally ill" statutes and issues concerning confidentiality, informed consent and treatment are addressed. Cross-listed with CJ 7575.

CJ 5576-3. Advanced Seminar: Social Science in the Criminal Justice System. Examines the use of social science as a tool for legal analysis within the criminal justice system. The course examines how social science research is used to resolve relatively simple factual disputes, then moves on to more complex issues that arise when social science is invoked to make or to change law, both constitutional law (particularly the first, sixth, eighth and fourteenth amendments) and common law, particularly the construction of procedural rules that govern the operations of the criminal justice system. Cross-listed with CJ 7576.

CJ 5910-3. Women and Violence: A Sociological Perspective. This course is a sociological, feminist analysis of violence against women and girls, that addresses the intersection of sexism and other forms of oppression such as racism, classism and heterosexism within historical, cultural, social and institutional contexts. Topics covered focus on overt and covert forms of sexual coercion, harassment and assault, battering and stalking. Cross-listed with CJ 7910, P AD 5910 and 7910.

CJ 5920-3. Psychology of Violence Against Women. This class addresses the contributions and the limitations of current empirical and clinical psychological literatures about domestic violence. Topics covered include: distinguishing among mental health professionals regarding work with DV clients; the psychological impacts of domestic violence; services useful for responding to the needs of women and children; and an introduction to the psychology and treatment of batterers. Cross-listed with CJ 5920, P AD 5920 and 7920

CJ 5930-3. Battered Women and the Legal System. This course provides a practical understanding of how the following relate to battered women and their children; a) major developments in federal, state, tribal, administrative, statutory and case law; b) the role and responses of the law enforcement, judges, attorneys, victim assistance providers and other legal system agents; and c) the role and process of victim advocacy. Cross-listed with CJ 7930, P AD 5930 and 7930.

CJ 5940-3. Domestic Violence Social Change and Advocacy. This course provides students information on the theories and strategies behind contemporary social change movements and the skills necessary to organize and implement actions to influence public awareness and policy. The values of American society are complex and require advocates/activists to develop a heightened sense of self, community and an ethical framework while confronting sexism, racism and other forms of oppression. Cross-listed with CJ 7940, P AD 5940 and 7940.

CJ 6600-3. Special Topics in Criminal Justice. This highly specialized seminar addresses cutting-edge and emerging developments in the field of criminal justice and provides students and faculty with the opportunity to explore significant themes, issues and problems from a broad interdisciplinary perspective. Topics vary from semester to semester. Course may be taken for credit more than once, provided subject matter is not repeated. Cross-listed with CJ 7600.

CJ 6840-1 to 3. Independent Study. Affords the student the opportunity to pursue creative research activities under the individual supervision of a full-time faculty member. No more than six semester hours of credit for independent study may be applied toward the MCJ degree. MCJ Prereq: 12 semester hours of criminal justice course work and permission of both program advisor and instructor.

CJ 6910-3. Field Study in Criminal Justice. For students who have not had practitioner experience, a full- or part-time internship is required. Prereq: 18 hours of criminal justice course work and permission of both the program advisor and instructor.

CJ 6950-3. Master's Thesis. Independent original research project supervised and evaluated by a thesis committee. Prereq: 33 semester hours of course work and permission of MCJ director, program advisor and thesis chair.

CJ 7000-3. Law and Social Control. Provides an overview of the theory and application of criminal law in the context of social control. The course reviews various theoretical perspectives on law and society, focusing on the relationship between law and the structure and function of other social institutions. The course also examines aspects of the criminal law in action, assessing how legal definitions and sanctions are differentially interpreted and applied. Cross-listed with CJ 5000.

CJ 7100-3. Administration of Criminal Justice. Analyzes the policies and practices of agencies involved in the criminal justice process, from the detection of crime and arrest of suspects through prosecution, adjudication, sentencing and imprisonment, to release. The patterns of decisions and practices are reviewed in the context of a systems approach. Cross-listed with CJ 5100.

CJ 7120-3. Nature and Causes of Crime. Analyzes the social origins of criminal behavior and the impact of crime on society. Various categories of deviant, delinquent and criminal behaviors are examined and attempts to control such behavior are assessed. Connections between social institutions, social problems and illegal activities and the response of the public to the threat of crime are examined. Cross-listed with CJ 5120.

CJ 7320-3. Seminar: Police Administration. Considers the major issues confronting police executives, such as professionalism, recruitment, selection, training, deployment, innovation, evaluation and charges of brutality, inefficiency and corruption. Cross-listed with CJ 5320.

CJ 7321-3. Research Methods in Criminal Justice. Provides an assessment of research strategies in criminal justice through an examination of applied research designs and analytical models. The logic and rationale of these various strategies are contrasted and their relative merits are critiqued. Selected research problems in the criminal justice system are utilized to illustrate the application and interpretation of alternative strategies. Cross-listed with CJ 5321.

CJ 7325-3. Qualitative Methods for Criminal Justice. Focuses on qualitative methods applicable to research in the field of criminal justice. The primary focus is on ethnographic approaches employing such fieldwork techniques as observation, participant observation, interviews, content analysis, life histories and case studies. Cross-listed with CJ 5325.

CJ 7510-3. Seminar: Contemporary Issues in Law Enforcement. Examines current thinking and experience with respect to changing and reforming police programs and practices. The course focuses primarily on the American police experience, reviewing major innovations, exploring their rationale and examining organizational impediments to their implementation. Cross-listed with CJ 5510.

CJ 7520-3. Seminar: Corrections. Provides a critical examination of the development and implementation of correctional systems in America. The course presents the origins of correctional efforts and the evolution of the prison; reviews punishment and rehabilitation rationales in the context of sentencing models; examines the social organization of the prison, including inmate subcultures and staff work strategies; and assesses the inmates' rights movement and the impact of judicial intervention in correctional settings. Cross-listed with CJ 5520.

CJ 7530-3. Seminar: Community Corrections. Analyzes the theories and practices of probation and parole, responses of paroling authorities to public pressures and court controls and their implications for rehabilitation. Efforts to bridge institutional settings and community life, as well as the feasibility and effectiveness of treating individuals under sentence in the community, are reviewed. Cross-listed with CJ 5530.

CJ 7540-3. Seminar: Juvenile Justice Administration. Examines the policies and practices of agencies in processing youthful offenders through the juvenile court system, reviews trends in juvenile justice policy

making and assesses changes in response to juvenile crime by both the juvenile justice and criminal justice systems. Cross-listed with C J 5540.

C J 7550-3. Seminar: Criminal Justice Policy Analysis. Provides a survey of conceptual and design strategies in criminal justice policy analysis. The logic and rationale of these various strategies are contrasted, and their relative merits are critiqued. Selected policy issues in the criminal justice system are utilized to illustrate the application and interpretation of alternative strategies. Cross-listed with C J 5550.

C J 7551-3. Seminar: Judicial Administration. Analyzes judicial organization, court administration and criminal court judicial decision making practices within the context of the broader operation of the criminal justice system. Special attention is paid to the social organization of the courtroom, examining the special roles of judges, prosecutors and defense attorneys. Cross-listed with C J 5551.

C J 7552-3. Seminar: Criminal Justice Ethics. Offers a normative framework within which to explore ways to increase sensitivity to the demands of ethical behavior among criminal justice personnel. The application of a normative perspective enhances the possibility that moral problems are better understood, more carefully analyzed and rendered more tractable. Applied ethics forces a reflection not just on ethics, but also on the nature and operation of the criminal justice system itself. Cross-listed with C J 5552.

C J 7553-3. Seminar: Women and Criminal Justice. Explores issues surrounding women as offenders, victims and criminal justice professionals. Investigates explanations for the involvement of women in illegal activities. Analyzes the plight of battered women, rape victims and other female victims. Examines the participation of women in law enforcement, judicial processes, corrections and lawmaking. Cross-listed with C J 5553.

C J 7554-3. Seminar: Criminal Justice Reform. Provides an overview of reform efforts in the criminal justice system. Selected theoretical approaches and policies are examined and assessed in light of their assumptions and programmatic applications. The rational and process underlying selected reform strategies are explored. The implications of the effects of reform in criminal justice policy making and decision making are analyzed. Cross-listed with C J 5554.

C J 7571-3. Advanced Seminar: The Social Organization of Crime. Explores the relationship of neighborhood social disorganization to the dynamics of crime from a social ecology perspective. The course examines the underlying social causes of phenomena such as criminal victimization, violent and property crime, neighborhood fear, neighborhood deterioration and recidivism. The course examines social, structural and ecological characteristics of neighborhoods and communities in affecting crime. Cross-listed with C J 5571.

C J 7572-3. Advanced Seminar: Race, Crime and Justice. Examines the role of race in criminal justice processing. This course examines the research findings, interpretations, issues and implications in assessing the impact of race in the administration of criminal justice. Explores the policy implications concerning the nature and extent of racial disparities in the criminal justice system and lays out a research agenda to more strategically address these issues within criminal justice policy making. Cross-listed with C J 5572.

C J 7573-3. Advanced Seminar: Organized Crime. Examines the issues involved in understanding those economic activities by which persons involved in "organized crime" make money. Major topics include: the structure of drug trafficking; the operations of illegal gambling activities; the culture and functions of loan sharking; the economics of labor racketeering; and the role of criminal groups in fencing stolen goods and providing other services to hijackers and burglars. Cross-listed with C J 5573.

C J 7574-3. Advanced Seminar: White Collar Crime. Employs both the social science and legal approaches to examine crime committed by corporations as well as by individuals in white collar occupations. The course covers how such crimes are socially defined, who commits them, who is victimized by them, which social contexts promote them and how society and the criminal justice system respond to them. Cross-listed with C J 5574.

C J 7575-3. Advanced Seminar: The Mentally Disordered Offender. Examines the offender who may be mentally disordered. A survey is made of the various phases of the criminal justice system where psychiatrists are involved, e.g., diversion, fitness, insanity and sentencing. Dangerous sex offender legislation, "not guilty by reason of insanity" and "guilty but mentally ill" statutes and issues concerning confidentiality, informed consent and treatment are addressed. Cross-listed with C J 5575.

C J 7576-3. Advanced Seminar: Social Science in the Criminal Justice System. Examines the use of social science as a tool for legal analysis within the criminal justice system. The course examines how social science research is used to resolve relatively simple factual disputes, then moves on to more complex issues that arise when social science is invoked to make or to change law, both constitutional law (particularly the first, sixth, eighth and fourteenth amendments) and common law, particularly the construction of procedural rules that govern the operations of the criminal justice system. Cross-listed with C J 5576.

C J 7600-3. Special Topics in Criminal Justice. This highly specialized seminar addresses cutting-edge and emerging developments in the field of criminal justice and provides students and faculty with the opportunity to explore significant themes, issues and problems from a broad interdisciplinary perspective. Topics vary from semester to semester. Course may be taken for credit more than once, provided subject matter is not repeated. Cross-listed with C J 6600.

C J 7910-3. Women and Violence: A Sociological Perspective. This course is a sociological, feminist analysis of violence against women and girls, that addresses the intersection of sexism and other forms of oppression such as racism, classism and heterosexism within historical, cultural, social and institutional contexts. Topics covered focus on overt and covert forms of sexual coercion, harassment and assault, battering and stalking. Cross-listed with C J 5910, P AD 5910 and 7910.

C J 7920-3. Psychology of Violence Against Women. This class addresses the contributions and the limitations of current empirical and clinical psychological literatures about domestic violence. Topics covered include: distinguishing among mental health professionals regarding work with DV clients; the psychological impacts of domestic violence; services useful for responding to the needs of women and children; and an introduction to the psychology and treatment of batterers. Cross-listed with C J 5920, P AD 5920 and 7920.

C J 7930-3. Battered Women and the Legal System. This course provides a practical understanding of how the following relate to battered women and their children; a) major developments in federal, state, tribal, administrative, statutory and case law; b) the role and responses of the law enforcement, judges, attorneys, victim assistance providers and other legal system agents; and c) the role and process of victim advocacy. Cross-listed with C J 5930, P AD 5930 and 7930.

C J 7940-3. Domestic Violence Social Change and Advocacy. This course provides students information on the theories and strategies behind contemporary social change movements and the skills necessary to organize and implement actions to influence public awareness and policy. The values of American society are complex and require advocates/activists to develop a heightened sense of self, community and an ethical framework while confronting sexism, racism and other forms of oppression. Cross-listed with C J 5940, P AD 5940 and 7940.

C J 8840-1 to 3. Independent Study. Affords the student the opportunity to pursue creative research activities under the individual supervision of a full-time faculty member. No more than six semester hours of credit for independent study may be applied toward the PhD degree. Prereq: 12 semester hours of criminal justice course work and permission of both the program advisor and the instructor.

C J 8990-1 to 10. Doctoral Dissertation. Upon admittance to candidacy, students must be continuously registered for dissertation credit each fall and spring semester or be automatically dropped from the program. Students must register for 7.0 credit hours per semester. In cases where students will not be using any university resources during a particular semester, they may petition the PhD director to register for only 3.0 credit hours to maintain continuous enrollment. Students must be registered for dissertation credit during the semester they have a colloquium or defense.

CLAS: College of Liberal Arts

CLAS 1020-1. Introduction to Career Planning. Introduces an integrative career planning process that fosters an in-depth understanding of individual interests, personality, skills and values which serves as a foundation for choosing satisfying majors and careers. Students research career options and develop a career plan. Topics include changing workforce, employability skills and current workplace trends.

CLAS 1100-2. American Ways: Communication, Culture and the Classroom. Provides an introduction to U.S. cultural issues. Geared specifically for foreign students, this course serves to orient students to the social and historical milieu in which they will be functioning while pursuing their degree. Although the focus is on the U.S., the subject matter is to serve as a vehicle for cross-cultural analysis.

CLAS 1111-1 to 3. Freshman Seminar. An academic course for entering freshmen, taught under a controlled enrollment environment to promote student faculty interaction and critical thinking skills. An ancillary function is to provide students with academic proficiencies necessary for success in a liberal arts baccalaureate program.

CLAS 2939-1 to 3. Cooperative Education.

CLAS 3020-3. Workplace Leadership. Investigates the diverse nature of leadership and the place of leadership in the workplace. While the main emphasis is on the sociology of organizations and leadership styles, a strong interdisciplinary approach is employed. Students are required to think about various needs, origins, moral dilemmas, requirements and techniques of leadership in a variety of groups and organizations.

CLAS 3100-2. Perspectives on Teaching. Introduces major concepts in education; e.g., characteristics of schools, students, the roles of teachers, voices that influence education, innovations in education and the teaching responsibilities that future teachers are expected to assume. Prereq: an education internship.

CLAS 3935-1 to 10. Outward Bound. The University of Colorado at Denver offers college credit for Colorado Outward Bound School programs. COBS promotes education, service and personal growth through wilderness experience. COBS offers courses in a variety of locations that span the canyons, rivers and mountains of Colorado and the West.

CLAS 3939-1 to 6. Cooperative Education.

CLAS 4840-1 to 3. Independent Study.

CMMU: Communication (Liberal Arts and Sciences)

CMMU 1011-3. Fundamentals of Communication: GT-SS3. Studies communication theory and application. Topics include communication models, interpersonal communication and the concept of self, nonverbal communication, message preparation and analysis and decision making.

CMMU 1021-3. Fundamentals of Mass Communication: GT-SS3. Studies relationships among television, radio, newspapers, magazines and society. Examines the effects of exposure to mass media, mass media ownership and control, mass media law, technical aspects of message and program production and delivery.

CMMU 1051-1 to 3. Topics in Communication. Special classes for faculty-directed experiences examining communication issues and problems not generally covered in the curriculum.

CMMU 1111-1 to 3. Freshman Seminar.

CMMU 2041-3. Interpersonal Communication. Focuses on the theory and development of interpersonal relationships. Issues covered include the communication process, self versus others, self-esteem, person perception, the attraction process, nonverbal communication, relationship development and family communication.

CMMU 2050-3. Business and Professional Speaking. Development of communication skills often used in business and professional settings, with an emphasis on various kinds of presentations.

CMMU 2101-3. Presentational Speaking. Theory and practice of presentational speaking in a variety of contexts to accomplish goals of asserting individuality, building community, securing adherence, discovering knowledge and belief and offering perspectives.

CMMU 2800-3. Technology for Workplace Communication.

Provides students with skills necessary to apply computer technologies that are currently used in the workplace. Topics include the Internet and software applications in advanced work processing, presentations, spreadsheets and databases.

CMMU 2939-1 to 3. Cooperative Education.

CMMU 3120-3. Technical Communication. Develops students' abilities to prepare and communicate information in diverse media, including written, spoken, graphic and electronic. Technical communication focuses on communication used on the job as opposed to communication in academic settings. Students prepare communications in response to real-world cases and demonstrate the integration of communication through these different media. Prereq: ENGL 1020.

CMMU 3271-3. Communication and Diversity. Explores the complexities of communication across diverse identities such as race, ethnicity and gender. Course attempts to seek solutions via sharing meaning and discovering common ground.

CMMU 3620-3. Television Production. Introduces basic television production principles, practices, techniques and equipment.

CMMU 3650-3. Mass Communication and Society. Examines the forms, extent, uses, effects, potentials and problems of mass media and their relation to American society.

CMMU 3680-3. Mass Communication Skills. Instruction in writing and editing skills associated with the production of print, radio, television and film.

CMMU 3840-1 to 3. Independent Study.

CMMU 3939-1 to 3. Internship/Cooperative Education. Applies communication or technical communication concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA.

CMMU 4011-3. Research Methods: Quantitative. Examines quantitative techniques used by researchers in communication, including laboratory research, field and survey research, content analysis and interaction analysis. Objective of the course is to give students enough background to read critically in the social sciences. Cross-listed with CMMU 5011.

CMMU 4015-3. Communication and Civility. Examines the central role of communication in the creation of a civil and humane society. The definition, understanding and practices of civility in public discourse and in professional, social and personal relationships are explored. Film, literature, music and other texts are utilized to illustrate key concepts and serve as catalysts for discussion.

CMMU 4020-3. Feminist Perspectives on Communication. Introduces the communication theories of major feminist theorists such as Mary Daly, bell hooks and Sonia Johnson, with a focus on how their theories challenge and transform current understandings of communication. Cross-listed with CMMU 5020.

CMMU 4021-3. Perspectives on Rhetoric. Introduces major theories of rhetoric from classical through contemporary times, including the theories of Aristotle, Cicero, I. A. Richards, Kenneth Burke, Michel Foucault and Jurgen Habermas. Cross-listed with CMMU 5021.

CMMU 4022-3. Critical Analysis of Communication. Surveys research methods used to analyze messages from rhetorical and critical perspectives. Cross-listed with CMMU 5022.

CMMU 4031-3. Perspectives on Communication. Overview of major theories and literature in the communication field that serve as the foundation for the study of communication.

CMMU 4041-3. Theories and Methods in Interpersonal Communication. Examines theories and methods used in interpersonal communication and the role of communication in the development, maintenance and deterioration of personal relationships. Attention is also given to major types of personal relationships, such as marriage and friendship and how communication reflects and determines the dynamics of those relationships. Cross-listed with CMMU 5041.

CMMU 4045-3. Female-Male Friendships. Explores friendships between women and men across the life cycle and the role of communication in those friendships. Topics include how such friendships impact self-concepts,

advantages of female-male friendships and barriers to female-male friendships. Cross-listed with CMMU 5045.

CMMU 4111-3. Theories of Leadership. Examines research and applications related to the major theories of leadership. Emphasizes a critical reading of research confirming or denying various theories and stresses the historical development of theories of leadership behavior and characteristics. Cross-listed with CMMU 5111.

CMMU 4120-3. Writing Technical Reports. Studies various aspects of technical reports, including the theoretical applications behind making reports persuasive. Topics include informal and formal reports, progress reports, feasibility reports, empirical reports and recommendation reports. Prereq: CMMU 3120. Cross-listed with CMMU 5120.

CMMU 4130-3. User Interface Design and Analysis. Introduces graphical user interface design through analysis of empirical studies and hands-on application of human-computer interaction principles. Prereq: CMMU 3120. Cross-listed with CMMU 5130.

CMMU 4140-3. Argumentation. Examines classical through contemporary theories, with special attention to types of propositions, burden of proof, analysis of issues, evidence, reasoning, fallacies, case construction, refutation and ethics.

CMMU 4151-3. Group Communication. Analysis of the impact of small groups on individual behavior in social and task settings. Focuses on the dynamics of small groups, including leadership, roles, norms, goals and cohesion.

CMMU 4200-3. Persuasion. Examines influence and communication at individual, group, organizational and societal levels. A theoretical and applied analysis of persuasion, including examination of public opinion, individual attitudes, beliefs, values, sources, credibility, ethics and certain message and audience variables.

CMMU 4212-3. Software Documentation. Covers all aspects of software documentation, including project management, audience/use analysis, document design, organization, writing and interviewing techniques, editing, production and diagnostic and usability testing. Prereq: Previous technical writing course, industry experience, or permission of instructor. Cross-listed with CMMU 5212.

CMMU 4215-3. Ethics in Communication. Designed to help students identify and address the daily ethical challenges that occur in private, social and professional contexts. Focus is on recognizing, analyzing and resolving real-world ethical dilemmas using diverse approaches to ethical decision making. Cross-listed with CMMU 5215.

CMMU 4220-3. Human Information Processing. Considers the formation of attitude, mental set and perception as a response to discourse organization. Examines several methods to analyze human responses to linguistic, graphic and mathematical/statistical representations.

CMMU 4221-3. Research Methods: Qualitative. Applies qualitative research methods to human communication practices, including the processes of designing qualitative studies, collecting data, analyzing and interpreting data and reporting results. Cross-listed with CMMU 5221.

CMMU 4222-3. Professional Communication. Provides strategies for analyzing workplace situations, constructing clear and persuasive arguments and narratives to bring about positive change in organizations and assessing the effectiveness of communication. Prereq: CMMU 3120, industry experience or permission of instructor.

CMMU 4230-3. Nonverbal Communication. Studies nonverbal behaviors that accompany or replace verbal communication, including macrospace, proxemics, kinesics, facial expression, eye contact, gestures, vocal characteristics, touch and personal adornment. Cross-listed with CMMU 5230.

CMMU 4232-3. Copyediting. Overview of the Editing Process. Students learn copyediting process, review grammar and style, learn to use style guides and develop an efficient editing process. Prereq: Previous technical writing course or industry experience.

CMMU 4240-3. Organizational Communication. Relationships among such communication factors as flow, media, channel, diversity, information delivery and organization functioning, morale and productivity. Cross-listed with CMMU 5240.

CMMU 4245-3. Advanced Organizational Communication. Explores critical theoretical perspectives on communication in complex organizations, including issues and standpoints that have not been included in mainstream theory and research. Analyzes assumptions and pragmatic solutions associated with these theories. Cross-listed with CMMU 5245.

CMMU 4255-3. Negotiations and Bargaining. Designed to allow students to study theories and apply concepts that explain the influences of various forms of mediating, reducing and/or resolving conflict among individuals, groups, organizations, nations and cultures. Cross-listed with CMMU 5255.

CMMU 4260-3. Communication and Conflict. Studies the influence of communication on intrapersonal, interpersonal, intragroup and intergroup conflict situations.

CMMU 4262-3. Mediation. Explores theoretical and practical aspects of mediation in a variety of contexts ranging from divorce mediation to labor-management disputes. Cross-listed with CMMU 5262.

CMMU 4265-3. Gender and Communication. Explores the relationship between gender and communication, including how language treats women and men differently and verbal and nonverbal differences in women's and men's communication. Cross-listed with CMMU 5265.

CMMU 4268-3. Communication and Diversity in U.S. History. Explores issues of diversity and community in the construction of U.S. culture. Emphasis on legal and historical texts that codify or challenge majoritarian notions of difference and systems of social control.

CMMU 4270-3. Intercultural Communication. Examines the philosophy, process, problems and potentials unique to communication across cultural boundaries.

CMMU 4275-3. Family Communication. Explores family communication processes in traditional and nontraditional families through examination of theories and research on the family. Topics include conflict, family secrets, decision decision-making and practical guidelines for improved communication in families.

CMMU 4280-3. Communication and Change. Examines the role of communication in change processes of various kinds, including social change and diffusion of innovations.

CMMU 4282-3. Environmental Communication. Studies the communication processes involved in policies and practices affecting natural and human environments. Cross-listed with CMMU 5282.

CMMU 4285-3. Communication Processes in Technology Transfer. Surveys research addressing technology transfer processes. Students examine and critique models of technology transfers and the role of individuals, artifacts and small teams in technology transfers.

CMMU 4290-3. Web Design. Covers writing Web pages in HTML, beginning Photoshop, style sheets, bitmapped animations, issues of usable layout, navigability, structure, typography and color on the Web. Projects require students to develop static Web sites. Prereq: CMMU 3120 or permission of instructor. Cross-listed with CMMU 5290.

CMMU 4300-3. Multimedia Authoring. Analysis and evaluation of components of multimedia development and hands-on instruction featuring computer animation for advertising, training and educational projects. Cross-listed with CMMU 5300.

CMMU 4310-3. Advanced Multimedia Authoring. Builds upon the fundamentals of multimedia authoring to develop advanced skills and theory. Students concentrate on developing advanced multimedia applications for education or industry. Prereq: CMMU 4300, 5300, previous multimedia experience, or permission of the instructor. Cross-listed with CMMU 5310.

CMMU 4320-3. Content Management. Centers on large-scale documentation development using XML. Students learn "single-source" documentation management, a cost-effective way to centralize information and extend it across different platforms and different audiences. Prereq: CMMU 4290, 5290 or permission of instructor. Cross-listed with CMMU 5320.

CMMU 4330-1. Dynamic Web Design Workshop. Introduces large-scale Web site development using XML and PHP. Students learn "single-source" documentation management, a cost-effective way to

centralize information and extend it across different platforms (wireless, browsers, help files) and audiences (specialists, managers, customers). Note: Independently taught modules may be taken separately or concurrently. Prereq: CMMU 4290, 5290 or knowledge of HTML, CSS and Photoshop. Cross-listed with CMMU 5330.

CMMU 4340-3. Advanced Web Design. Focuses on user interface design for the World Wide Web using Dynamic HTML, pre-designed CGI scripts downloadable from the Web, animated vector and bitmapped graphics. Note: continuation of CMMU 4290, 5290. Prereq: CMMU 4290, 5290 or knowledge of HTML, CSS and Photoshop. Cross-listed with CMMU 5340.

CMMU 4410-3. Science Writing. An intensive practice in composing for diverse science publication genres and venues and practice in analyzing the ways consumers obtain and process information about scientific developments and controversies. Prereq: at least one writing or composition course at the 3000 level or above. Cross-listed with CMMU 5410.

CMMU 4500-3. Health Communication. Examines the role of communication in a wide range of health contexts. Topics include cultural constructions of health and illness, public health communication campaigns, client-provider interactions, telemedicine, community-based health programs and medical journalism. Cross-listed with CMMU 5500.

CMMU 4510-3. Usability Testing. Teaches students how to evaluate technical documentation testing needs, evaluate testing options for their feasibility and costs/benefits, design and carry out a usability testing plan, evaluate and write up test results for actual client documents and products. Prereq: CMMU 3120 or permission of instructor. Cross-listed with CMMU 5510.

CMMU 4605-3. Rhetorical Theory for Technical Communication. Examines the principles of rhetorical theory and its relationship to technical communication. Students analyze traditional and contemporary rhetorical theories and apply them to contemporary issues of document design. Prereq: CMMU 3120, 3650, 4021, 4120, 4200, 4240, 4215, or permission of instructor. Cross-listed with CMMU 5605.

CMMU 4620-3. Health Risk Communication. Acquaints students with contemporary theory, research and practice in health risk communication. Prereq: CMMU 3120, 4011, 4200, 4500 or permission of instructor. Cross-listed with CMMU 5620, HBCS 4620, 5620 and ENVS 5620.

CMMU 4621-3. Visual Communication. Explores the social, cultural and behavioral effects of visual images in a variety of contexts, including graffiti, film, advertising, art and architecture. Cross-listed with CMMU 5621.

CMMU 4635-3. Principles of Public Relations. Introduces theory and practice in the field of public relations, including topics such as effects upon society, public opinion, target audiences, adaptation to the media, uses, laws and ethics. Cross-listed with CMMU 5635.

CMMU 4640-3. Advanced Public Relations. Examines key public relations practices in private, not-for-profit and public sectors. Strategic planning processes, research methods, evaluation, reports and collateral development are addressed, with an emphasis on the intersection of theory and practice. Prereq: CMMU 4635. Cross-listed with CMMU 5640.

CMMU 4665-3. Principles of Advertising. Provides a fundamental understanding and appreciation of advertising in today's global society, including consumer motivation, buying behavior, research, creative development and media planning. Cross-listed with CMMU 5665.

CMMU 4680-3. Mass Communication Law and Policy. Covers issues of mass communication and the law and ethics, including issues of the First and Fourth Amendments, communication regulations, intellectual property, public access and obscenity. Cross-listed with CMMU 5680.

CMMU 4681-3. Communication Issues in Trial Court Practices and Processes. Introduces students to communication and language research aimed at improving the fairness, reliability and validity of court and judicial processes, including lawyer-client interviews, interrogatories, jury selection, jury instructions, witness examination and the use of language evidence in court. Prereq: ENGL 2030 or equivalent. Cross-listed with CMMU 5681.

CMMU 4682-3. Political Communication. Examines the communication processes involved in mediated political events. Topics include the stages of the campaign process, media coverage of the political campaign process and literacy skills needed to understand political advertising.

CMMU 4688-3. Senior Seminar: Transitioning from College to Career. Synthesis experience for communication majors designed to prepare students to enter the job market and to integrate and reflect on their experience in communication. Prereq: Communication major status.

CMMU 4710-1 to 3. Topics in Communication. Special classes for faculty-directed experiences examining communication issues and problems not generally covered in the curriculum. Cross-listed with CMMU 5710.

CMMU 4750-3. Legal Reasoning and Writing. Introduces the fundamentals of legal reasoning and legal argumentation through intensive class discussion, formal debate and writing. Attention is given to the relationship between case and statutory law and their application in trial and appeals courts in the United States. Prereq: ENGL 1020, 2030 and any one 3000-level English/writing course or CMMU 3120. Cross-listed with CMMU 5750, P SC 4757, 5747.

CMMU 4755-3. Universal Internet Usability. Beginning Web design course that introduces students to writing Web sites for nonnative English speakers and for users with disabilities. Students learn HTML, style sheets, basic Photoshop, layout, navigability and usability for these groups. Prereq: CMMU 3120 (or equivalent) or permission of instructor. Cross-listed with CMMU 5755.

CMMU 4760-3. Computer-Mediated Communication. Analysis and discussion of the nature, use and effects of computer-mediated communication in interpersonal, work, educational, societal and international contexts. Focus is on the social aspects of computer-mediated communication rather than on specific software or hardware technologies. Prereq: CMMU 2800 or permission of instructor. Cross-listed with CMMU 5760.

CMMU 4805-3. Graphics. Instructs technical communicators in designing information that communicates visually as well as verbally. Students focus on document design; illustration; information retrieval; desktop publishing using Quark Xpress; and working with typesetters, printers and graphic artists. Prereq: CMMU 3120. Cross-listed with CMMU 5805.

CMMU 4830-3. Visual Principles in Technical Communication. Explores the rhetoric and usability of typography and text displays, tables and charts, data graphics, technical pictorials, page and screen layout and other visual elements of technical communication. The course focuses on principles and research, not software training. Prereq: CMMU 3120. Cross-listed with CMMU 5830.

CMMU 4840-1 to 3. Independent Study. Prereq: permission of instructor.

CMMU 4995-1 to 15. Travel Study Topics. Students study various topics in a foreign country led by a CU-Denver instructor; register through the Office of International Education. Cross-listed with CMMU 5995.

CMMU 5011-3. Research Methods: Quantitative. Examines quantitative techniques used by researchers in communication, including laboratory research, field and survey research, content analysis and interaction analysis. Objective of the course is to give students enough background to read critically in the social sciences. Cross-listed with CMMU 4011.

CMMU 5015-3. Communication and Civility. Examines the central role of communication in the creation and humane society. The definition, understanding and practices of civility in public discourse and in professional, social and personal relationships are explored. Film, literature, music and other texts are utilized to illustrate key concepts and serve as catalysts for discussion.

CMMU 5020-3. Feminist Perspectives on Communication. Introduces the communication theories of major feminist theorists such as Mary Daly, bell hooks and Sonia Johnson, with a focus on how their theories challenge and transform current understandings of communication. Cross-listed with CMMU 4020.

CMMU 5021-3. Perspectives on Rhetoric. Introduces major theories of rhetoric from classical through contemporary times, including the theories of Aristotle, Cicero, I. A. Richards, Kenneth Burke, Michel Foucault and Jurgen Habermas. Cross-listed with CMMU 4021.

CMMU 5022-3. Critical Analysis of Communication. Surveys research methods used to analyze messages from rhetorical and critical perspectives. Cross-listed with CMMU 4022.

CMMU 5025-3. Philosophy of Communication. Surveys critical, epistemological, social, scientific, pedagogical, philosophical and legal perspectives on communication, exploring the constitutive relationship between communication and knowledge formation. Students engage communication scholarship as a social activity and become acclimated to the function of a discipline in creating a professional identity.

CMMU 5041-3. Theories and Methods in Interpersonal Communication. Examines theories and methods used in interpersonal communication and the role of communication in the development, maintenance and deterioration of personal relationships. Attention is also given to major types of personal relationships, such as marriage and friendship and how communication reflects and determines the dynamics of those relationships. Cross-listed with CMMU 4041.

CMMU 5045-3. Female-Male Friendships. Explores friendships between women and men across the life cycle and the role of communication in those friendships. Topics include how such friendships impact self-concepts, advantages of female-male friendships and barriers to female-male friendships. Cross-listed with CMMU 4045.

CMMU 5111-3. Theories of Leadership. Examines research and applications related to the major theories of leadership. Emphasizes a critical reading of research confirming or denying various theories and stresses the historical development of theories of leadership behavior and characteristics. Cross-listed with CMMU 4111.

CMMU 5120-3. Writing Technical Reports. Studies various aspects of technical reports, including the theoretical applications behind making reports persuasive. Topics include informal and formal reports, progress reports, feasibility reports, empirical reports and recommendation reports. Prereq: CMMU 5405. Cross-listed with CMMU 4120.

CMMU 5130-3. User Interface Design and Analysis. Introduces graphical user interface design through analysis of empirical studies and hands-on application of human-computer interaction principles. Cross-listed with CMMU 4130.

CMMU 5140-3. Argumentation. Examines classical through contemporary theories, with special attention to types of propositions, burden of proof, analysis of issues, evidence, reasoning, fallacies, case constructions, refutation and ethics.

CMMU 5151-3. Group Communication. Analysis of the impact of small groups on individual behavior in social and task settings. Focuses on the dynamics of small groups, including leadership, roles, norms, goals and cohesion.

CMMU 5210-3. Communication and Discourse Analysis. Examines the structural and functional factors affecting the formation, comprehension and retention speech. Topics include language norms, speech acts, implicature and meaning and the analysis of conversations.

CMMU 5212-3. Software Documentation. Covers all aspects of software documentation, including project management, audience/use analysis, document design, organization, writing and interviewing techniques, editing, production and diagnostic and usability testing. Prereq: Previous technical writing course, industry experience, or permission of instructor. Cross-listed with CMMU 4212.

CMMU 5215-3. Ethics in Communication. Designed to help students identify and address the daily ethical challenges that occur in private, social and professional contexts. Focus is on recognizing, analyzing and resolving real-world ethical dilemmas using diverse approaches to ethical decision making. Cross-listed with CMMU 4215.

CMMU 5220-3. Human Information Processing. Examines the formation of attitude, mental set and perception as a response to discourse organization. Examines several methods to analyze human responses to linguistic, graphic and mathematical or statistical representations.

CMMU 5221-3. Research Methods: Qualitative. Applies qualitative research methods to human communication practices, including the processes of designing qualitative studies, collecting data, analyzing and interpreting data and reporting results. Cross-listed with CMMU 4221.

CMMU 5230-3. Nonverbal Communication. Studies nonverbal behaviors that accompany or replace verbal communication, including macrospace, proxemics, kinesics, facial expression, eye contact, gestures, vocal characteristics, touch and personal adornment. Cross-listed with CMMU 4230.

CMMU 5240-3. Organizational Communication. Relationships among such communication factors as flow, media, channel, diversity, information delivery and organization functioning, morale and productivity. Cross-listed with CMMU 4240.

CMMU 5245-3. Advanced Organizational Communication. Explores critical theoretical perspectives on communication in complex organizations, including issues and standpoints that have not been included in mainstream theory and research. Analyzes assumptions and pragmatic solutions associated with these theories. Cross-listed with CMMU 4245.

CMMU 5250-3. Difference Matters and Organizational Communication. Explores theoretical and practical issues regarding relationships between communication processes in contemporary U.S. organizations and socially constructed aspects of individuals' identity (e.g., race, gender, sexual orientation, class, ability and age).

CMMU 5255-3. Negotiations and Bargaining. Designed to allow students to study theories and apply concepts that explain the influences of various forms of mediating, reducing and/or resolving conflict among individuals, groups, organizations, nations and cultures. Cross-listed with CMMU 4255.

CMMU 5260-3. Communication and Conflict. Studies the influence of communication on intrapersonal, interpersonal, intragroup and intergroup conflict situations.

CMMU 5262-3. Mediation. Explores theoretical and practical aspects of mediation in a variety of contexts ranging from divorce mediation to labor-management disputes. Cross-listed with CMMU 4262.

CMMU 5265-3. Gender and Communication. Explores the relationship between gender and communication, including how language treats women and men differently and verbal and nonverbal differences in women's and men's communication. Cross-listed with CMMU 4265.

CMMU 5270-3. Intercultural Communication. Examines the philosophy, process, problems and potentials unique to communication across cultural boundaries.

CMMU 5275-3. Family Communication. Explores family communication processes in traditional and nontraditional families through examination of theories and research on the family. Topics covered include conflict, family secrets, decision making and practical guidelines for improved communication in families.

CMMU 5280-3. Communication and Change. Examines the role of communication in change processes of various kinds, including social change and diffusion of innovations.

CMMU 5282-3. Environmental Communication. Studies the communication processes involved in policies and practices affecting natural and human environments. Cross-listed with CMMU 4282.

CMMU 5290-3. Web Design. Covers writing Web pages in HTML, beginning Photoshop, style sheets, bitmapped animations, issues of usable layout, navigability, structure, typography and color on the Web. Projects require students to develop static Web sites. Prereq: CMMU 5405, 5505, 5805 or permission of 5405, instructor. Cross-listed with CMMU 4290.

CMMU 5300-3. Multimedia Authoring. Analysis and evaluation of components of multimedia development and hands-on instruction featuring computer animation for advertising, training and educational projects. Cross-listed with CMMU 4300.

CMMU 5310-3. Advanced Multimedia Authoring. Builds upon the fundamentals of multimedia authoring to develop advanced skills and theory. Students concentrate on developing advanced multimedia applications for education or industry. Prereq: CMMU 5300, 4300,

previous multimedia experience, or permission of the instructor. Cross-listed with CMMU 4310.

CMMU 5320-3. Content Management. Centers on large-scale documentation development using XML. Students learn “single-source” documentation management, a cost-effective way to centralize information and extend it across different platforms and different audiences. Prereq: CMMU 5290, 4290 or permission of instructor. Cross-listed with CMMU 4320.

CMMU 5330-1. Dynamic Web Design Workshop. Introduces large-scale Web site development using XML and PHP. Students learn “single-source” documentation management, a cost-effective way to centralize information and extend it across different platforms (wireless, browsers, help files) and audiences (specialists, managers, customers). Note: Independently taught modules may be taken separately or concurrently. Prereq: CMMU 5290, 4290 or knowledge of HTML, CSS and Photoshop. Cross-listed with CMMU 4330.

CMMU 5340-3. Advanced Web Design. Focuses on user interface design for the World Wide Web using Dynamic HTML, pre-designed CGI scripts downloadable from the Web, animated vector and bitmapped graphics. Note: continuation of CMMU 5290, 4290. Prereq: CMMU 5290, 4290 or knowledge of HTML, CSS and Photoshop. Cross-listed with CMMU 4340.

CMMU 5405-3. Technical Communication: Writing. Provides intensive practice in technical writing using simulations of professional writing situations. Students analyze diverse audience and communication problems, including those with challenging technical content. Special emphasis is placed on the document- design process and techniques of self-editing.

CMMU 5410-3. Science Writing. An intensive practice in composing for diverse science publication genres and venues and practice in analyzing the ways consumers obtain and process information about scientific developments and controversies. Cross-listed with CMMU 4410.

CMMU 5500-3. Health Communication. Examines the role of communication in a wide range of health contexts. Topics include cultural constructions of health and illness, public health communication campaigns, client-provider interactions, telemedicine, community-based health programs and medical journalism. Cross-listed with CMMU 4500.

CMMU 5505-3. Technical Communication: Editing. Provides intensive practice in editing technical documents. Emphasis is on contextual editing (i.e., editing parts of a document as they relate to the whole document and the communication purpose). Students discuss the editor’s role, review editing strategies and examine methods of increasing document usability and readability. Prereq: CMMU 5405 or permission of instructor.

CMMU 5510-3. Usability Testing. Teaches students how to evaluate technical documentation testing needs, evaluate testing options for their feasibility and costs/benefits, design and carry out a usability testing plan, evaluate and write up test results for actual client documents and products. Prereq: CMMU 5405 or permission of instructor. Cross-listed with CMMU 4510.

CMMU 5605-3. Rhetorical Theory for Technical Communication. Examines the principles of rhetorical theory and its relationship to technical communication. Students analyze traditional and contemporary rhetorical theories and apply them to contemporary issues of document design. Cross-listed with CMMU 4605.

CMMU 5620-3. Health Risk Communication. Acquaints students with contemporary theory, research and practice in health risk communication. Cross-listed with CMMU 4620, HBSC 5620, 4620 and ENVS 5620.

CMMU 5621-3. Visual Communication. Explores the social, cultural and behavioral effects of visual images in a variety of contexts, including graffiti, film, advertising, art and architecture. Cross-listed with CMMU 4621.

CMMU 5635-3. Principles of Public Relations. Introduces theory and practice in the field of public relations, including topics such as effects upon society, public opinion, target audiences, adaptation to the media, uses, laws and ethics. Cross-listed with CMMU 4635.

CMMU 5640-3. Advanced Public Relations. Examines key public relations practices in private, not-for-profit and public sectors. Strategic planning processes, research methods, evaluation, reports and collateral development are addressed, with an emphasis on the intersection of theory and practice. Prereq: CMMU 4635. Cross-listed with CMMU 4640.

CMMU 5665-3. Principles of Advertising. Provides a fundamental understanding and appreciation of advertising in today’s global society, including consumer motivation, buying behavior, research, creative development and media planning. Cross-listed with CMMU 4665.

CMMU 5680-3. Mass Communication Law and Policy. Covers issues of mass communication and the law and ethics, including issues of the First and Fourth Amendments, communication regulations, intellectual property, public access and obscenity. Cross-listed with CMMU 4680.

CMMU 5681-3. Communication Issues in Trial Court Practices and Processes. Introduces students to communication and language research aimed at improving the fairness, reliability, and validity of court and judicial processes, including lawyer-client interviews, interrogatories, jury selection, jury instructions, witness examination and the use of language evidence in court. Cross-listed with CMMU 4681.

CMMU 5682-3. Political Communication. Examines the communication processes involved in mediated political events. Topics include the stages of the campaign process, media coverage of the political campaign process and literacy skills needed to understand political advertising.

CMMU 5710-1 to 3. Topics in Communication. Special classes for faculty-directed experiences examining communication issues and problems not generally covered in the curriculum. Cross-listed with CMMU 4710.

CMMU 5750-3. Legal Reasoning and Writing. Introduces the fundamentals of legal reasoning and legal argumentation through intensive class discussion, formal debate and writing. Attention is given to the relationship between case and statutory law and their application in trial and appeals courts in the United States. Cross-listed with CMMU 4750, P SC 4757, 5747.

CMMU 5755-3. Universal Internet Usability. Beginning Web design course that introduces students to writing Web sites for nonnative English speakers and for users with disabilities. Students learn HTML, style sheets, basic Photoshop, layout, navigability and usability for these groups. Prereq: CMMU 3120 (or equivalent) or permission of instructor. Cross-listed with CMMU 4755.

CMMU 5760-3. Computer-Mediated Communication. Analysis and discussion of the nature, use and effects of computer-mediated communication in interpersonal, work, educational, societal and international contexts. Focus is on the social aspects of computer-mediated communication rather than on specific software or hardware technologies. Cross-listed with CMMU 4760.

CMMU 5805-3. Graphics. Instructs technical communicators in designing information that communicates visually as well as verbally. Students focus on document design; illustration; information retrieval; desktop publishing using Quark Xpress; and working with typesetters, printers and graphic artists. Prereq: CMMU 5405. Cross-listed with CMMU 4805.

CMMU 5830-3. Visual Principles in Technical Communication. Explores the rhetoric and usability of typography and text displays, tables and charts, data graphics, technical pictorials, page and screen layout and other visual elements of technical communication. The course focuses on principles and research, not software training. Prereq: CMMU 5405. Cross-listed with CMMU 4830.

CMMU 5840-1 to 3. Independent Study. Prereq: permission of instructor.
CMMU 5939-1 to 6. Internship/Cooperative Education. Applies communication or technical communication concepts and skills in supervised employment situations.

CMMU 5995-1 to 15. Travel Study Topics. Students study various topics in a foreign country led by a CU-Denver instructor; register through the Office of International Education. Cross-listed with CMMU 4995.

CMMU 6013-3. Introduction to Graduate Work in Communication. Designed to familiarize students with the philosophical, ideological and methodological bases of study in communication. Note: Required of all graduate students in M.A. program in communication.

CMMU 6205-3. Empirical Research Methods for Communication and Technical Communication. Provides exposure to empirical research methods involved in communication and technical communication research: surveys, experimental design, meta-analysis, case study, ethnography, textual analysis and process tracing. Basic quantitative data analysis methods (correlation, chi-square, t-tests and analysis of variance) are introduced. Prereq: CMMU 5405 and 5505 or permission of instructor.

CMMU 6300-3. Educational Perspectives on Communication. Explores various relationships between education and communication. Note: May repeat this course up to three times with differing topics.

CMMU 6410-3 to 6. Usability Test Design Project. Students collaborate with faculty and client to design and implement a usability test and evaluate its results, focusing upon an actual computer interface, or instructional documentation (in online form, hard copy, or both). Prereq: CMMU 5510 and CMMU 6205.

CMMU 6950-1 to 6. Master's Thesis.
CMMU 6960-1 to 3. Master's Project.

CNST: Chinese Studies (Liberal Arts and Sciences)

CNST 1000-3. China and the Chinese: GT- AH1. A multidisciplinary introduction to Chinese society both past and present. Prehistory, birth of imperial China, literature, philosophy, religion, nationalism, revolution, modernization, contemporary life, social structure, gender, food, family life, population policy, ethnicity, popular culture, economics and politics. Note: This course is taught in English.

CNST 4000-3. Senior Seminar in Chinese Studies. Capstone course in the Chinese studies program in which students design and carry out independent research projects on topics of their choice. Prereq: CNST 1000 and 15 hours in Chinese studies.

Communication: CMMU (Liberal Arts and Sciences)

Computer Science: CSC (Engineering)

CPCE: Counseling Psychology and Counselor Education (Education)

CPCE 5010-3. Foundations of Counseling. Examines the helping profession. Overview of the field. History, philosophy and introduction to theory. Legal and ethical considerations, special problems and professional outlook. Role and function of counselors in agency and school settings.

CPCE 5100-3. Theory and Techniques of Counseling. Students practice basic counseling skills, develop therapeutic intervention strategies and improve the effectiveness of their communication by practicing listening and responding. Videotaped role-plays are utilized. Prereq: CPCE 5010.

CPCE 5110-3. Group Counseling. Learn group theory and dynamics. Practice facilitating a group. Learn about screening, group membership and styles, roles and behavior, termination of groups. Extensive practice in laboratory setting. Prereq: CPCE 5010 and 5100.

CPCE 5150-3. Family Therapy Theory. Introduces couple and family theories and intervention strategies. Emphasis on historical development of systems theory. Prereq: CPCE 5010.

CPCE 5160-3. Techniques in Family Therapy. Intervention strategies with families. Emphasis on application of techniques evolving from treatment models. Prereq: CPCE 5150.

CPCE 5170-3. Issues in Family Studies. A systemic overview of current issues families face in today's society, including gender, domestic violence, step-families, grief loss, homelessness and others. The course

includes life cycle approaches and normal family processes. Students will be asked to examine their own biases through journaling and other methods. Prereq: CPCE 5010 and CPCE 5150.

CPCE 5180-3. Counseling Couples. A didactic and experiential course dealing with techniques of couples counseling. Emphasis is on assessment, diagnosis and treatment of couples' problems. Special topics include gay and lesbian couples, cross-cultural couples, remarried couples, cohabiting couples and the effectiveness of couple therapy. Prereq: CPCE 5010, 5100, 5150 and 5160.

CPCE 5240-6. Counseling and Human Resource Development. A didactic and experiential course dealing with the application of counseling and human resource development skills within the business setting. Employee assistance programs are emphasized. Basic HRD terminology, training techniques and counseling or training needs are introduced. Prereq: CPCE 5010 and 5100.

CPCE 5280-3. Addictions Counseling. Includes treatment strategies for clinicians in addressing varieties of addictive behaviors including substance abuse, eating disorders, gambling and sexual sexual addiction.

CPCE 5330-3. Counseling Issues and Ethics. An in-depth examination of ethical and legal issues in the field. Topics include working with individuals and family systems, licensure, professional associations, record keeping and statutory requirements. Prereq: CPCE 5010 and 5100.

CPCE 5400-3. Career Development. Development of competencies in career development counseling. Theories of work systems, psychological dynamics, information systems and decision making systems are covered. Interacting work or family systems and other subsystems are emphasized.

CPCE 5420-3. Organizational Development. Organizational development and theory. The development and implementation of counseling and EAP programs in school settings, business and government program development, implementation, consultation and evaluation. Individual projects required for course completion. Prereq: CPCE 5010 or permission of instructor.

CPCE 5800-6. Strategies in Public School Counseling. Role and function of the public school counselor. Utilization of consultation skills and group process in relation to guidance objectives. Strategies used with "at risk," suicide, dropout, culturally different and gifted students are emphasized. Prereq: CPCE 5010 and 5100.

CPCE 5810-3. Multicultural Counseling Issues for Individuals and Families. Students engage in in-depth analyses of arguments for revision of traditional counseling models and assumptions, as applied to ethnic-racial populations, and discuss alternative approaches to working with African Americans, Asian Americans, Latin Americans, American Indians, women, gays and lesbians in counseling.

CPCE 5820-3-6. Strategies of Agency Counseling. Role and function of the counselor in agency settings. Intervention strategies, consultation, use of DSM IV with agency clientele. Prereq: CPCE 5010 and 6250.

CPCE 5830-5839-1 to 6. Special Topics. Specific topics vary from semester to semester. Intervention strategies with children, issues in abuse, violence, incest, legal issues, adult counseling, grief, death and dying.

CPCE 5840-1 to 4. Independent Study. Individually directed research activity on special topics not covered by course offerings. Degree students only, with advance approval by major, professor and department.

CPCE 5910-6. Practicum in CPCE. Supervised counseling practice in the counseling laboratory and appropriate settings (150 clock hours). Emphasis on individual and group counseling techniques and therapeutic intervention strategies. Prereq: all counseling course work must be completed.

CPCE 5922-3. Readings in Counseling. Focuses on special problems in development and delivery of counseling services. Directed readings and small group activities.

CPCE 5930-1 to 6. Internship in Counseling Psychology and Counselor Education. Supervised internship of 600 clock hours.

Intern performs activities of a regularly employed professional in designated setting. Prereq: satisfactory completion of CPCE 5910.

CPCE 6000-3. Introduction to Sex Therapy. Provides an overview of human sexuality over the life cycle, addressing social, psychological and physiological aspects of human sexuality. Etiology of human sexuality diagnosis and treatment of issues related to human sexuality are

addressed. Note: this course is a component in the couple and family program and required for MFT licensure. Prereq: CPCE 5010, 5100, 5150 and 5160.

CPCE 6100-3. Spiritual Dimensions of Counseling. A didactic and experiential course involving the following content areas: theories of spiritual development, a survey of religious traditions, assessment, ethical issues, self-of-the-therapist issues and treatment interventions and strategies in working with clients' values.

CPCE 6120-3. Computer Applications in Counseling and Assessment. Introduces the various uses of computer technology in guidance, counseling and assessment activities. Underlying theoretical concepts and a variety of software programs are reviewed. Prereq: graduate status.

CPCE 6140-3. Counseling Children, Adolescents and Their Parents. A didactic and experiential course addressing child, adolescent and parental/family issues. Counseling techniques, including play therapy and parent education are taught and practiced. Assessment tools and specific strategies are used to increase positive family relationships. Prereq: CPCE 5010, 5100, 5150 and EPSY 6200.

CPCE 6160-3. Advanced Assessment: Theory and Treatment in Family Systems. Emphasis is on diagnosis or assessment and treatment and psychological processes. Major family therapy assessment methods and instruments are covered, as well as experiential application of advanced intervention strategies. Prereq: CPCE 5010, 5100, 5150, 5160 and REM 5300.

CPCE 6220-3. Youth Challenges and Resiliency. Provides the student with theory and practical exposure to contemporary youth at risk. Focuses on prevention and intervention with youth at risk from a counseling perspective. Prereq: CPCE 5010 and 5100.

CPCE 6240-3. Consultation Strategies. Focuses on the development of consultation skills and implementation of strategies. Students are exposed to major theories of the consultation process. In addition, this course provides the opportunity to practice consultation and implementation strategies within a system: an agency, business setting, or educational setting. Prereq: CPCE 5010 or permission of instructor.

CPCE 6250-3. Advanced Abnormal Psychology. Students develop a professional level of understanding of the major disorders commonly subsumed under the term "psychopathology". Classification of disorders in the DSM IV is utilized. Treatment alternatives are discussed. Prereq: CPCE 5010 and 5100 or permission of instructor. Cross-listed with EPSY 6250.

CPCE 6330-3. Advanced Seminar in Counseling and Psychotherapy. Professional analysis of major trends in counseling and psychotherapy. Specific emphasis topics identified. Prereq: CPCE 5010, 5100 and 5330.

CPCE 6350-3. Theories of Personality Development and Change. An advanced course in personality theory with a focus on assumptions of each theory and each as a mechanism for change. Implications of each theory for personal growth and therapy's addressed. Cross-listed with EPSY 6350.

CPCE 6400-3. Career Counseling Assessment, Consultation and Resources. Focuses on the principal assessment tools used in career counseling and the consultation strategies important to career professionals for use in schools, business and other organizations. Attention given to resources available in career development and acquisitions of career counseling skills. Prereq: CPCE 5400 or permission of instructor.

CPCE 6420-3. Seminar: Professional Career Counseling and Research. Focuses on professional issues in career counseling, including credentialing, private practice and marketing career services. Ethical and legal issues, policy development and legislation are reviewed. Management and evaluation of career services and current career literature are reviewed. Prereq: CPCE 5400 or permission of instructor.

CPCE 6810-3. Advanced Multicultural Counseling. Offers essential preparation for competent multicultural counseling practice with racially diverse clients in an urban setting. Students learn, build and practice effective multicultural counseling skills. Explores the impact of race and ethnicity on individual behavior, interpersonal relationships

and learn techniques for addressing these issues in counseling. Prereq: CPCE 5810.

CPCE 6840-1 to 4. Independent Study.

CPCE 6910-3 to 6. Advanced Practicum in Counseling.

CPCE 6950-4. Master's Thesis.

CPCE 7100-3. Advanced Theories and Techniques in Psychotherapy.

Learn and practice advanced techniques for addressing adult and adolescent clinical problems. Examine efficacy research on specific counseling techniques as associated with particular approaches in counseling. Prereq: CPCE 5010, 5100, 5820 and 6250.

CPCE 7280-3. Intervention and Treatment in Substance Abuse.

Examines in-depth chemical dependency and the diagnosis and treatment of co-dependents. Treatment modalities are emphasized, including follow-up and research. Prereq: CPCE 5010, 5280 or permission of instructor.

CPCE 7680-3. Addictions: Advanced Treatment and Systemic Methods. An advanced analysis and inquiry of treatment methods/systemic approaches with addictive behavior. Prereq: CPCE 5280.

CPCE 7800-3. Supervision in Counseling and Psychotherapy.

Examines training principles, processes and practices in clinical supervision. Emphasis on individual and family therapy supervision. Prereq: CPCE 5010, 5100, 5910 and 5930.

Criminal Justice: C J (Public Affairs)

C SC: Computer Science (Engineering)

C SC 1200-3. Modern Computing for Non-CSE Majors. Introduces computers and their use. Concepts and skills necessary to understand computers and become effective in their use. Emphasis on computers and software as tools for problem solving. Credit will not count toward B.S.C.S.E. degree. Prereq: MATH 1120.

C SC 1320-3. Computing With C. Introduces programming using the computer language. Program syntax and semantics, problem solving techniques, algorithms and program design techniques are discussed. Note: Does not apply toward B.S.C.S.E. degree. Prereq: MATH 1120.

C SC 1410-3. Fundamentals of Computing. First course in computing for those who will take additional computer science courses. Covers the capabilities of a computer, the elements of the computer language C++ and basic techniques for solving problems using a computer. Coreq: MATH 1401.

C SC 1510-3. Logic Design. The design of combinatorial and sequential switching circuits. Topics include Boolean algebra, Booleana, function minimization techniques, combinatorial circuit analysis and synthesis, synchronous sequential circuit analysis and synthesis, algorithmic state machine design, asynchronous sequential circuit analysis and synthesis. Prereq: MATH 1120 or equivalent. Cross-listed with E E 1510.

C SC 1800-1839-3. Special Topics.

C SC 2132-3. Circuit Analysis I. Basic theorems of circuit analysis. Transient solution of circuits by classical techniques. Ideal operational amplifier analysis techniques and applications. Prereq: MATH 2421 and PHYS 2331. Cross-listed with E E 2132.

C SC 2142-3. Circuit Analysis II. Solution of circuits using Laplace transforms, frequency domain analysis, additional steady-state solutions, Bode plots, active filters, pulses, impulses and computer-aided analysis. Prereq: MATH 2421, PHYS 2331, ENGL 1020 and E E 2132 or C SC 2132. Cross-listed with E E 2142.

C SC 2312-3. Intermediate Programming. Programming topics in the C++ language. The emphasis is on problem solving using Object Oriented and Generic Programming. Topics include advanced I/O, classes, inheritance, polymorphism and virtual functions, abstract base classes, exception handling, templates and the Standard Template Library. Prereq: C SC 1410.

C SC 2421-3. Data Structures and Program Design. Second semester of a two-semester sequence in computing. Topics include a first look at algorithm analysis, software development methodologies, data structures, abstract data types and basic techniques such as sorting, searching and

recursion. Programming exercises are assigned through the semester. Prereq: C SC 1410 and ENGL 1020. Coreq: C SC 2312.

C SC 2511-3. Discrete Structures. (Same as CSMC2511 at Colorado School of Mines.) Covers the fundamentals of discrete mathematics, including: logic, sets, functions, asymptotics, mathematical reasoning, induction, combinatorics, discrete probability, relations and graphs. Emphasis on how discrete mathematics applies to computer science in general and algorithm analysis in particular. Prereq: C SC 2421. Cross-listed with MATH 2511.

C SC 2525-3. Assembly Language and Computer Organization. Topics include computer architecture, program execution at the hardware level, programming in assembly language, the assembly process, hardware support of some high-level language features and a program's interface to the operating system. Programming exercises are assigned in this course. Prereq: C SC 1410 and 1510.

C SC 2531-1. Logic Laboratory. Experiments in digital logic utilizing both computer simulation and actual analysis using integrated circuits. Initially, combinational logic circuits be studied, including circuits such as binary adders and multipliers, followed by sequential circuits, including counters. Some basic instrumentation using meters and oscilloscopes will also be completed. Use of computer-aided design tools facilitating design, simulation and implementation of digital systems using field-programmable logic devices in an integral part of the entire course. Prereq: MATH 1120 or equivalent; prereq/coreq: E E 1510 or C SC 1510. Cross-listed with E E 2531.

C SC 2571-3. Fundamentals of UNIX. Introduces the UNIX operating system and its family of related utility programs. History and overview, versions and common features. File operations, utilities, shells, editors, filters and data manipulation. Shell programming communications and networking, windowing environments, mail and Internet. Programming tools. Simple system administration. Credit will not count toward BSCSE degree. Prereq: familiarity with operating systems and/or a programming course.

C SC 3412-3. Algorithms. (Same as CSMC3412 at Colorado School of Mines.) Design and analysis of algorithms. Asymptotic analysis as a means of evaluating algorithm efficiency. The application of induction and other mathematical techniques for proving the correctness of an algorithm. Data structures for simplifying algorithm design, such as hash tables, heaps, search trees. Elementary graph algorithms. Assignments include written work and programming projects. Prereq: C SC 2511.

C SC 3415-3. Principles of Programming Languages. Introduces programming language design concepts and implementation issues. Includes language concepts such as control structures and data types, formal language specification techniques and syntactic and semantic implementation issues. Prereq: C SC 2421 and 2525.

C SC 3453-3. Operating System Concepts. (Same as CSMC3453 at Colorado School of Mines.) Covers the principles of computer operating systems and the essential components of an operating system. Topics include: I/O devices, file systems, CPU scheduling and memory management. Prereq: C SC 3412 and 3415.

C SC 3645-3. Discrete Linear Systems. Analysis of discrete time signals and systems. Impulse response, convolution, difference equations, Fourier analysis, z-transforms, linear time-invariant systems, sampling, computer simulation and modeling; applications in computer science and engineering. Emphasizes both analytical and computer-based solutions to a broad spectrum of problems. Prereq: MATH 3195 and C SC 2142.

C SC 3651-3. Digital Hardware Design. The specification and design of large digital hardware systems. Applications include using a hardware description language and simple digital control circuits. Prereq: C SC 2531 and 2525. Cross-listed with E E 3651.

C SC 3840-1 to 3. Independent Study: C SC .

C SC 4034-3. Theoretical Foundations of Computer Science. Introduces abstract models for computation, formal languages and machines. Topics include: automata theory, formal languages, grammars and Turing machines. Prereq: C SC 3412 and 3415.

C SC 4202-3. Introduction to Artificial Intelligence. Topics include heuristic search, games playing algorithms, application of predicate calculus to AI, introduction to planning, application of formal grammars to AI. Prereq: C SC 3412.

C SC 4287-3. Database System Concepts. Introduces database design, database management systems and the SQL standard database language. Includes data modeling techniques, conceptual database design, theory of object-relational and relational databases (among others), relational algebra, relational calculus, normalization and database integrity and efficiency. Prereq: C SC 2511; coreq: C SC 3453.

C SC 4408-3. Applied Graph Theory. Introduces discrete structures applications of graph theory to computer science, engineering and operations research. Topics include connectivity, coloring, trees, Euler and Hamiltonian paths and circuits. Matching and covering problems, shortest route and network flows. Prereq: MATH 3000 or C SC 2511. Cross-listed with MATH 4408.

C SC 4501-3. JAVA. Comprehensive Course on JAVA Programming. Coverage of programming language constructs of JAVA and the core libraries that come with JAVA: coverage of advanced topics, including technologies for building distributed applications and interacting with a database. Prereq: C SC 2421.

C SC 4502-3. Client/Server WEB Programming. (Same as CSMC4502 at Colorado School of Mines.) Introduces programming WEB based interactive client or server applications. Topics such as: HTTP protocol, WEB sponsors, WEB servers, HTML and extensions, JAVA applets and interactions with server using CGI. Prereq: C SC 3412.

C SC 4508-3. Introduction to Software Engineering. Introduces principles and practices of software engineering: software life-cycle models, requirements engineering, analysis and design tools, human factors, risk management, program certification, project management and intellectual property rights. Prereq: ENGL 1020 and C SC 3412.

C SC 4511-3. XML. Provides a working knowledge of XML. In addition to the language itself, focus is on XML's use on the Web and in data processing. Other topics include transforming and formatting XML documents and patterns and expressions Prereq: C SC 2421.

C SC 4521-3. Advanced Java. Explores advanced Java language features and packages. Java programmers are able to apply the techniques covered in this course to significant development problems. Includes many advanced topics taken from J2EE and open source projects. Prereq: C SC 4501 or experience in Java and object-oriented development. Cross-listed with C SC 5521.

C SC 4535-3. Probability and Statistics. Axiomatic definition of probability. Sample spaces, discrete and continuous random variables, expectation, conditional distribution and conditional expectation, independence, limit theorems, characteristic functions and moments. Elementary stochastic processes, time series, Markov chains, increment processes, queues. Statistical inference, regression, correlation, analysis of variance, confidence intervals. Coreq: MATH 2411.

C SC 4555-3. Compiler Design. Introduces the basic techniques used in translating programming languages: scanning, parsing, symbol table management, code generation, code optimization and error recovery. Prereq: C SC 3412 and 3415.

C SC 4565-3. Introduction to Computer Graphics. Introduces two and three dimensional computer graphics. Topics include scan conversion, geometric primitives, transformation, viewing, basic rendering and illumination. Emphasis is on programming using "C" and "C++" Open GL. Prereq: C SC 3412 and MATH 3191 or 3195. Cross-listed with C SC 5565.

C SC 4575-3. Introduction to Computer Simulation. Introduces the theory and practice of computer simulation, including: random number and random variate generation, goodness-of-fit tests, discrete event simulation, model verification and validation, applications to scientific computing and operations research. Prereq: C SC 4535.

C SC 4591-3. Computer Architecture. Deals with how assembly language maps to hardware and basic hardware techniques implemented in computers. Topics include logic design of arithmetic units, data control path processor logic, pipelining, memory systems and input-output units. The emphasis is on logic structure rather than electronic circuitry. Students must know basic control logic design and be familiar with an assembly language before taking this course. Prereq: C SC 2525 or E E 2651.

C SC 4630-3. Linguistic Geometry. A new type of game theory in Artificial Intelligence for solving abstract board games (ABG). A number of real world systems including military combat, transportation and Internet cyberwar can be modeled as ABG. Prereq: C SC 3412. Cross-listed with C SC 5630.

C SC 4640-3. Universal Compiler: Theory and Construction. Theoretical foundations and step-by-step hands-on experience in the development of a compiler, which can tune itself to a new programming language. This is a must-take course for future software developers as well as those interested in applications of the theory of Computer Science. Cross-listed with C SC 5640.

C SC 4650-3. Numerical Analysis I. (Same as CSMC4650 at Colorado School of Mines.) Methods and analysis of techniques used to resolve continuous mathematical problems on the computer. Solution of linear and nonlinear equations, interpolation and integration. Prereq: MATH 2411, 3191 or 3195 and programming experience. Cross-listed with MATH 4650.

C SC 4660-3. Numerical Analysis II. Offered every other year. Numerical differentiation and integration, numerical solution of ordinary differential equations, the Galerkin method for the Poisson equation. Prereq: MATH 3195 or both 3191 and 3200; MATH or C SC 4650 or 5660; or programming experience. Cross-listed with C SC 5661, MATH 4660 and 5661.

C SC 4735-3. Computers, Society and Ethics. Analysis of social and ethical issues arising from the development and use of computers. Representative topics: professional responsibility, intellectual property, privacy; computer-related crime, freedom of expression, individual rights versus societal needs, encryption, risks and reliability of computer systems. Extensive readings and class discussions. Prereq: C SC 4508 and ENGL 2030/3154.

C SC 4739-3. Senior Design Project. A capstone course in which students undertake a significant system design project. Students work in groups and address requirements for engineering, design, implementation and testing. The objective is better understanding of the complete life-cycle and gaining practical experience. Prereq: ENGL 1020 and C SC 4508.

C SC 4740-3. Computer Security. Introduces basic knowledge from the computer security area. It introduces basic concepts and techniques of cryptography including history of codes and ciphers, basic cryptography techniques like data encryption standards, public key systems, digital signatures and other computer security subjects. Prereq: MATH 1120.

C SC 4761-3. Introduction To Computer Networks. Introduces the structure and components of computer networks, functions and services. In addition, this course discusses current protocols, technologies and performance issues. Prereq: C SC 3453. Cross-listed with C SC 5761.

C SC 4765-3. Algorithms For Haptic Display. Haptic devices display force in response to their state and are becoming increasingly important in virtual environments. This course combines research with application. Students study existing literature. A series of assignments lead the student through development and applications of Haptic display. Prereq: C SC 3412. Cross-listed with C SC 5765.

C SC 4771-3. Introduction To Mobile Computing. Provides an in-depth understanding of the fundamentals in mobile computing and studies the existing and proposed solutions for ubiquitous computing. This course focuses on systems and networking issues involved with supporting mobility. Prereq: C SC 3453 and 4761. Cross-listed with C SC 5771.

C SC 4785-3. Web Design: Java Script and Web Graphics. Provides fundamentals of Web design principles and techniques to develop effective and user friendly Web site. Topics include basic formatting and tables in HTML, rollovers, event handlers and programming in Java Script, developing intuitive navigation, putting multimedia contents on the Web, graphical user interface and effective interface design and Web usability. Prereq: C SC 3412.

C SC 4787-3. Database-Driven Web Applications. Web applications that use server-side databases. Use of server-side scripts (cgi and asp) to manipulate database data and display the results in a Web browser. Dynamic websites for remote management of database data. Topics:

html forms, client-side scripts to gather and store information, SQL queries, authentication, online surveys, automated emails, electronic-commerce. Prereq: C SC 3412.

C SC 4788-3. Bioinformatics. Provides a broad exposure to the basic concepts, methodology and applies bioinformatics for solving biological problems. Covers the basics of genomics and proteomics databases and tools and provides an understanding of algorithms used in proteomics and genomics data analysis. Prereq: C SC 3412 or permission of instructor.

C SC 4800-4839-3. Special Topics. Credit and subject matter to be arranged. Prereq: as determined by instructor.

C SC 4840-3. Independent Study. For seniors majoring in computer science.

C SC 4900-3. Project Management and Practice. Covers the factors necessary for successful management of system development or enhancement projects. Both technical and behavioral aspects of project management are discussed. The focus is on management of development for enterprise-level systems. Topics include: managing the system life cycle, system and database integration issues; network and client-server management; metrics for project management and system performance evaluation; managing expectations; superiors, users, team members and others related to the project; determining skill requirements and staffing the project; cost-effectiveness analysis; reporting and presentation techniques; change management. Prereq: senior standing. Cross-listed with ISMG 4900.

C SC 4939-1 to 3. Cooperative Education. Faculty or employer-supervised employment in industry. Enrollment is limited to students who fully completed a contract for cooperative education credit by the last day of the drop or add period. Prereq: C SC 3415.

C SC 5098-3. Computer Science For Bioscientists. Provides a broad but detailed overview of the computer science field to graduate students in the biosciences, with emphasis on Web technologies, programming languages, algorithms and database systems. No credit for CS graduate students. Prereq: working knowledge of programming language (e.g., Java).

C SC 5144-3. Applied Combinatorics. Major emphasis is on applied combinatorics and graph and combinatorial algorithms with applications in computer science and operations research. Topics include general counting methods, generating functions, recurrence relations, inclusion-exclusion, Polyá's enumeration theory and network algorithms. Prereq: MATH 3800 and 3191/3195. Cross-listed with MATH 6409.

C SC 5217-3. Information Theory. Introduces information theory and its application in computer science, communication theory, coding and applied mathematics. Entropy, mutual information, data compression and storage, channel capacity, rate distortion, hypothesis testing. Error detecting and correcting codes, block codes and sequential codes. Prereq: C SC 4535. Cross-listed with E E 5817.

C SC 5222-3. Applied Computer Simulation and Modeling. Applies computer simulation to scientific, engineering and business problems. Topics include: generation and testing of random numbers, geometric probability, stochastic process simulation, queuing and inventory system, experimental design and optimization, fractals and chaotic systems and optimal stopping. Prereq: C SC 4535.

C SC 5252-3. Computer Communication Networks. A comprehensive study of issues arising in modern computer-communication networks, both wire-line and wireless, carrying traffics with heterogeneous characteristics. A conceptual and analytical approach to the design of network protocols in harmony with the appropriate modeling of the traffic and network environments. Issues covered include routing, transmission, performance monitoring, as well as traffic and network management in ATM multi-media networks. Prereq: permission of instructor. Cross-listed with E E 5252.

C SC 5255-3. Object Design. Studies software application and system design using object-oriented techniques, responsibility driven design and agile development practices. Topics include objects, classes, interfaces, inheritance, polymorphism, exception handling, testing, UML, Design Patterns and AntiPatterns. Students will generate professional-quality designs as well as follow the software engineering methodology to

design and develop working object systems in industry-leading object languages such as C#, Java and Python. Prereq: C SC 3415 or permission of instructor.

C SC 5257-3. Data Compression. Introduces algorithmic techniques for reducing redundancy in digital data and analog signals. Information-theoretic concepts, lossless compression, statistical and dictionary techniques, Huffman, arithmetic, Lempel-Ziv coding. Scalar and vector quantization, structural properties of vector quantizers, nearest-neighbor quantizers. Performance and implementation issues. Prereq: C SC 3412 and 4535.

C SC 5408-3. Graph Theory and Graph Algorithms. Studies geometric graphs and other geometric objects, both analysis and algorithmic construction, leads to interesting connections among VLSI design, graph theory and graph algorithms. Studies a subset of the recent literature, with special emphasis on visibility graphs, thickness of graphs, graph coloring and the surprising and elegant connections among them all. Other topics are introduced as time permits. Prereq: C SC 3412/5451/4408 or MATH 4408 or permission of instructor.

C SC 5446-3. Theory of Automata. Studies the relationships between classes of formal languages (regular, context-free, context-sensitive, phrase-structure) and classes of automata (finite-state, pushdown, Turing machines). Additional topics include decidability and computability issues. Prereq: C SC 3412. Cross-listed with MATH 5446.

C SC 5451-3. Algorithms. Advanced design and analysis techniques: dynamic programming, greedy algorithms, amortized analysis. Advanced data structures: Fibonacci heaps, union-find data structures. Study of variety of special topics, which may include: graph algorithms, optimization problems, Fast Fourier Transform, string matching, geometric algorithms, NP-completeness and approximation algorithms. Prereq: permission of instructor.

C SC 5494-3. Cellular Automata and Complexity. Introduces dynamical systems in which space, time and state are discrete. Elementary cellular automata, rules and descriptions. Evolution of complex global behaviors from simple local dynamics. Wolfram classifications, computer realizations. Two-dimensional cellular automata. Fractal dimension. Cellular automata as models for physical systems. Prereq: C SC 3412.

C SC 5521-3. Advanced Java. Explores advanced Java language features and packages. Java programmers are able to apply the techniques covered in this course to significant development problems. Includes many advanced topics taken from J2EE and open source projects. Prereq: C SC 4501 or experience in Java and object-oriented development. Cross-listed with C SC 4521.

C SC 5535-3. Fundamental Concepts of Programming Languages. Studies the structure and design of imperative and functional programming languages: data-types, control flow, parameter passing, type equivalence, syntactic structure. Examples are drawn from 'C', Pascal, Modula-2, Ada and LISP. Prereq: C SC 3412 and 3415.

C SC 5542-3. Neural Networks. Parallel distributed representations, dynamics of Hopfield-style networks, content addressable memories and Hebbian learning are the major topics of the first half. The last half consists of simulated annealing back propagation, competitive learning and self-organizing networks. Prereq: C SC 3412.

C SC 5551-3. Parallel and Distributed Systems. Examines a range of topics involving parallel and distributed systems to improve computational performance. Topics include parallel and distributed programming languages, architectures, networks, algorithms and applications.

C SC 5552-3. Advanced Topics in Parallel Processing. Examines the advances of sequential computers for gaining speed and application of these techniques to high-speed supercomputers of today. Programming methodologies of distributed and shared memory multiprocessors, vector processors and systolic arrays are compared. Performance analysis methods for architectures and programs are described. Prereq: C SC 5551.

C SC 5559-3. Database Systems. Introduces database system concepts, with examination of relational database systems from conceptual design through relational schema design and physical implementation. Topics include database design and implementation for large database systems, transaction management, concurrency control, object-oriented and distributed database management systems. Prereq: C SC 4287.

C SC 5565-3. Introduction to Computer Graphics. Introduces two and three dimensional computer graphics. Topics include scan conversion, geometric primitives, transformation, viewing, basic rendering and illumination. Emphasis is on the programming using "C" and "C++" Open GL. Prereq: C SC 3412 and MATH 3191/3195. Cross-listed with C SC 4565.

C SC 5573-3. Operating Systems. Students study the principles of computer operating systems and their essential components. Team projects expose students to variety of system design issues as they relate to the functionality and performance of the system. Topics include I/O devices, Disk Scheduling, File System Organizations, Directory Systems, Sequential and Concurrent process, CPU Scheduling, Memory Management, Deadlock and review of some related articles in the literature. Prereq: C SC 3412 and 3415.

C SC 5574-3. Advanced Topics in Operating Systems. Covers the advanced topics in operating systems by examining functionality and performance issues in CPU Scheduling, communications, distributed file systems, distributed operating systems, shared-memory multiprocessors and real-time operating systems. In addition to studying papers, reviews and presentations, students carry out a semester long team project within the scope of one of the above topics. Prereq: C SC 3453/5573.

C SC 5582-3. Artificial Intelligence. Analysis and design of systems that is able to generate representations and procedures for solving problems usually solved by humans. Knowledge acquisition, representation and manipulation methods are covered in-depth. One of the AI languages is introduced in the course. Prereq: C SC 3412.

C SC 5585-3. Advanced Computer Graphics. An in-depth study of active research topics in computer graphics. Topics include advanced rendering, global illumination, scientific visualization, geometric modeling, simulation and animation. Emphasis is on readings from literature and on a term project. Prereq: C SC 5565 or 4565.

C SC 5593-3. Advanced Computer Architectures. Important concepts in the structural design of computer systems are covered. Topics include memory hierarchy, super pipelining and super scalar techniques, dynamic execution, vector computers and multiprocessors.

C SC 5595-3. Computational Methods in Nonlinear Programming. Unconstrained methods include Cauchy's steepest descent, Newton's method, variable metrics, conjugate directions and quasi-Newton methods. Convergence analysis is based on the eigenvalue structure of the hessian. Constrained methods include feasible directions, projection, penalty functions and cutting planes. Additional topics may include complementary algorithms, Lagrangian methods and quadratic programming. A variety of applications are given to illustrate the methods. Prereq: MATH 4320 and 5718. Cross-listed with MATH 5595.

C SC 5610-3. Computational Biology. Designed to introduce a broad range of computational problems in molecular biology. Solution techniques draw from several branches of mathematics: combinatorics, probability, optimization and dynamical systems. No prior knowledge of biology is critical, but it would be at least helpful to have the equivalent of BIOL 5099. Prereq: C SC 2421.

C SC 5619-3. Complex Intelligent Systems. Presents the cutting-edge results of research in AI: advanced topics in linguistic geometry. LG is an approach to construction of mathematical models for reasoning about large-scale multi-agent concurrent games. The purpose of LG is to provide strategies to guide the participants of a game to reach their goals. Prereq: C SC 4202, 5582 or 5690.

C SC 5630-3. Linguistic Geometry. A new type of game theory in Artificial Intelligence for solving abstract board games (ABG). A number of real world systems including military combat, transportation and Internet cyberwar can be modeled as ABG. Prereq: C SC 4202, 5582 or 5690. Cross-listed with C SC 4630.

C SC 5640-3. Universal Compiler: Theory and Construction. Theoretical foundations and step-by-step hands-on experience in the development of a compiler, which can tune itself to a new programming language. This is a must-take course for future software developers as well as those interested in applications of the theory of Computer Science. Cross-listed with C SC 4640.

C SC 5654-3. Algorithms for Communication Networks.

Algorithmic and mathematical underpinnings of communication networks. A taxonomy of data-packet networks depending on modes of communication: Fixed-Interconnection networks, radio networks and multiple-access channel. Algorithms to implement packet routing, broadcasting and conflict resolution. Prereq: C SC 3412. Cross-listed with C SC 7654.

C SC 5660-3. Numerical Analysis I. *Fall.* Computer arithmetic, solution of nonlinear equations, systems of linear equations, matrix eigenvalue problems and approximation theory. Prereq: MATH 3191 or 3195 and programming experience. Cross-listed with MATH 5660.

C SC 5661-3. Numerical Analysis II. Offered every other year. Numerical differentiation and integration, numerical solution of ordinary differential equations, the Galerkin method for the Poisson equation. Prereq: MATH 3195 or both 3191 and 3200; MATH or C SC 4650 or 5660; or programming experience. Cross-listed with C SC 4660, MATH 4660 and 5661.

C SC 5667-3. Introduction to Approximation Theory. Normed linear spaces, convexity, existence and uniqueness of best approximations. Tchebychev approximation by polynomials and other related families. Least squares approximation and splines. Prereq: MATH 4320. Cross-listed with MATH 6667.

C SC 5682-3. Expert Systems. Reviews and analyzes many expert systems documented in the literature, such as MYCIN, MACSYMA and XCON. Emphasis is given to the design of rule-based systems, the use of uncertain and incomplete information and system shells. Prereq: C SC 3412.

C SC 5690-3. Knowledge Representation for Intelligent Systems. An in-depth study of different types of knowledge representation in artificial intelligence for the efficient control of complex real-world systems like autonomous robots, space vehicles and military units. Major emphasis is on search algorithms and heuristics, logical representation with applications to planning, formal linguistic representation. At the conclusion, all the theories studied are combined in the form of introduction to the state-of-the-art linguistic geometrical representation of complex control systems. Prereq: C SC 3412.

C SC 5701-3. High-Performance Communication Systems and Network Analysis. Protocols and architectures related to high performance communication systems as well as network performance analysis techniques are covered. Topics include Integrated Services Digital Networks (ISDN), Broadband ISDN, protocols such as ATM and SONET and high performance network architectures such as optical networks. Analytical analysis of network performance include queuing theory and stochastic processes. Prereq: C SC 4761 or 5761.

C SC 5702-3. Data Mining. Introduces data mining and knowledge discovery. Introducing MATLAB, tools of data mining; preprocessing, clustering, machine learning, neural networks, fuzzy sets, evolutionary computation. Prereq: C SC 3412 and MATH 3191/3195.

C SC 5704-3. Introduction to Distributed Systems. Studies design, implementation and management of distributed systems, including communication issues, security reliability, resource sharing and remote execution. Prereq: C SC 3453 and 4591.

C SC 5720-3. Planning and Scheduling Algorithms. Advanced algorithmic methods applied to planning and scheduling problems. Includes factory scheduling, route scheduling, satellite scheduling. Prereq: C SC 3412.

C SC 5728-3. Software Engineering. First-hand study of problems connected with the development of large programs. Small groups of students are involved in the analysis and design of large software projects. Prereq: C SC 3412 and 3415.

C SC 5761-3. Introduction To Computer Networks. Introduces the structure and components of computer networks, functions and services. In addition, this course discusses current protocols, technologies and performance issues. Prereq: C SC 3453. Cross-listed with C SC 4761.

C SC 5765-3. Algorithms For Haptic Display. Haptic devices display force in response to their state and are becoming increasingly important in virtual environments. This course combines research with application. Students study existing literature. A series of assignments lead the student

through development and applications of haptic display. Prereq: C SC 3412. Cross-listed with C SC 4765.

C SC 5771-3. Introduction to Mobile Computing. Provides an in-depth understanding of the fundamentals in mobile computing and studies the existing and proposed solutions for ubiquitous computing. This course focuses on systems and networking issues involved with supporting mobility. Prereq: C SC 3453 and 4761. Cross-listed with C SC 4771.

C SC 5780-3. Theory of Distributed Computing. Elements of the theory of distributed computing through fundamental algorithmic ideas, lower bound techniques and impossibility results. Timing assumptions (asynchrony and synchrony), simulations between models (message passing and shared memory), failure types (crash and Byzantine). Prereq: permission of instructor.

C SC 5799-3. High Performance Network-based Computing. Studies the active research topics in high performance network-based computing such as Meta, Cluster and Grid computing. Topics include: network-based computing architecture, efficient user-level communication software, global security and resource management, global file systems and high performance distributed applications. Prereq: C SC 3453.

C SC 5800-5839-1 to 3. Special Topics. These special topics courses cover recent developments in an aspect of computer science. Prereq: as determined by instructor.

C SC 5840-1 to 3. Independent Study. For graduate computer science students.

C SC 5941-3. Directed Study: Complex Programming Project. A complex software development project that must be completed under the direction of a CU faculty member that is approved by the Center for Computational Biology director or associate directors. Each course is 3 credits and students must earn a grade of B or better (it is taken in place of an independent study course). Prereq: C SC 5451 and C SC 5610.

C SC 5950-1 to 9. Master's Thesis.

C SC 6664-3. Numerical Linear Algebra. Offered every other year. Solution of linear equations, eigenvector and eigenvalue calculation, matrix error analysis, orthogonal transformation, iterative methods. Prereq: MATH 5660 and 5718. Cross-listed with MATH 6664.

C SC 6840-1 to 6. Independent Study. For doctoral computer science students.

C SC 6950 thru 6952-1 to 6. Master's Thesis.

C SC 7001-3. AI-Based Decision-Making. Introduces decision making concepts. It covers a range of approaches, techniques and tools for decision aiding and describes how they can be used to support decision processes. The topics include human decision making, decision support systems, knowledge-based systems and AI methods that support decision making, like machine learning, Bayesian networks and association rules. Prereq: PhD standing. Cross-listed with ISMG 7001.

C SC 7002-3. Computer Security. A broad overview of computer security, roughly divided into three unequal components: a) the history of codes and ciphers; b) basic cryptographic techniques, for example, symmetric cryptography, authentication techniques and asymmetric cryptosystems and; c) applications to current and future computer-related technologies, for example, network security, wireless communication, quantum cryptography and more. Prereq: C SC 5451.

C SC 7200-3. Advances in Management Information Systems. Provides a broad coverage of research on the management of information technology. The course covers the systems-oriented research, organizational-oriented research and information systems economics research. Prereq: PhD standing. Cross-listed with ISMG 7200.

C SC 7210-3. Topics in Analytical Research in Management Information Systems. Covers a variety of analytical research topics of interest to the IS research community including the evaluation of data mining algorithm performance, cost sensitive learning and outlier detection. Prereq: admission to the CSIS PhD program. Cross-listed with ISMG 7210.

C SC 7211-3. Topics in Behavioral and Organizational Research in Management Information Systems. Provides in-depth exposure to some key behavioral, management and organizational theories and models used in Information Systems research. Covers topics in socio-technical,

trust, computer self-efficacy, organizational transformation, organizational learning, resource-based and coordination theories. Prereq: admission to the CSIS PhD program. Cross-listed with ISMG 7211.

C SC 7502-3. Research Methods. Promotes research skills. Involves presenting a research topic and discussions of its merits, reviewing journal articles, writing a paper and/or a proposal in the NIH/NSF format in the student's area of research. Prereq: Ph D student standing or permission of instructor for MS students who are writing a thesis.

C SC 7654-3. Algorithms for Communication Networks. Algorithmic and mathematical underpinnings of communication networks. A taxonomy of data-packet networks depending on modes of communication: Fixed-Interconnection networks, radio networks and multiple-access channel. Algorithms to implement packet routing, broadcasting and conflict resolution. Prereq: permission of instructor. Cross-listed with C SC 5654.

C SC 7711-4. Bioinformatics I. (BIOI 7711-Offered on a semester basis from H.S.C.) Offered in the fall term. What is Bioinformatics and why study it? How is large-scale molecular biology data generated, where and how can researchers gain access to it, what computational analyses are possible and computational techniques for solving inference problems in molecular biology? Prereq: permission of instructor.

C SC 7712-4. Bioinformatics II. (BIOI 7712-offered on a semester basis from H.S.C.) Inference problems and computational techniques for molecular biology, with emphasis on machine learning approaches. Use of computational induction techniques focused on information extraction from biomedical literature, inference of biochemical networks from high-throughput data and prediction of protein function. Offered in Spring semester. estimation, clustering, discrimination and regression. Prereq: C SC 7711.

C SC 7800 thru 7839-1 to 9. Special Topics. These special topics courses cover recent developments in an aspect of computer science. Prereq: as determined by instructor.

C SC 8990 thru 8999-1 to 9. Doctoral Dissertation.

CSL: Chancellor's Scholars & Leaders

CSL 1551-3. Effective Problem Solving: Data, Information and Knowledge. The first of a two-semester course sequence that equips students with new paradigms, skills and experiences with which to approach problem solving and learning. The core of the course experience is individual empowerment by developing skills and discovery learning, generalization of experiential knowledge to recognize generic paradigms, alternative reasoning methods and techniques for more effective thinking and problem solving. The application of these cognitive, behavioral and computer-based tools are not limited to any particular subject matter. Participants build a highly useful level of skills that they can apply to their academic, career, social and personal activities.

CSL 1552-3. Effective Problem Solving: Beyond Knowledge. The second of a two-semester course sequence that equips students with new paradigms, skills and experiences with which to approach problem solving and learning. The core of the course experience is individual empowerment by developing skills and discovery learning, generalization of experiential knowledge to recognize generic paradigms, alternative reasoning methods and techniques for more effective thinking and problem solving. The application of these cognitive, behavioral and computer-based tools are not limited to any particular subject matter. Participants build a highly useful level of skills that they can apply to their academic, career, social and personal activities.

CSL 2939-1 to 3. Cooperative Education. Parallels internship or cooperative education courses in other colleges. Primary emphasis is placed on internships focusing on leadership education, problem-based learning, team learning and interdisciplinary learning relevant to the Chancellor's Scholars and Leaders curriculum and the individually Structured major. Prereq: permission of instructor.

CSL 3110-3. Leadership Styles, Cultural Diversity and Ethical Responsibility. The Chancellor's Scholars and Leaders (CSL) program starts with a seminar exploring the relation between different leadership

styles, ethical responsibility and cultural values. This seminar lays the foundation for students to explore the central role of ethics and personal values in their own actions Prereq: permission of instructor.

CSL 3120-3. Interdisciplinary Scholarship and Life-Long Learning. Students are introduced to a highly condensed survey of the most important recent developments in science, technology, the arts and humanities. Co-taught by experts from these fields and formatted to arouse the interest of students in pursuing further studies on their own. Prereq: permission of instructor.

CSL 3210-3. Practical Leadership Skills. While theoretical knowledge is an important background to effective action, students in the CSL program are trained in the most essential skills leaders need in order to function. These basic skills include financial management, problem solving techniques, negotiation, public speaking, computer and writing skills, effective research techniques and psychological skills. Students are given enough practical training to excite them to seek out further development. Prereq: permission of instructor.

CSL 3220-3. Service Through Action and Internships. Participants in the CSL program will have to become accustomed to establishing the bridge between theoretical knowledge and leadership in action. As their final task in the CSL, students design and implement a project which will be of practical value to the communities surrounding UCDHSC. These projects apply the knowledge and skills students have adopted during their previous learning experiences. Prereq: permission of instructor.

CSL 3221-1. Service Through Action and Internships. A pilot CSL course in service through action. Open to all registered participants of the Leadership Portfolio Program as well as to selected students interested in learning about service through action. By working with professionals from the community and the nonprofit sector, students learn how to create a permanent service program in the community. Prereq: permission of instructor.

CSL 3510-3. Understanding Systems I. Designed as an introduction and survey of systems theory and practical applications of systems theory. The course is divided into two sections: a) understanding systems and b) an interdisciplinary approach to systems. In the second part of the course, experts in the systems approach to various disciplines guide the discussion and work. Prereq: permission of instructor.

CSL 4101-1. Proseminar: New Paradigms in Higher Education. Explores current issues and trends in higher education with emphasis on problems, opportunities and imperatives faced by urban universities such as UCDHSC. CSL is built around a problem-oriented multidisciplinary agenda which serves as focal point and example. Seminar/workshop format is open and interactive; students are expected to be active participants. (Term Project).

CSL 4242-3. Topics in Technology. Team-facilitated. Emphasis on technologies that have significant societal impact.

CSL 4286-3. Cognitive Science: An Invitation. Introduces students to the multidisciplinary field of cognitive science, its new perspectives and paradigms. Cognitive science is a new field that studies "how we think" by drawing on the resources of multiple disciplines (e.g., philosophy, computer science, psychology, engineering, linguistics, neuroscience and anthropology).

CSL 4800-1 to 3. Special Topics. Credit and subject matter are to be arranged. Prereq: Varies according to the subject matter.

CSL 4900-1 to 6. Applied Learning. Directed research or service project employing multidisciplinary perspectives and methods. Prereq: permission of instructor.

Design and Planning: DSPL (Architecture and Planning)

DSCI: Decision Sciences (Business)

DSCI 2010-3. Business Statistics. Basic principles of probability and statistics with applications in business. Includes descriptive statistics, probability and probability distributions, data collection, sampling distributions, statistical inference, simple regression and the use of a computer to perform statistical analysis. Students are required to

present their analyses in written and/or oral form and defend their conclusions. This is a business core course therefore a grade of a 'C' or better must be earned to satisfy Business graduation requirements and prerequisites for other business courses. Prereq: MATH 1070, MATH 1080 and computer literacy (working knowledge of basic operating system and file manipulation commands, email, the World Wide Web, a word processing package and spreadsheets).

DSCI 3000-3. Operations Management. *Fall, Spring, Summer.*

Introduces the concepts and methods commonly used in manufacturing and service operations. Topics include aggregate planning, inventory control, scheduling, quality control and linear programming. This is a business core course therefore a grade of a 'C' or better must be earned to satisfy Business graduation requirements. Prereq: ACCT 2200, DSCI 2010 and MATH 1080. It is important to take this course in your junior year.

DSCI 4840-3. Independent Study.

DSCI 5939-1 to 3. Cooperative Education.

DSCI 6010-3. Deterministic Models. Seldom offered. Linear programming and its application, network analysis, including scheduling models, dynamic programming, integer programming, nonlinear programming. Prereq: BUSN 6530 and 6630.

DSCI 6020-3. Stochastic Models. Seldom offered. A variety of stochastic models and their application are discussed. Simulation modeling and analysis is emphasized as an approach for addressing such problems. Prereq: BUSN 6530 and 6630.

DSCI 6220-3. Research Methods: Design and Analysis. Topics include: research design, approaches to gathering data; sampling methods; linear multivariate analysis methods emphasizing structural equations models; and a brief survey of other methods such as cluster analysis, multidimensional scaling, methods such as neural nets, CART and/or genetic algorithms. While much of the material is of general interest, the course emphasizes methods and situations to prepare students in the CS/IS PhD program for research in their field(s). The course includes student projects involving the analysis of data using appropriate software, whose results are presented to the class. Prereq: BUSN 6530 (or equivalent) and either PhD student status or permission of instructor. Cross-listed with ISMG 7220.

DSCI 6230-3. Business Forecasting. Modern businesses use forecasts in marketing, finance, accounting, human resources management and supply chain and production management decision-making. This course focuses on practical application of forecasting techniques, choosing and comparing appropriate methods and applying the results to the business application. Prereq: BUSN 6530 or FNCE 6290. Cross-listed with BUSN 6824 and FNCE 6372.

DSCI 6440-3. Quality and Process Improvement. This course studies various techniques to identify, measure and improve quality and productivity in organizations and the practical issues related to quality management. Topics include historic and contemporary views of quality, including Six-Sigma, statistical quality control tools and methods and process flow and design. Prereq: BUSN 6530 or permission of instructor. Cross-listed with BUSN 6832.

DSCI 6600-3. Purchasing, Materials Management and Negotiation. Seldom offered. Studies the purchasing function in manufacturing, service and public organizations. Topics include course selection, make-buy analysis, material quality standards and specifications, value analysis, negotiations and legal aspects. Prereq: BUSN 6630.

DSCI 6800-3. Special Topics. Seldom offered. A number of different current topics in decision sciences are discussed in this course. Consult the current 'Schedule Planner' for semester offerings.

DSCI 6820-3. Project Management. Introduces the knowledge and skills of Project Management (PM) in a business environment. Emphasis will be on the entire project life cycle, the project management process groups and the knowledge areas as presented in the Project Management Body of Knowledge (PMBOK) from the Project Management Institute (PMI). Managerial aspects, quantitative tools and traditional techniques of Project Management will be covered. Application to various industries will be included. Cross-listed with BUSN 6820.

DSCI 6822-3. Services Operations. Examines the unique issues involved in the management of service operations. Operations management principles specific to service industries are given in-depth. In addition, simulation is introduced as a technique for studying service industries. Prereq: BUSN 6530. Cross-listed with BUSN 6822.

DSCI 6826-3. Supply Chain Management. Introduces the application of purchasing, operations and logistics to the entire supply chain of an organization. Because of globalization and the rapid advancement of information technology, emphasis is placed on integration management of processes and systems, relationship management of upstream and downstream players and strategies that incorporate current and future trends. Prereq: BUSN 6530 and 6630. Cross-listed with BUSN 6826.

DSCI 6828-3. Business Applications of Data Mining. Addresses statistical approaches to the very large data sets increasingly common in business applications such as Internet-based business, fraud detection, credit scoring and market segmentation. Topics include limitations of classical statistical when applied to large data sets, alternative approaches and applications of key data mining algorithms such as logistic regression, decision trees and cluster analysis. Emphasis is placed on proper choice of method, interpretation of the results and understanding of the strengths and limitations of the methods. Students are expected to analyze and report on a variety of data sets drawn from business application areas. Prereq: BUSN 6530 or permission of instructor. Cross-listed with BUSN 6828.

DSCI 6840-1 to 8. Independent Study. Instructor approval is required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study.

DSPL: Design and Planning (Architecture and Planning)

DSPL 7001-2. PhD Seminar in Design and Planning Theory and Methodology I. Reviews architectural and planning history, theory and criticism. Examines the role of built and natural environments in human affairs, including the antecedents and human consequences of planned and designed environments at various levels of aggregation. Prereq: admission to the PhD program in design and planning or permission of instructor.

DSPL 7002-2. PhD Seminar in Design and Planning Theory and Methodology II. Approaches to inquiry, processes and practices in design and planning; overview of research protocols in empirical, humanistic, historiographic and technological traditions; survey of quantitative and qualitative methods of data acquisition and analysis; survey of design and planning approaches and procedures. Prereq: admission to the PhD program in design and planning or permission of instructor.

DSPL 7003-3. Integrated Workshop in Design and Planning. Development of a systematic, collaborative approach to selected real-world problems within a local, regional, and/or national context. Students collaborate and integrate theoretical and methodological knowledge to develop proposals for research that informs policies, plans and designs. Prereq: DSPL 7001 and 7002.

DSPL 7004-1. Colloquium in Design and Planning. Presentations of research projects by students, college faculty members and visitors.

DSPL 7686-1 to 3. Special Topics in Design and Planning. Various topical areas in design and planning are studied, including those in history, theory, methods and practice.

DSPL 7840-1 to 3. Independent Study. Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to design and planning. Prereq: permission of instructor.

DSPL 7950-3 to 10. Doctoral Thesis Research. Conducting research for doctoral dissertation, including data collection, analysis and presentation of findings. Prereq: completion of DSPL 7001, 7002 and 7003 or permission of advisor and program director.

ECE: Early Childhood Education (Education)

ECE 5000-1. The Early Childhood Profession. The first in the required sequence of early childhood courses. It provides an overview of the early childhood profession and philosophical, historical and legal foundations of services to young children and their families. State and national standards for early childhood education and professional code of ethical conduct are examined.

ECE 5010-3. Curriculum and Program Development in Early Childhood Education. Principles of early childhood program development are reviewed in the areas of curriculum, staff development and family involvement. Linkages are made between child development and curriculum planning. Curriculum areas considered include language, pre-academics, motor, social-emotional, science, social studies and creativity.

ECE 5020-3. Approaches to Young Children's Learning. Review of approaches for facilitating the learning and development of young children. Examined are programs for children from infancy through age eight. Approaches are considered in terms of (1) their differing views of intellectual, social and physical development of young children; (2) their operation, activities and procedures; and (3) their effects on children's learning.

ECE 5030-3. Directing Programs for Young Children. Analysis of organizational factors and instructional events in the classroom, facilitation of teacher effectiveness through supervisory feedback and in-service development. Special attention is given to supervisor or teacher relationships, parent-school-community relationships and processes for feedback.

ECE 5040-3. Administrative Seminar. Emphasis on those topics required of administrators and collaborator or consultants for early childhood socially inclusive classrooms or programs, such as philosophy, finance, programming, management, community or parent relations, supervision, ethical issues, teaming, professionalism, public policy and legislation, in service development and service coordination.

ECE 5060-3. Working with Parents and Families. Review of historical factors and research related to current trends in working with parents and families of children with or without disabilities. The course presents content concerning family systems theory, various community services available to families, abused and neglected children and an overview of successful programs that serve parents and families in the educational setting.

ECE 5070-3. Cognitive, Social, Emotional Development and Disorders in Young Children. Focuses on the cognitive and social development of infants and young children and problems that may occur during the process. Emphasizes intervention approaches for preschool children with cognitive and social-emotional disabilities. Implications for intervention from current research are considered.

ECE 5080-3. Language and Literacy in Young Children. Overview of normal language and literacy development through age 5, language components and pertinent research relating to language and literacy acquisition. Emphasis is placed on language only disorders commonly demonstrated by young children with disabilities and appropriate intervention strategies.

ECE 5090-3. Neuromotor Development and Disorders in Young Children. Provides an overview of normal and abnormal motor and neurological development in the infant and young child. Current treatment approaches for children with neuromotor disorders are examined, with emphasis on sensory integration and neuro-developmental treatment. Also reviewed are sensory deficits; hearing and visual impairment.

ECE 5102-1 to 3. Introduction to Developmentally Appropriate Curriculum. Introduces developmentally appropriate curriculum and instructional practices in early education and the elementary grades. Subject areas considered include literacy, language arts; mathematics, computers, blocks; science, outdoor education; social studies, thematic units; and art, drama, music, physical activity.

ECE 5104-1 to 3. Advanced Developmentally Appropriate Curriculum. Extends earlier learning about developmentally appropriate

curriculum and instructional practices in early education and the elementary grades. Students elaborate their knowledge of subject area materials and activities. A curriculum unit that is developmentally appropriate is planned, implemented and evaluated. Prereq: ECE 5102.

ECE 5140-3. Measurement and Evaluation in Early Childhood Education. Provides classroom experience in basic measurement concepts and in the screening and assessment of young children's cognitive, affective, language and psychomotor capabilities and characteristics. Traditional measurement techniques as well as nonreactive measures, human and video-observational methods and authentic assessment are included. Evaluation of programs and persons in early childhood education settings is examined.

ECE 5200-3. Screening and Assessment of Young Children. Provides a field-based experience in the administration and scoring of a sampling of the most widely used screening and assessment instruments designed for use with infants and in preschool classrooms. Students have the opportunity to administer a variety of formal and informal measures including screening, evaluation, play-based and curriculum-based measures.

ECE 5202-3. Violence and Stress in Young Children's Lives: Intervention Strategies. Prepares early childhood educators to work with young children and their families to counteract the negative effects of stress and violence. Students are introduced to the effects of stress and violence on young children, the emotional needs of children in the classroom and the use of specific intervention strategies to promote positive social skills, prevent behavior problems and teach social problem solving to young children.

ECE 5204-3. Early Childhood Mental Health. Addresses the role of the early childhood practitioner in supporting young children emotional well-being and mental health. Topics include mental health disturbances or disorders of infancy or childhood, assessment of social or emotional development and behaviors related to mental health, relationship-based strategies for working with children with emotional and behavioral needs and identification of community resources and services. Prereq: students are encouraged to take ECE 5202 prior to this course for a specialization in early childhood mental health, however this is not an absolute prerequisite.

ECE 5800-1 to 4. Workshop: Topics in Early Childhood Education. Topics and credit hours vary from semester to semester.

ECE 5840-1 to 4. Independent Study.

ECE 5911-3. Educational and Observational Practicum in Early Childhood Education. Includes planned experiences built around the clinic and ECE classroom in operation. Students observe in public schools, Head Start, childcare and private preschool programs. The practicum requires 30 to 40 clock hours of field placement experience with concurrent classroom meetings. Opportunities for observation in a variety of classroom types are provided.

ECE 5920-1 to 4. Readings in Early Childhood Education. ECE 6010-3. Literacy and Mathematics K-2. Principles of early reading and mathematical development for grades K-2. Approaches to reading and mathematics are reviewed in relationship to Colorado Model Content Standards and the Colorado and Literacy Act. Diverse instructional strategies and differentiation for children with disabilities and the roles of early childhood special education specialists in K-2 are described and critiqued.

ECE 6100-3. Medical and Physiological Aspects of Developmental Disabilities. Presents neurological or physiological development and disorders, as well as appropriate intervention techniques for the young child. Also considered are developmental issues and concerns related to medically fragile young children.

ECE 6110-3. Intervention Strategies for Children with Disabilities and At-risk Infants. An in-depth study of intervention strategies, curricula and program models for young children, birth to three years. Topics include selection, implementation and evaluation of the different techniques. The course has an interdisciplinary focus.

ECE 6200-3. Early Intervention Strategies. Explores current research, knowledge and skills related to early intervention policies, teaching strategies and service delivery focusing on the young child with disabilities.

Infant and preschool service delivery options such as home or center or community-based programming and social integration programming techniques are emphasized.

ECE 6600-3. Seminar: Early Childhood Education Practices and Issues. Current practices and issues in early childhood and primary education are reviewed, then certain topics are considered in-depth. Emphasis is on issues and problems of practice and care setting in early childhood education and primary grades.

ECE 6690-3. Seminar: Research and Current Issues in Early Childhood Education. Research methods are reviewed and then selected topics are considered. Emphasis is on research findings and current issues of importance to teachers, administrators, specialists, collaborator/consultants and researchers in early childhood and early childhood special education.

ECE 6910-1 to 6. Practicum in Infancy. Field-based experiences in settings for children with disabilities and at-risk infants, toddlers and their families.

ECE 6911-1 to 4. Practicum in Early Childhood Education. Field-based experiences in settings for young children (preschool administration, day-care center management, community college teaching, parent program directorship, etc.) that are closely linked to the students' professional goals. Requires a minimum of 75, 150, 225, or 300 clock hours under supervision (for 1, 2, 3, or 4 credit hours, respectively).

Prereq: considerable course work in early childhood education.

ECE 6912-1 to 4. Practicum: Early Childhood Special Education. Field-based experiences in settings for young children with disabilities and their families, including diagnostic clinics, project Child Find, hospital and/or classroom. The practicum requires a minimum of 85, 170, 255, or 340 clock hours under supervision (for 1, 2, 3, or 4 credit hours, respectively).

ECE 6913-3. Practicum in Working with Parents and Families. Provides in-depth, field-based experience in working with families of handicapped and at-risk young children. Settings may include schools, community agencies and hospitals. Requires minimum of 255 clock hours under supervision. Prereq: permission of instructor.

ECE 6914-2. Primary Practicum in Early Childhood Special Education. Field-based experiences in kindergarten through second grade settings with typically developing children, children with special needs and special education teams. Requires a minimum of 85, 170, 255 or 340 clock hours under supervision (for 1, 2, 3, or 4 credit hours, respectively). Prereq: ECE 6010.

ECE 6950-4. Master's Thesis. Prereq: REM 5100, REM 5200 and credits in the Early Childhood Education program.

ECON: Economics (Liberal Arts and Sciences)

ECON 1111-1 to 3. Freshman Seminar.

ECON 2012-3. Principles of Economics: Macroeconomics: GT-SS1. Covers topics of inflation, unemployment, national income, growth and problems of the national economy, stabilization policy, plus others at the discretion of the instructor. Purpose is to teach fundamental principles, to open the field of economics in the way most helpful to further a more detailed study of special problems and to give those not intending to specialize in the subject an outline of the general principles of economics.

ECON 2022-3. Principles of Economics: Microeconomics: GT-SS1. Topics include price determination in a market system composed of households and firms: resource allocation and efficiency of various market structures, plus others at the discretion of the instructor. Note: Complementary to and normally taken following ECON 2012. ECON 2012 is not a prerequisite for ECON 2022.

ECON 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

ECON 3100-3. Economics of Race and Gender. Overview of the determinants of wages, employment and education in the labor market. Emphasizes the investigation of the evidence and theories of differentials

that appear to be associated solely with race and sex and public policies associated with discrimination and poverty. Prereq: ECON 2022.

ECON 3300-3. Economics of Crime and Punishment. Presents the economic approach to crime. Teaches economic reasoning in the analysis of the determinants of criminal activity, provides an in-depth analysis of the importance of socioeconomic factors in determining crime. Investigates the relative importance of labor market conditions, deterrence and other factors in the level of criminal activity. Also covers topics to reduce crime such as, the death penalty, issues around victimless crime and public choices. Prereq: ECON 2022.

ECON 3366-3. Managerial Economics. Presents the basic core of economic theory and its use for sound managerial decision making. Emphasis on the the practical applications of the concepts learned in economics to the resolution of everyday problems. Prereq: ECON 2012 and 2022.

ECON 3400-3. Economics of Sex and Drugs. Examines the political and policy issues surrounding controversial topics in human behavior. Economic models and reasoning are applied to examine issues such as juvenile substance use and abuse and teen pregnancy. Prereq: ECON 2022.

ECON 3801-3. Introduction to Mathematical Economics. Introduces the use of mathematics in micro- and macro-economic analysis. Emphasis on model-building techniques, solution methods and economic interpretations. Prereq: MATH 1070, 1080 (or equivalent), ECON 2012 and 2022.

ECON 3811-4. Statistics with Computer Applications. Introduces statistical methods and their application to quantitative problems in economics and Note: Recitation is required. Prereq: College algebra, ECON 2012 and 2022.

ECON 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA.

ECON 4001-3. Topics in Economics. Studies special topics in economics to be selected by the instructor. Note: May be repeated for credit when topics vary.

ECON 4050-1 to 8. Special Economic Problems. Provides students the opportunity to critically evaluate some practical and theoretical problems under supervision and to present results of their thinking to fellow students and instructors for critical evaluation. Prereq: ECON 2012 and ECON 2022. Note: **ECON 4050 for majors in economics, others by permission of instructor.** Cross-listed with ECON 5050.

ECON 4071-3. Intermediate Microeconomic Theory. Production, price and distribution theory. Study of value and distribution theories under conditions of varying market structures, with special references to the contribution of modern theorists. Prereq: ECON 2012, 2022 and 3801.

ECON 4081-3. Intermediate Macroeconomic Theory. National income and employment theory. Primary emphasis placed on determination of employment and prices. Problems of unemployment and inflation analyzed and appropriate policies considered. Prereq: ECON 2012, 2022 and 3801.

ECON 4091-3. History of Economic Thought. Traces the development of economic thought from ancient times to the 20th century. Considers the context in which these ideas were developed and their relationship to modern economic thought and contemporary economic problems. Prereq: ECON 2012 and ECON 2022. Cross-listed with ECON 5090.

ECON 4101-3. Applied Statistics Using SAS and SPSS I. Teaches the practical statistical tools social scientists use to analyze real-world problems. Split into four modules, each taught by a different instructor. The first module introduces SAS and SPSS; modules 2-4 are problem-based and cover topics such as ANOVA, multivariate regression and cluster analysis. Prereq: Any statistics course.

ECON 4102-3. Applied Statistics Using SAS and SPSS II. (continuation of ECON 4101.) Students use the skills they learned in the previous semester to analyze a social issue of their choosing and present their findings. Note: In addition to lectures, weekly one-on-one meetings between faculty and students are required. Prereq: ECON 4101.

ECON 4110-3. Money and Banking. Surveys major monetary and fiscal institutions such as commercial banks, the federal reserve system, savings institutions and the structure of debt. The relationships between households, firms and financial intermediaries are explored and the tools available to macroeconomic policy makers are described and evaluated. Prereq: ECON 2012.

ECON 4150-3. Economic Forecasting. Teaches forecasting techniques used in business and government to project trends and short-term fluctuations. Actual data are employed in instruction and laboratories. State-of-the-art spreadsheet and algorithms are introduced as part of the course work. Prereq: Undergraduate statistics or permission of instructor. Cross-listed with ECON 5150.

ECON 4210-3. Public Finance. Surveys topics dealing with the economics of government activity, including the provision of public goods; the economics of the political process; welfare programs; pollution externalities; benefit-cost analysis; the U.S. tax structure; and the effects of taxes on economic behavior, economic performance and the distribution of income. Prereq: ECON 2022.

ECON 4230-3. Law and Economics. Applies economic theory to legal decision making. Topics include property law, tort law, contract law, the common law, crime and punishment, comparisons to traditional forms of legal decision making and the economic approach to politics. Prereq: ECON 2022.

ECON 4240-3. Economic Policy Analysis. Deals with the application of economic analysis to the government policy-making process. Topics include public goods provision, externalities, cost-benefit analysis, judicial decision making, the economic analysis of the political process, government regulation of business and tax incidence. Prereq: ECON 2012, 2022 and 3801.

ECON 4410-3. International Trade. Trade theory identifies who wins and loses from trade and why there are usually overall gains. Explores issues in immigration, globalization, income inequality, tariffs, dumping, the WTO, the environment, wages and growth strategies among others. Prereq: ECON 2022. Cross-listed with ECON 5410.

ECON 4420-3. International Finance. The international adjustment process, including the foreign exchange market, balance of payments disequilibria, price and income adjustment, fiscal and monetary policy and the international monetary system. Prereq: ECON 2012.

ECON 4530-3. Economics of Natural Resources. Examines economic models of renewable resource management and models of exhaustible resource depletion. Analyzes decisions made by private firms and governments affecting the methods and rate of resource development. Examines the effects of resource development on economic growth and environmental quality and the effects of economic development on resource scarcity. Prereq: ECON 2022. Cross-listed with ECON 5530.

ECON 4540-3. Environmental Economics. Economic approach to environmental problems: relationship between ownership structures, externalities and environmental damage; poverty, population pressure and environmental degradation; valuation of environmental amenities; sustainability of economic activity; cost-benefit analysis applied to the environment; evaluation of alternative instruments for environmental control. Prereq: ECON 2022. Cross-listed with ECON 5540.

ECON 4610-3. Laboratory or Economics. Studies problems associated with the determination of wages, hours and working conditions in the American economy. Strong emphasis placed on current research in such areas as welfare reform, minimum wages, returns to schooling, immigration, labor market discrimination and trade unions. Prereq: ECON 2012, 2022 and any statistics course.

ECON 4716-3. Comparative Economic Systems. Critical examination of capitalism, socialism, communism and alternative systems. Focuses on the comparative study of various countries and the implementation and management of their economic systems. Prereq: ECON 2022.

ECON 4740-3. Industrial Organization. Examines the determinants of and linkages between, market structure, firm conduct and industrial performance. Topics include: determinants of the market size; impact of different market structures on prices and outputs; strategic behavior of firms to prevent entry or induce exit of rival firms; collusion; price

discrimination; advertising; competition, monopoly and innovation; implications for economic efficiency and public policy. Prereq: ECON 4071. Cross-listed with ECON 5740.

ECON 4770-3. Economic Development—Theory and Problems. Introduces theory and practice of economic development. Topics include development and growth models, economic planning, income distribution, human and capital resources, foreign investment and the multinationals, technology transfer, trade and development. Discussions of current issues regarding world debt, economic stabilization, the new protectionism, empirical studies and examples of development in various countries. Prereq: ECON 2012 or ECON 2022.

ECON 4811-3. Introduction to Econometrics. Introduces econometric methods and their applications to quantitative economic problems. Simple and multiple regression models and problems encountered in their applications are developed in lectures and applied computer projects. Prereq: ECON 3811 or equivalent.

ECON 4840-1 to 3. Independent Study.

ECON 4850-1 to 3. Honors Independent Study.

ECON 5050-1 to 8. Special Economic Problems. Provides students the opportunity to critically evaluate some practical and theoretical problems under supervision and to present results of their thinking to fellow students and instructors for critical evaluation. Prereq: permission of instructor. Cross-listed with ECON 4050.

ECON 5051-1.5. Data Analysis and Research Methodology. Consists of a series of lectures on the nature of conducting research and discussions of the ways professional economists approach research problems. A review of spreadsheet applications and statistical packages are conducted. Prereq: ECON 4071 and 4811 or permission of instructor.

ECON 5073-3. Microeconomic Theory. Fundamental features of partial equilibrium theory of the firm, consumer and market. General equilibrium and welfare economic topics are examined. Features of the models that have empirical applications are accented. Prereq: ECON 5803.

ECON 5083-3. Macroeconomic Theory. Examines the major macroeconomic models within a common framework. Differences in the foundations, structure and policy implications of the competing models are analyzed. Prereq: ECON 5803 or permission of the instructor.

ECON 5090-3. History of Economic Thought. Traces the development of economic thought from ancient times to the 20th century. Considers the context in which these ideas were developed and their relationship to modern economic thought and contemporary economic problems. Prereq: ECON 2012 and ECON 2022. Cross-listed with ECON 4091.

ECON 5150-3. Economic Forecasting. Teaches forecasting techniques used in business and government to project trends and short-term fluctuations. Actual data are employed in instruction and laboratories. State-of-the-art spreadsheet and algorithms are introduced as part of the course work. Prereq: ECON 3811. Cross-listed with ECON 4150.

ECON 5310-3. Managerial Economics. Focuses on underlying rationale for enterprise structure, firm and managerial behavioral incentives and strategic behavior. Discussion of successful and unsuccessful strategies and case studies. Prereq: ECON 5073 or permission of instructor.

ECON 5320-3. Financial Economics. Studies the financial decision making process of individuals and business entities and the workings of financial institutions. Topics include the essentials of optimal portfolio, financial management, financial innovations and the globalization of financial markets. Emphasis is on the application of basic theories to economic agents' behavior and the case studies. Prereq: ECON 5073 or permission of instructor.

ECON 5410-3. International Trade. Trade theory identifies who wins and loses from trade and why there are usually overall gains. Explores issues in immigration, globalization, income inequality, tariffs, dumping, the WTO, the environment, wages and growth strategies among others. Prereq: ECON 2022. Cross-listed with ECON 4410.

ECON 5530-3. Economics of Natural Resources. Examines economic models of renewable resource management and models of exhaustible resource depletion. Analyzes decisions made by private firms and

governments affecting the methods and rate of resource development. Examines the effects of resource development on economic growth and environmental quality and the effects of economic development on resource scarcity. Prereq: ECON 5073. Cross-listed with ECON 4530.

ECON 5540-3. Environmental Economics. Economic approach to environmental problems: relationship between ownership structures, externalities and environmental damage; poverty, population pressure and environmental degradation; valuation of environmental amenities; sustainability of economic activity; cost-benefit analysis applied to the environment; evaluation of alternative instruments for environmental control. Prereq: ECON 5073. Cross-listed with ECON 4540.

ECON 5660-3. Health Economics. Introduces students to analytical skills and economic methods and demonstrates how these methods can be applied to issues in health policy and management. Topics include: demand for health and medical care; health care costs, health reform, medical technology; market for health insurance; physicians, hospitals and managed care; pharmaceuticals; regulations in the U.S. health care sector; demand for addictive substances; infant and maternal health; international comparisons of health care systems. Prereq: permission of instructor.

ECON 5740-3. Industrial Organization. Examines the determinants of and linkages between, market structure, firm conduct and industrial performance. Topics include: determinants of the market size; impact of different market structures on prices and outputs; strategic behavior of firms to prevent entry or induce exit of rival firms; collusion; price discrimination; advertising; competition, monopoly and innovation; implications for economic efficiency and public policy. Prereq: permission of instructor. Cross-listed with ECON 4740.

ECON 5800-1 to 3. Special Topics. Current economics topics to be determined by the instructor. Prereq: ECON 3801 or MATH 1401.

ECON 5803-3. Mathematical Economics. Introduces the use of mathematics in advanced micro- and macro-economic analysis. Emphasis on model-building techniques, solution methods and economic interpretations. Prereq: ECON 4071 and 4081.

ECON 5813-3. Econometrics I. Theory and application of statistical techniques used to analyze economic problems. Topics include simple and multiple regression models, simultaneous equation models and the problems encountered in their application. Students formulate models, obtain data, estimate models, interpret results and, forecast. Prereq: ECON 4811 or equivalent.

ECON 5823-3. Econometrics II. Second course in the econometrics sequence, covering intermediate topics in cross-section and time series analysis. Topics include limited dependent variables, autoregressive and distributed lag models, longitudinal data analysis and unit roots, co-integration and other time-series topics. Prereq: ECON 5083 and 5813.

ECON 5840-1 to 3. Independent Study.

ECON 5939-1 to 6. Internship/Cooperative Education.

ECON 5950-1 to 4. Master's Thesis.

ECON 6010-3. Advanced Microeconomic Theory. Recent and contemporary literature on fundamentals of economic theory. Consideration of value theory with particular emphasis on methodology, theory of demand, theory of the firm and theory of distribution. Prereq: ECON 5073.

ECON 6020-3. Advanced Macroeconomic Theory. Considers general equilibrium and aggregative analysis in economic theory, with particular emphasis given to the theory of employment, consumption and investment. Prereq: ECON 5083.

ECON 6053-1.5. Seminar in Applied Economics. Familiarizes students with applied research in economics. Students read, discuss and critique articles in economic journals. Emphasis is placed on research design and methods employed in these articles to prepare students for development of their own research projects in subsequent courses. Topics vary with instructor and may include international economics, labor economics, monetary theory, public or finance and development economics. Prereq: ECON 5813, 5073, 5083 at the instructor's discretion.

ECON 6054-1.5. Seminar in Applied Economics II. Familiarizes students with state-of-the-art applied economic research. Students read,

discuss and critique articles published in economic journals. Note: Topics vary with the instructor. Prereq: ECON 5813, 5073, 5083 at the instructor's discretion.

ECON 6060-1 to 3. Special Topics. Special topics in advanced micro-economics. Consideration of value theory based upon methodology, theory of demand and theory of distribution. Prereq: ECON 3801.

ECON 6073-3. Research Seminar. Focuses on training students to do rigorous research in economics. Topics include the analysis of large data sets, further development of econometric skills and writing a research paper. Note: Students attend lectures and also meet regularly with the instructor in the process of doing a sophisticated research project. Prereq: ECON 5823 and 6053.

ECON 6110-3. Money and Central Banking. Monetary and financial institutions, with focus on relationships among domestic monetary policy, interactional credit and balance of payments. Prereq: ECON 5083.

ECON 6210-3. Public Finance. Advanced economic theory applied to the problems of public and private sector decision making. Applied topics in taxation, education, voting theory, welfare economics, externalities and public goods. Prereq: ECON 5073.

ECON 6410-3. International Trade. Contemporary and classical literature on theories of international trade. Topics include the determination of the pattern and terms of trade, the relationship between growth and trade and commercial policy. Prereq: ECON 5073.

ECON 6420-3. International Finance. Topics in international finance, including exchange rate determination, the adjustment process, international financial markets and the international monetary system. Prereq: ECON 5073.

ECON 6610-3. Laboratory or Economics. Advanced study of the labor market, including: history, nature and function of labor organizations; the process of wage determination; and the formation of public policy. Prereq: ECON 5073 and 5813.

ECON 6770-3. Economic Growth and Development. Considers the role of planning in economic development, with particular reference to investigation of planning problems, especially in less developed countries. Prereq: ECON 5073 and 5803.

ECON 6801-3. Advanced Mathematical Economics. Addresses economic dynamics, formal mathematical modeling in economics and optimization in economic theory. Prereq: ECON 5803 or permission of instructor.

ECON 6810-3. Econometrics and Forecasting. Covers advanced topics in cross-sectional and time-series analysis. Emphasizes important theoretical and empirical issues encountered in applied work in economics and business. Topics include problems of structural change and model misspecification, instrumental variables, simultaneous equations models, distributed lags, maximum likelihood estimation, qualitative and limited dependent variables, Arima models, vector-autoregressions, issues on exogeneity and causality. Through the use of econometric software programs and actual data, students learn to execute estimation and forecasting projects soundly. Prereq: ECON 5813 and 5823.

ECON 6840-1 to 3. Independent Study.

ECON 6950-1 to 6. Master's Thesis.

EDLI: Educational Leadership and Innovation (Education)

EDLI 6000-1. Academic Writing for Doctoral Students. Tailored for graduate students in education. Focuses on techniques for improving academic writing, particularly planning, organizing, drafting, revising and editing papers, i.e. course assignments, portfolio products, doctoral proposals or dissertation chapters. Prereq: admission to doctoral program.

EDLI 6010-1. APA Conventions in Academic Writing. This workshop, specifically directed to doctoral students, concentrates on practical issues involved in documenting sources and following conventions for other text features using the current Publication Manual of the American Psychological Association and updates posted on the APA Web site. Prereq: admission to the doctoral program.

EDLI 6020-1. Advanced Academic Writing for Doctoral Students.

This workshop is designed for doctoral students in education. Focuses on practical strategies for managing, organizing, revising and editing academic papers, especially complex writing projects such as dissertation proposals and dissertation chapters. Prereq: EDLI 6000 or permission of instructor.

EDLI 6994-3. Introduction to Academic Discourse. Designed to be taken prior to beginning the doctoral program. Discusses the process of writing-emphasizing reading research articles critically with a focus on selecting and organizing sources into a review, developing a conceptual framework and identifying the connectivity between frameworks and conclusions. Covers principles involved in critically reviewing the literature, including an examination of the purpose of the literature review, its structures and an analysis of examples. Furthers the development of a scholarly writing culture and set expectations for the type of writing necessary to be successful in the doctoral program and to be contributing members of the academic community of practice.

EDLI 7000-3. Doctoral Seminar in Research Methods. Designed for students beginning doctoral work, explores conceptual and practical bases for doing and evaluating educational research. The chain of reasoning linking the conceptualization of a research problem, the posing of questions in a social process of inquiry and the collection and interpretation of evidence is examined through the use of examples. Prereq: REM 5100 or equivalent.

EDLI 7010-3. Dissertation Planning and Design. Provides doctoral students with conceptual, methodological and social support during the early stages of the doctoral dissertation. Course content and discussion focuses on the first three chapters of the dissertation, including: posing research questions and hypotheses, conceptual and theoretical frameworks, literature reviews and methodological (design, sampling, measurement, analysis) plans. Prereq: completion of all required course work; successful completion or scheduled doctoral comprehensive examination during the semester in which this course is taken.

EDLI 7100-3. Leadership in Education. Introductory seminar for doctoral students in education. Orients students to the array of perspectives on leadership and innovation in education and develops doctoral-level analysis and writing skills. Students develop initial portfolio products and program plans. Prereq: admission to the doctoral program.

EDLI 7200-1 to 6. Administrative Leadership and Values Appraisals. Examines the core values underlying the program in education administration: value development in individuals as they relate to the purpose of public schooling in today's society. Prereq: permission of instructor.

EDLI 7210-1 to 6. Educational Policy Making in a Democratic Society. Provides students with relevant theories, research and practice related to administrative policy making in educational organizations. Focuses on ways of thinking about societal and schooling tensions and includes a focus on governance, planning, community participation, politics, working with groups, policy arenas, conflict management and the change process. Prereq: permission of instructor.

EDLI 7220-3. Leadership and Power. Part of a planned sequence of experiences for a cohort group of advanced doctoral students preparing for careers as senior policy administrators in education. Prereq: permission of instructor.

EDLI 7230-1 to 6. Organizational Performance in Schools. Examines ways of thinking about schools as organizations that deliver educational services, as well as places of employment for administrators, teachers and other staff members. The course also focuses on ways to diagnose and change school performance. Prereq: permission of instructor.

EDLI 7240-3. Problems and Practices in Integrated Services. Examines the specific systems at local, state and national levels that provide services and support for children, youth and families including the regulatory and statutory criteria for program administration and funding, the nature and scope of services offered and the goodness-of-fit between overlapping program mandates and existing needs of families. Prereq: admission to the PhD program in educational leadership or permission of instructor.

EDLI 7250-3. Nature of Work in Schools. Policies and educational reforms affecting the technical core of schooling: curriculum, teaching, learning, assessment and organization. Students develop research and policy analysis skills and investigate social and political factors affecting what is taught and learned in schools. Prereq: EDLI 7000 and 7100.

EDLI 7260-3. Managing Integrated Services. Examines the dynamics of managing public policies and programs that support integrated services for children and families. Course focuses on managerial skills needed in a complex, multi-disciplinary setting. Course examines federal, state and local government agency policies and their administrative implications. Prereq: core course in Integrated Services emphasis of the PhD program in Educational Leadership and Innovation.

EDLI 7300-3. Individual and Organizational Change. Covers theory and practice of psychological change as this change relates to systems and individuals within organizations. Addresses the knowledge, understanding and application of the change process. Prereq: permission of instructor.

EDLI 7600-1 to 6. Doctoral Laboratory. Laboratories are organized by professors to engage students in on-going research programs. They provide opportunities for students to extend and apply knowledge and skills developed in course work. The laboratories enable students to complete portfolio requirements and work on doctoral dissertations. Prereq: admission to PhD program.

EDLI 7601-1 to 6. Doctoral Research Laboratory: Administrative Leadership and Policy Studies Laboratory. The ALPS laboratory focuses on research on administrative and organizational leadership, adult and professional education, leadership in higher education and educational policy and policy making at all levels. Prereq: permission of instructor.

EDLI 7602-1 to 6. Doctoral Research Laboratory: Postsecondary Teaching and Learning. A doctoral laboratory exploring theoretical and practical questions about teaching and learning in post-secondary settings. Provides hands-on experiences in the design and development of learner-centered, Web-based faculty development workshops along with research opportunities emerging from the workshops. Prereq: admission to the doctoral program.

EDLI 7603-1 to 6. Doctoral Research Laboratory: Technology-Enhanced Learning. The TEL Laboratory is comprised of professionals who share an interest in the effective design of learning resources and use of technologies in K12 and adult-learning settings. TEL supports inquiry and provides leadership to practitioner communities. Example projects include technology integration in K12 schools; instructional-design support for higher education faculty; and tools to promote interaction in online learning environments. TEL Laboratory members meet monthly as an entire group and weekly as sub-groups on specific projects. For more information, check the Web site at: <http://www.cudenver.edu/ilt/TEL> Prereq: permission of instructor.

EDLI 7604-1 to 6. Doctoral Research Laboratory: Learning and Activity. The LOLA doctoral laboratory focuses on learning, change and activity. The laboratory provides an environment in which participants work to develop a conceptual framework for conducting multi-level action research; develop tools for change efforts in a variety of contexts; develop skills in scholarly writings and collegial critique; conduct projects and disseminate findings; and become proficient with data management techniques. Prereq: permission of instructor required.

EDLI 7605-1 to 6. Doctoral Research Laboratory: Urban School Laboratory. The USDL is focused on systemic change and problems of practice within urban schools. It is in the intersection of systems change and practice issues that we stake out the territory for our laboratory: practice informed and supported by systems approaches to improvement and renewal; systems change informed and led by the practitioners who daily work in schools to teach and mentor their students. Through the dynamic interplay of the particular and the context, we hope to unveil the life choices and opportunities for each and every student, knowing that these opportunities and choices are so often complicated by lack of resources, limited expectations of success and depersonalized classrooms. Knowing the critical role that teachers and other practitioners play in

creating opportunities for learning to occur, the work of the USDL explores the issues and challenges that face educators on a daily basis.

Prereq: admittance to the doctoral program or permission of instructor.

EDLI 7607-1 to 6. Doctoral Laboratory for Diversity and Equity.

The laboratory is a research community in which participants use critical theory to examine the educational outcomes and experiences of marginalized groups. Critical theory helps to explore marginalization, particularly as it relates to schools and to imagine a new society. Prereq: doctoral students who meet the requirements for doctorate in Educational Leadership and Innovation.

EDLI 7608-1 to 6. Doctoral Research Laboratory: Inquiry or Professional Development. This laboratory reviews organizational issues in the development and management of authentic content inquiring. Special interest is teacher professional attitudes, collegial teacher-team development and school partnership links that result from such projects. Prereq: admittance to doctoral program or permission of instructor.

EDLI 7611-1 to 6. Doctoral Research Laboratory: Leadership Capacity Laboratory. This laboratory will investigate what constitutes best practice (knowledge, dispositions, skills, training) for impacting the leadership capacity of school leaders as they work to promote: (a) successful student outcomes, (b) inclusive practices, (c) recruitment and retention of high-quality educators, (d) effective learning communities and (e) social justice and equality for all. Prereq: Admission to EDLI program.

EDLI 7612-1 to 6. Doctoral Research Laboratory: Literacy and Responsive Teaching. The purpose of this doctoral research laboratory is to explore area of literacy (reading and writing) and responsive teaching, particularly in diverse school settings with the understanding that diversity of culture, language, gender orientation, abilities and economics is the growing norm in our schools. Topics of interest to the laboratory are literacy development, language acquisition, assessment, culturally responsive teaching practices, professional development and school reform. Prereq: acceptance into the doctoral program.

EDLI 7700-1. Doctoral Pro Seminar. First semester students in EDLI are introduced to the faculty and the elements of the program. Prereq: admission to the PhD program.

EDLI 7710-3. Theoretical Bases of Instructional Technology. Seminar on the theoretical foundations of the field of instructional technology, including behavioral, cognitive and systems theories. Prereq: acceptance into the doctoral program.

EDLI 7711-3. Curriculum Reform in a Democracy. Students address major themes in curriculum improvement. Prereq: permission of instructor.

EDLI 7712-3. Seminar: Learning Theory and Learners. Students apply major issues from learning theories and development to problems of practice related to educational leadership and innovation. Prereq: EPSY 5110 or 5220 or (recommended: EPSY 5100, 5140 or 6000).

EDLI 7830 thru 7832-1 to 6. Special Topics in Educational Leadership and Innovation. Special topics that reflect current research and scholarly exploration of leadership and innovation.

EDLI 7833-3. Culture and Critical Theory. Provides an introduction to critical inquiry. General topics include: the development of the concept of culture, the development of critical theory and critical race theory. Throughout the course, students are guided to explore critical theory work in their own field.

EDLI 7834-3. Divergent Scholarly Work on Identity and Voice Through Critical Theory. This seminar is to prepare individuals to integrate theoretical and practical knowledge by cultivating habits of analysis, inquiry and judgment. Students formulate ways of constructing voice for their own individual sense of identity as a leader and innovator in response to social and political pressures. Prereq: EDLI 7831.

EDLI 8994-1 to 10. Doctoral Dissertation PhD.

EDUC: Educational Administration and Supervision (Education)

EDUC 5000 thru 5009-1 to 10. Special Topics: Administrative Leadership and Policy Studies. Specific topics vary. Focus is on faculty-developed options to standard course offerings to facilitate

program development and distance-learning activities.

EDUC 5010-1. Paraeducator Supervision Academy. Provides the paraeducator with knowledge and skills to work effectively in teams. Paraeducators refine their knowledge of the characteristics of paraprofessionals in education, the distinction between professional and paraprofessional roles and responsibilities, liability and ethical issues.

EDUC 5020-1. Trainers of Paraeducators Academy. Provides the professional educator with the skills to provide effective presentations to paraprofessionals in schools.

EDUC 5030-3. Top Cadre of Trainers (TOPCAT) Seminar. Provides CO-TOP Trainers (school professionals who have been through the PSA: EDUC 5010 and TOPA: EDUC 5020) ongoing support in their roles as supervisors and trainers of paraeducators. Through this seminar trainers receive updated information about CO-TOP Academies, find collegial support from other trainers, exchange ideas, gain presenting and adult teaching ideas and receive feedback on their teaching of paraeducator academies. This seminar also addresses the questions and needs of the individual CO-TOP trainer with regard to CO-TOP paraeducator training materials and processes. Prereq: EDUC 5010 and 5020.

EDUC 5040-1. Mentoring Novice and Pre-service Teachers. Designed to help participants develop or enhance the skills necessary to successfully work with paraeducators who are completing teacher education programs. Concentrates on supervision and conference skills, adult learning theory and communication skills.

EDUC 5050-3. Computer Application for Educational Management. Studies the theoretical and applied knowledge of central and school-based administrative educational applications of modern computer technology.

EDUC 5070-3. Elementary School Curriculum. An integrating course dealing with the history, development, problems and practices of the curriculum of the elementary school.

EDUC 5090-3. Senior High School Curriculum. This course is concerned with the history, development, principles, problems, practices and trends of the curriculum of the senior high school.

EDUC 5100-3. Curriculum and Program Development and Evaluation. Fundamentals of curriculum and program development, including theoretical foundations of U.S. curriculum, practical criteria to guide decision making, specific models and processes for curriculum or program development and appraisal, emerging issues, problems and trends.

EDUC 5400-3. Special Education Seminar for Principals. This course is designed for principals and prospective principals to investigate the new leadership responsibilities that are emerging in the delivery of special education at the building level. The course reflects the emerging role of the principal in leading special education services at the school level with a two-part emphasis. Effective leadership involves (a) an ability to lead school-wide conversations about problems and issues that arise in special education in ways that strengthen the culture of the school and its commitment to all students' learning; and (b) an ability to garner resources for the school's programs. The course is not intended as an introduction to special education law or the details of special education administration, but a basic familiarity with these issues will be assumed.

EDUC 5700-1 to 6. Administrative Leadership in Educational Organizations. Introduces students to key concepts, theories and research in providing leadership to educational organizations. Special emphasis is placed on the topics of organizational behavior, leadership, culture change and power, as they relate to the administrative role. Prereq: permission of instructor.

EDUC 5710-1 to 6. Administering the Environment of Public Schools. A seminar course which focuses on problems and issues in developing an effective school environment. Emphasis is placed upon inter-relationship of law, finance, strategic planning, culture, political governance and school or community relations. Prereq: permission of instructor.

EDUC 5720-1 to 6. Supervision of the Curricular and Instructional Program of the School. This seminar addresses the supervisory issues involved in administering curricular and instructional programs in

schools. Special emphasis is placed upon teacher appraisal, assessment techniques, curriculum design and instructional effectiveness. Prereq: permission of instructor.

EDUC 5730-1 to 6. Administering the School Improvement Process. A seminar course focusing on problems and issues in developing effective schools. This course builds on concepts from organizational behavior and leadership and orients students toward planning, executing and assessing school improvement programs. Emphasis is placed on working through teachers to improve school capacity. Prereq: permission of instructor.

EDUC 5751-5 to 9. Principal/Administrator Licensing I. This program section (1 of 4) combines foundational learning activities in leadership, curriculum and supervision, school improvement and the school environment via distance learning. Field applications are related to those foundations and students develop distance-learning plans for various problems of practice along with their field activities. Assessment is by portfolio. Prereq: admission to the program.

EDUC 5752-5 to 9. Principal Administrator Licensing II. This program section (2 of 4) combines advanced learning activities in leadership, curriculum and supervision, school improvement and the school environment via distance-learning technology that build on the foundational activities in EDUC 5751 with field applications related to those activities. Students develop distance-learning plans for various problems of practice along with field activities. Assessment is by portfolio. Prereq: successful completion of EDUC 5751.

EDUC 5753-5 to 9. Principal/Administrator Licensing III. This program section (3 of 4) combines foundational learning activities in leadership, curriculum and supervision, school improvement and the school environment via distance learning that build on foundational activities in EDUC 5752. Field applications are related to those foundations and students develop distance-learning plans for various problems of practice along with their field activities. Assessment is by portfolio. Prereq: successful completion of EDUC 5752.

EDUC 5754-5 to 9. Principal or Administrator Licensing IV. This program section (4 of 4) combines foundational learning activities in leadership, curriculum and supervision, school improvement and the school environment via distance learning that build on foundational activities in EDUC 5753. Students complete their distance-learning activities for various problems of practice along with their field activities. Assessment is by portfolio. Prereq: successful completion of EDUC 5753.

EDUC 5830-3. Governance and Administration of Education. Development of governance structures and of administration as a field of study in education. Influence of governance and views of administration on educational organizations' goals, functions and personnel.

EDUC 5831-3. School Law. Recent developments, including administrative implications of significant court decisions for school operations. For superintendents, principals, school board members, prospective administrators and teachers.

EDUC 5832-3. Group Development and Training. Organizational theory and practice for school leadership personnel with emphasis on group and organization development, group problem identification and solutions, conflict management skills and processes, role behaviors and goal setting.

EDUC 5833-3. School Business Management. Emphasizes school-site level management. Includes instruction in planning, budgeting, evaluation and management.

EDUC 5834-3. Seminar in School Administration. Knowledge and insight about organizational behavior drawing upon education and related social science concepts.

EDUC 5835-3. Supervision of Instruction. Studies instructional supervision concepts with practical application. Effective instruction, supervision and program evaluation in relation to school-wide improvement. Leadership skills in staff development, curriculum development, group development, direct observation and action research.

EDUC 5836-1 to 4. Workshop: Educational Administration, Curriculum and Supervision.

EDUC 5840-1 to 4. Independent Study. Master's.

EDUC 5930-1 to 5. Clinical Practice in Administrative Leadership. Prereq: admission to the program.

EDUC 5931-1 to 6. Internship in Curriculum.

EDUC 5950-1 to 8. Master's Thesis.

EDUC 6000 thru 6010-1 to 10. Special Topics: Administrative Leadership and Policy Studies. Specific topics vary; focus is on faculty-developed options to standard course offerings to facilitate program development and distance-learning activities.

EDUC 6101-3. Initial Portfolio Analysis for Administrator Licensure. Students work with faculty members to develop a portfolio related to the professional standards of practice for educational administrators. Faculty members review the portfolio and provide an initial analysis for licensure. Prereq: M.A. or certification in educational administration.

EDUC 6102-3. Initial Portfolio Analysis for Principal Licensure. Students work with faculty members to develop a portfolio related to the professional standards of practice for principals. Faculty members review the portfolio and provide an initial analysis and recommendation for licensure. Prereq: M.A. or certification in educational administration.

EDUC 6103-1 to 6. Portfolio Product Development for Administrative Licensure. Students work with the professor to develop the products needed to ensure compliance with the new state standards for administrative licensure. Prereq: M.A. or certification in educational administration.

EDUC 6104-1 to 6. Portfolio Product Development for Principal Licensure. Students work with the professor to develop the products needed to ensure compliance with the new state standards for principal licensure. Prereq: M.A. or certification in educational administration.

EDUC 6105-3. Portfolio Evaluation for Administrative Licensure. Students work with the professor to conduct a detailed evaluation of portfolios to ensure that they meet the state standards for administrator licensure. The professor assembles a team of faculty and practicing professionals for the evaluation process. Prereq: M.A. or certification in educational administration.

EDUC 6106-3. Portfolio Evaluation for Principal Licensure. Students work with the professor to conduct a detailed evaluation of portfolios to ensure that they meet the state standards for principal licensure. The professor assembles a team of faculty and practicing professionals for the evaluation process. Prereq: M.A. or certification in educational administration.

EDUC 6840-1 to 4. Independent Study.

EDUC 6930-1 to 7. Clinical Practice for Administrative Leadership.

EDUC 6951-4. Master's Thesis.

EDUC 7000-7010-1 to 3. Special Topics in Administration, Supervision and Curriculum Development.

EDUC 7120-3. Curriculum of Middle Level School. Deals with the history, development, principles, problems, practices and trends of the curriculum of the middle level school.

EDUC 7140-3. Student Activities Curriculum. Principles, problems and procedures for improvement of extra class activities, student councils and home rooms in the secondary school.

EDUC 7150-3. Doctoral Seminar in Curricular Theories. An intensive study of current theories of public school curriculum related to trends in actual practices in elementary and secondary schools.

EDUC 7160-3. Processes and Materials in Curriculum Appraisal. Designed to provide curriculum workers with skills in the process of assessment of curriculum programs and skill in the appraisal of curriculum materials.

EDUC 7340-3. Doctoral Seminar: Problems and Trends in Education. A broad overview of current problems in schools and school systems and consideration of practices and policies in U.S. schools for solution of such problems. Evaluates procedures for solving educational problems.

EDUC 7350-3. Elementary Principalship. Offered summers only. Two-week in-depth examination of the elementary school principalship. Required for Type D administrative certification, elementary school. Prereq: permission of instructor.

EDUC 7360-3. Administration and Supervision of Elementary School. For administrators and teachers. Purposes, practices and trends in administration and educational leadership.

EDUC 7370-3. Administration and Supervision of Senior High School. Current administrative principles and practices essential to effective organization and management, with emphasis on the educational leadership of the principal.

EDUC 7380-3. Doctoral Seminar: Theory of Educational Administration. Studies organizational models, theories and communication patterns; leadership roles and behavior; and organizational change.

Attention to recent research in administrative theory.

EDUC 7400-3. Doctoral Seminar in School Finance. For advanced graduate students. Problems of educational finance; theory, practice and control; equalization funds; federal-state-local relations in finance; budgeting; salary schedules; retirement; and school bonds.

EDUC 7410-3. Educational Facilities Planning. Offered yearly. Determination of school plant needs; relation of educational and architectural services; criteria of adequate school plants, site development, building operation and management; financial problems.

EDUC 7420-3. Personnel Development and Training. Management of human resources in educational organizations. Deals with shared roles between site development, building operation and management; financial problems.

EDUC 7430-3. School and Community Relations. Examines interactions of schools and their communities, citizen role or involvement in governance of education, internal and external communication concepts and practices, politics of education, community power and pressure groups, organizational culture and climate.

EDUC 7490-3. Doctoral Seminar.

EDUC 7560-3. Administration and Supervision in the Junior High School and Middle School. Purposes, practices and trends in administration of the middle level school. Current administrative principles and practices essential to effective organization and management. Emphasis is on leadership of the principal at the middle level school.

EDUC 7630-3. Doctoral Seminar: Junior and/or Senior High School Education. For advanced students. Problems, theories and trends in secondary education. Includes field work and individual projects.

EDUC 7700-1. Doctoral Pro Seminar. This seminar integrates multiple doctoral laboratories, assists students to focus on dissertation topics and facilitates inclusion of regional or national researches in students' PhD experiences. Prereq: admission to the PhD program.

EDUC 7800-3. Doctoral Research Seminar: Education Administration, Curriculum and Supervision. This seminar focuses on doctoral research study in these areas of educational research.

EDUC 7810-3. Doctoral Seminar in School Law. An in-depth examination of the American legal process as it pertains to administration, planning and delivery of educational programs. Involves self-selected research followed by individual or group presentations.

EDUC 7820-3. Doctoral Seminar in Curriculum. Advanced seminar relating to theory and practice in curriculum building. Includes both elementary and secondary levels.

EDUC 7823-3. Doctoral Seminar in Educational Supervision. Advanced exploration of current instructional supervision concepts with exercises linking theory with professionals to solve instructional problems.

EDUC 7825-3. Doctoral Seminar in Educational Leadership. Seminar dealing with processes and patterns of educational leadership in the schools. Various theories of leadership are considered in relation to students' leadership behaviors. May be taken more than one semester for credit with advisor's approval.

EDUC 7840-1 to 4. Independent Study. Doctoral.

EDUC 7911-1 to 4. Practicum in Education Administration, Supervision and Curriculum.

EDUC 7921-1 to 4. Readings in Education Administration, Curriculum and Supervision.

EDUC 7931-1 to 6. Internship in Educational Administration and Supervision. Prereq: permission of instructor.

EDUC 7932-1 to 6. Internship in Curriculum. Permission of instructor required.

EDUC 8997-1 to 10. Doctoral Dissertation EdD.

Educational Leadership and Innovation: EDLI (Education)

Educational Psychology: EPSY (Education)

E E: Electrical Engineering (Engineering)

E E 1201-1. Introduction to Electrical Engineering. Introduces the field of electrical engineering and the computer—its primary tool. E E faculty members explain the various specialties within the field by demonstration. Word processors, spreadsheets and engineering software are introduced. NOTE: This course is not available to students who have taken E E 2142. Prereq: high school trigonometry.

E E 1510-3. Logic Design. The design of combinatorial and sequential switching circuits. Topics include Boolean algebra, Boolean function minimization technique, combinatorial circuit analysis and synthesis, synchronous sequential circuit analysis and synthesis, algorithmic state machine design, asynchronous sequential circuit analysis and synthesis. Prereq: MATH 1120 or equivalent. Cross-listed with C SC 1510.

E E 2132-3. Circuit Analysis I. Introduces circuit analysis: basic principles, operational amplifier circuits, first-order and second-order circuits, steady-state sinusoidal analysis with phasor mathematics. Prereq or coreq: MATH 2421 and PHYS 2331. Cross-listed with C SC 2132.

E E 2142-3. Circuit Analysis II. Sequential course after E E 2132. Main topics include: Laplace transforms, frequency domain analysis, transfer functions, Bode plots, active filters and computer-aided analysis. Prereq: MATH 2421, PHYS 2331, ENGL 1020 and E E 2132 or C SC 2132. Cross-listed with C SC 2142.

E E 2531-1. Logic Laboratory. Experiments in digital logic utilizing both computer simulation and actual analysis using integrated circuits. Initially, combinatorial logic circuits are studied, including circuits such as binary adders and multipliers, followed by sequential circuits, including counters. Meters and oscilloscopes are introduced. Use of computer-aided design tools facilitating design, simulation and implementation of digital systems using field-programmable logic devices are an integral part of the entire course. Prereq: MATH 1120 or equivalent; prereq/coreq: E E 1510 or C SC 1510. Cross-listed with C SC 2531.

E E 2552-1. Sophomore Circuits Laboratory. Conduct experiments in circuit measurement using oscilloscopes, power supplies and function generators. Verify basic circuitry, basic circuit theorems such as Ohm's Law, Kirchoff's Law and Thevenin's theorem and Norton's theorem. Learn by experiments: impedance functions, transfer functions, resonance, Fourier series and analog filters. Prereq: E E 1510, 2132 and 2531; prereq/coreq: E E 2142.

E E 2651-3. Introduction to Computer Engineering. Basic computer architecture is covered, including CPUs registers, memory, buses, which includes assembly language, compilers and operating systems. Prereq: MATH 1120 or equivalent, E E 1510, C SC 1320 and E E 2531.

E E 3030-3. Electric Circuits and Systems. This basic electrical engineering course is for non-majors (does not apply to BSE E degree). Students study circuit analysis, transformers, electric motors and simple electronic circuits (diodes and transistors). Prereq: MATH 2421 and PHYS 2331. Cross-listed with ME E 3030.

E E 3133-3. Electromagnetic Fields. Basic material is covered, including: vector analysis in generalized coordinates, Maxwell's equations postulated for free space and extended to material regions and boundary conditions, uniform plane waves for free space and for materials and static and quasi-static electric and magnetic fields. Prereq: MATH 3200/3195 and prereq/coreq E E 2142.

E E 3164-3. Energy Conversion. Theory of transformers. Energy conversion concepts. Basic rotating energy converters, including direct current, synchronous and induction machines and applications. Prereq: E E 2132 and 2142.

E E 3215-3. Electronics I. The learning objective is fundamental semiconductor theory as applied to electronic circuits. Topics include: semiconductor theory, P-N junctions and diode applications, power supply design, transistor (BJT) theory and applications, low-frequency

amplifiers, FET and MOSFET devices. Prereq: E E 2132, MATH 2421, PHYS 2331; prereq/coreq: E E 2142.

E E 3225-3. Electronics II. BJT and FET transistor models at high frequencies, multi-stage amplifiers, frequency response of amplifiers. Feedback, operational amplifiers, oscillators, power amplifiers and introduction to power electronics. Prereq: E E 2142, 3215, 2552 and 3715.

E E 3316-3. Linear Systems Theory. Introduces the fundamentals of signals and systems analysis. Topics include: time domain analysis of continuous and discrete time systems, frequency domain (Laplace and z-transform) analysis, applications to filters and feedback systems, Fourier transform for both continuous and discrete time signals, sampling and signal reconstruction, applications to communication systems and state space representation. Learning experience is enhanced by using MATLAB-based examples and experiments. Prereq: E E 2132, 2142, MATH 2411 and 3195.

E E 3651-3. Digital Hardware Design. The specification and design of large digital hardware systems. Applications include using a hardware description language and simple digital control circuits. Prereq: E E 2531 and 2651 or C SC 2531 and C SC 2525. Cross-listed with C SC 3651.

E E 3701-3. Computer Architecture and RTOS. Computer architectures, operating systems (OS) and real-time OS (RTOS) are explored. The LINUX operating system is introduced and used to control real-time I/O. Performance of I/O software is verified by measurement. Prereq: E E 2651, C SC 1320, E E 1510 or C SC 1510 and E E 2531 or C SC 2531.

E E 3715-1. Electronics Laboratory. Design and experimental verification of the operation of filter circuits, power supply circuits, transistor amplifier circuits and FET circuits. Prereq: E E 2142, 2531, 2552; prereq/coreq: E E 3215.

E E 3724-1. Power Laboratory I. Basic electro-mechanical energy conversion concepts as applied to the synchronous machine, induction machine and DC machine; the transformer; applications. Prereq: E E 2142; prereq/coreq: E E 3164.

E E 3735-1. Junior Laboratory. Design and measure: several nonlinear op-amp circuits, a multi-stage amplifier and a complementary-symmetry output stage. Oral presentations on experiments to be given. Prereq: E E 3215 and 3715; prereq/coreq: E E 3225.

E E 3817-3. Engineering Probability and Statistics. Topics include: definition of probability, conditional probability, independence, combined experiments and Bernoulli trials, random variables, joint distribution and density functions, correlations, sample mean and variance. Also, introduction to random processes, auto and cross correlation functions, spectral density of random signals, responses of a linear system to random inputs. Prereq: E E 2132 and 2142; recommended coreq: E E 3316.

E E 4025-3. Device Electronics. A course relating performance and limitations of solid state devices to their structures and technology. For both advanced circuit and device engineers. Semiconductor physics and technology, pn-junction and MOS devices used in modern integrated circuits. Prereq: E E 3225 and senior standing. Cross-listed with E E 5025.

E E 4133-3. Advanced Electromagnetic Fields. Topics include: Poynting's power theorem, reflection and transmission of uniform plane waves in layered media, two-conductor transmission lines, rectangular wave guides, Smith Chart elements of radiation and antenna theory. Prereq: E E 3133.

E E 4136-3. Control Systems Analysis. Introduces students to the fundamentals of analysis and design of feedback systems. Topics include: mathematical models of linear continuous-time systems applied to modeling physical systems in the time and frequency domain, control system characteristics, Routh's stability and transient response analysis, Nyquist stability and polar plots, analysis and design of linear control systems by root locus and frequency response, methods, compensator implementation, finite-precision numerical effects, round-off errors and computer-based design applications. Prereq: E E 3316; and prereq or coreq: E E 3817.

E E 4174-3. Industrial Power Electronics. Topics include: power electronics fundamentals and applications in power systems; SCR; power diodes; JFET, FET and GTO; converter design; FHP motors;

motor speed control and applications. Prereq: E E 3164, 3225, 3724 and 3735. Cross-listed with E E 5174.

E E 4184-3. Power Systems Analysis. Topics to be covered include: complex power, per-unit quantities and reactance diagrams, symmetrical fault calculation, symmetrical components, sequence network and unsymmetrical faults. Applications including selection of breaker, voltage drop and protection coordination are discussed. Prereq: E E 3164, 3316 and prereq or coreq: E E 3724.

E E 4225-3. Advanced Electronics. Switching state models of discrete components and integrated circuits, including logic gates, comparators and operational amplifiers. Input, output and transfer characteristics. Non-ideal properties. Analog-digital and digital-analog conversion. MOS-integrated circuits. Prereq: E E 3215, 3225, 3735.

E E 4247-3. Communication Theory. Introduces the principles of analog and digital communication systems. Series expansion and Fourier Series and transforms. The sampling theorem. Stochastic principles and noise. Linear systems and Fourier analysis. Design of transmitters and receivers: modulation and demodulation schemes. Some information theoretic concepts: source coding, channel coding, channel capacity and performance measures. Prereq: E E 3316 and 3817.

E E 4248-3. Digital Communication Systems. Introduces digital communication systems covering elements of information theory; mathematical representation of signals and systems; modulation and demodulation for the additive Gaussian noise channel; performance analysis of various transmission formats; synchronization; coded waveforms; decoding algorithms; and other related topics. Prereq: E E 3316, 3817; recommended E E 4247. Cross-listed with E E 5248.

E E 4249-3. Space Communications Systems. Presents the art of space communications system design around the framework of the link budget and the essential analysis tool of the radio system designer. The budget is examined from theoretical and practical viewpoints. Pointers and motivation for further study in each of the related engineering disciplines are provided. Topics to be examined include satellite orbits, propagation, antennas, noise, modulation, coding and hardware or software. Prereq: permission of instructor. Cross-listed with E E 5249.

E E 4276-3. Digital Control Systems. Topics to be covered include: discrete-time systems and the z-transform, characteristics of open-loop and closed-loop discrete-time systems, time-response characteristics and stability analysis, design of digital and hybrid control systems using z-transform, root locus, frequency domain and state variable compensation techniques, compensator on, implementation and computer-based design applications. Prereq: E E 3316; prereq or coreq: E E 3817.

E E 4309-3. Senior Design Project I. Design methodology and tools, project planning and team building, ethics in engineering and research, career planning and portfolio building. Project designs are completed and presented to the class. Prereq/coreq: all required 3000-level classes and laboratories. E E 4309 and 4319 must be completed in subsequent academic semesters.

E E 4319-3. Senior Design Project II. Project designs completed in E E 4309 are constructed and tested. Oral and written presentations of the completed project performance are required. Prereq: Completion of all required 3000-level classes and laboratories. E E 4309 and 4319 must be completed in subsequent academic semesters.

E E 4406-1. Control Systems Laboratory. This laboratory includes system identification, design of velocity control systems, design of PID controllers and control systems using state variable feedback. Prereq: E E 3225, 3316, 3725 and 3817.

E E 4411-1. Computer Systems Laboratory. This laboratory provides students with experience in the use of microprocessors and digital interfaces. Topics include microprocessor organization, assembly language, I/O, interrupts, timers and A/D conversion. Prereq: E E 3225, 3651, 3735 and permission of instructor.

E E 4423-1. Microwave Laboratory. Microwave design and matching of coaxial and waveguide devices, transmission lines and systems. Devices include attenuators, directional couplers, antennas, ferrites, detectors, mixers, oscillators and amplifiers. Systems are represented by modern X-band transceivers and multi-band satellite systems. Project in microwave

computer-aided design of microwave transistor amplifiers. Prereq: E E 3225, 3735 and 4133.

E E 4435-1. Advanced Electronics Laboratory. Projects related to digital logic, analog and digital switches, A/D and D/A converters and design of signal filters. Prereq: E E 3225 and 3735; prereq or coreq: E E 4225.

E E 4444-1. Power Systems Laboratory. Investigates the design, testing and operation of standard distribution system apparatus, including synchronous machines, induction machines, machines, transformers, power rectifiers, circuit breakers, fuses and instrumentation. Preparation of a report on a power systems-related topic and oral presentation to class. Prereq: E E 3164 and 3724; coreq: E E 4184.

E E 4466-3. Adaptive Control System Design. Basic concepts in adaptive feedback control. Overview of application areas. Stability of nonlinear systems and hyperstability approach to the design of adaptive controllers. Passivity concept and Lieapunov stability. Design of model reference adaptive systems, self-tuning regulators, stochastic adaptive and dual control systems. Computer-based design applications. Emphasis is placed on design projects. Prereq: E E 4136 or 4276. Cross-listed with E E 5466.

E E 4467-1. Communications Laboratory. Analysis and design in three main areas: traditional analog communications at low and medium frequencies, digital communications and microwave communications systems. Extensive use of spectrum analysis from low frequencies up to microwave range. Projects include noise, AM, FM, PM, PLL, sampling, quantizing, encoding, TDM, FSK, QPSK, 16QAM, receivers and satellite communications systems. Prereq: E E 3735; prereq or coreq: E E 4247 or E E 4248.

E E 4501-3. Microprocessor-based Design. Covers advanced treatment of embedded system design using microprocessors. Analog input circuitry is interfaced to a microprocessor and a PC board layout is created to develop a complete system design. Software/Operating System is implemented for real time I/O. Prereq: E E 3225, 3651 and 3735. Cross-listed with E E 5501.

E E 4511-3. Hardware-Software Interface. Computer engineering methods in hardware and software design applied to problems drawn from the mini- and micro-computer systems field. Hardware and software techniques for the design of combined hardware or software are developed. Interface and real-time programming techniques are considered. Graduate level requires additional projects and homework. Prereq: E E 3651 and 3735. Cross-listed with E E 5511.

E E 4521-1. Microprocessor Laboratory. Provides support for the projects assigned in E E 4501 - a complete embedded system is designed, built and tested. Coreq: E E 4501.

E E 4555-3. VLSI Circuit Simulation. Computer methods for large integrated circuits. Theory and practice of VLSI circuit simulation. Nodal formulations of networks. Computer generation of sensitivities. Modeling active devices. DC solution of nonlinear networks. Prereq: E E 3225 and 3735. Cross-listed with E E 5555.

E E 4561-1. Hardware-Software Laboratory. Projects related to the software interface of a processor to external devices. Topics include A/D converters, serial and parallel interfaces. Coreq: E E 4511.

E E 4637-3. Digital Signal Processing. Discrete-time signals and systems in the time and frequency domain. Digital filter structures, design of FIR filters by windowing, optimum approximations of FIR filters. Design of digital IIR filters from continuous time domain. Computer-aided design of digital filters. The discrete Fourier transform and DSP algorithm implementation. Analysis of finite word length effects. Application of digital signal processing. Prereq: E E 3316 and 3817. Cross-listed with E E 5637.

E E 4800-4839-1 to 3. Special Topics.

E E 4807-3. Special Topics: Computer Controlled Systems. Prereq: E E 3316, E E 3817, senior standing and consent of instructor. Cross-listed with E E 5807.

E E 4840-1 to 3. Independent Study. An opportunity for independent creative work. Prereq: permission of instructor.

E E 4939-1 to 3. Cooperative Education. Students can earn 1 to 3 credit hours from a project conducted in industry. A project plan must be approved and monitored by an E E faculty. Prereq: senior standing.

E E 5005-3. VLSI Device Modeling. Explores digital integrated circuit design including MOS processing steps, physical operation, building blocks of digital circuits, advanced nMOS, pMOS and CMOS circuit design, silicon VLSI technology and circuit and chip level. SPICE and lay-out Editor are used. The physical relationship between circuit design and actual silicon layout and structure and technology are emphasized. Prereq: graduate standing or permission of instructor.

E E 5025-3. Device Electronics. A course relating performance and limitations of solid state devices to their structures and technology. For both advanced circuit and device engineers. Semiconductor physics and technology, pn-junction and MOS devices used in modern integrated circuits. Prereq: E E 3225 and senior standing. Cross-listed with E E 4025.

E E 5133-3. Electromagnetic Radiation and Antenna. Solution of inhomogeneous wave equation. Radiation fields of elementary dipole, linear wire antenna, uniform and nonuniform linear arrays. Array synthesis. Farzone field patterns, directivity and beamwidth. Diffraction fields of aperture sources, horn antenna, conic surface reflector sources, lens antenna. Ray tracing methods. Transient-receive link. Selected Topics. Prereq: E E 4133, graduate standing and permission of instructor.

E E 5174-3. Industrial Power Electronics. Topics include: power electronics fundamentals and applications in power systems; SCR; power diodes; JFET, FET and GTO; converter design; FHP motors; motor speed control and applications. Prereq: graduate standing. Cross-listed with E E 4174.

E E 5210-3. Optimization Methods in Engineering. Unconstrained optimization, gradient methods, conjugate direction methods, data fitting and function estimation. Applications in control, system identification and radar systems. Optimization over a convex set, LMS algorithms in adaptive systems, convergence properties. Nonlinear programming, Lagrange multipliers, projection algorithms, games and minimax theorem, application to H infinity control, communication and signal processing. Prereq: MATH 3191 and 3200/3195.

E E 5220-3. Methods of Engineering Analysis. Real sequences and infinite series, convergence of the parameter estimates in self-tuning control. Uniform convergence and application to adaptive FIR filters. Improper integrals, application in filtering, prediction and communication. Analytic functions, Hardy spaces, maximum modulus theorem. Argument principle and Nyquist stability criteria. Calculus of residues, LQG problem. Conformal mappings, Nevelinna-Pick problem. Prereq: MATH 3191 and 3200/3195, graduate standing.

E E 5230-3. Advanced Linear Systems. Mathematical description of both continuous and discrete-time systems; vector, normed and inner-product spaces; state-space, impulse response and transfer function descriptions; state-transition response matrices; eigenvalues and eigenfunctions; controllability; canonical form; state feedback; observers; realization theory. Prereq: MATH 3191, MATH 3200/3195 and permission of instructor.

E E 5248-3. Digital Communication Systems. Introduces digital communication systems covering elements of information theory; mathematical representation of signals and systems; modulation and demodulation for the additive Gaussian noise channel; Performance analysis of various transmission formats; synchronization; coded waveforms; decoding algorithms; and other related topics. Prereq: E E 3316, 3817; recommended E E 4247. Cross-listed with E E 4248.

E E 5249-3. Space Communications Systems. Presents the art of space communications system design around the framework of the link budget and the essential analysis tool of the radio system designer. The budget is examined from theoretical and practical viewpoints. Pointers and motivation for further study in each of the related engineering disciplines are provided. Topics to be examined include satellite orbits, propagation, antennas, noise, modulation, coding and hardware or software. Prereq: permission of instructor and graduate standing. Cross-listed with E E 4249.

E E 5250-3. Information Theory. Introduces information theory and its application in computer science, communication theory, coding and applied mathematics. Entropy, mutual information, data compression and storage, channel capacity, rate distortion, hypothesis testing. Error detecting and correcting codes, block codes and sequential codes. Prereq: E E 3817 or C SC 4535 or MATH 3800. Cross-listed with C SC 5217.

E E 5252-3. Computer Communication Networks. Comprehensive study of issues arising in modern computer-communication networks, both wire-line and wireless, carrying traffics with heterogeneous characteristics. A conceptual and analytical approach to the design of network protocols in harmony with the appropriate modeling of the traffic and network environments. Issues covered include routing, transmission, performance monitoring, as well as and network management in ATM multi-media networks. Prereq: graduate standing or permission of instructor. Cross-listed with C SC 5252.

E E 5436-3. Nonlinear Control Systems I. Analysis and synthesis of nonlinear feedback control systems. Linearization's and stability in the small, equivalent linearization and the describing function. The dual input describing function. Stability in the large and the second method of Lyapunov. Stability of time-varying systems. Popov's method and extensions. Prereq: E E 4136 or 4276.

E E 5446-3. Introduction to Modern Control Theory. State space representation of dynamic systems. Canonical forms. Frequency domain analysis. Controllability and observability. Design by state space methods: pole-placement, linear observers, separation principle, robustness. Linear, quadratic optimum control. Prereq: E E 4136 or 4276.

E E 5455-3. Numerical Analysis of Semiconductor Devices. Numerical analysis of PN junctions, Bipolar transistors, GAAS MESFETS and MOSFETS. Numerical solution of discrete-form equations. Finite-difference method for semiconductor devices. Two-dimensional models: DC, transient and small signal numerical analysis. Prereq: graduate standing or permission of instructor.

E E 5456-3. Sampled Data and Digital Control Systems. Elements of sampling theory. Overview of design approaches via transform methods. Analysis and design in state space. Optimal control systems. Emphasis is placed on computer-aided design projects. Prereq: E E 4276.

E E 5466-3. Adaptive Control System Design. Basic concepts in adaptive feedback control. Overview of application areas. Stability of nonlinear systems and hyperstability approach to the design of adaptive controllers. Passivity concept and LiaPunoy stability. Design of model reference adaptive systems, self-tuning regulators, stochastic adaptive and dual control systems. Computer-based design applications. Emphasis is placed on design projects. Prereq: E E 4136 or 4276. Cross-listed with E E 4466.

E E 5476-3. Optimal Control Systems. Liapunov stability and quadratic optimal control problems. The minimum principle and the Pontryagin maximum principle. Variational calculus and Hamilton-Jacoby-Bellman equation. The separation principle of LQG control. Combined optimal state estimation and control. Differential and difference Riccati equations. Tracking and disturbance rejection. Computer-aided design applications. Prereq: E E 4136 or 4276.

E E 5486-3. Modeling and System Identification. Linear time-invariant and time-varying models. Nonlinear state space models. nonparametric methods. Parameter estimation methods. Convergence and consistency. Computational methods in estimation. Recursive estimation methods. Experiment design and choice of identification criterion. Model structure selection and model validation. Prereq: E E 3817 or MATH 3800 and E E 4136 or 4276.

E E 5496-3. Robust Control. Background Mathematics: Function Spaces and Operators and Factorization Theory. Stability theory: stability and stabilizability parameterization, closed-loop transfer matrices. Model-Matching Theory: solution existence, SISO Design, the Nehari problem. Performance bounds. Prereq: graduate standing or permission of instructor.

E E 5501-3. Microprocessor-based Design. Covers advanced treatment of embedded system design using microprocessors. Analog input circuitry is interfaced to a microprocessor and a PC board layout is created to develop a complete system design. Software/Operating System is implemented for real time I/O. Prereq: graduate standing or permission of instructor. Cross-listed with E E 4501.

E E 5511-3. Hardware-Software Interface. Computer engineering methods in hardware and software design applied to problems drawn from the mini- and micro-computer systems field. Hardware and software techniques for the design of combined hardware or software are developed. Interface and real-time programming techniques are considered. Graduate level requires additional projects and homework. Prereq: graduate standing or permission of instructor. Cross-listed with E E 4511.

E E 5521-3. Design and Test of Digital Systems. Application of hardware description languages to the design, synthesis, analysis and testing of digital and computer systems; modeling and simulation constructs; modern hardware description languages, including VHDL, logic and behavioral synthesis; rapid-prototyping; FPGA and standard-cell ASIC design; design for testability; and electronic design automation. Prereq: E E 3651 or graduate standing.

E E 5522-3. VLSI Systems. Examines the design of very large-scale integrated (VLSI) systems from the logic to physical levels, including MOS transistor design, CMOS fabrication and design rules, device and wafer processing, inverter and complex gate design, mask level layout, VLSI system components and architectures, algorithms for VLSI computer-aided design and testability. Prereq: E E 3215 and 3651 or graduate standing.

E E 5551-3. Pattern Recognition. Pattern recognition techniques from image processing and artificial intelligence are explored. Topics include neural networks, morphological processing, wavelets, fractals and basic image understanding. Prereq: E E 3316 and 3651.

E E 5555-3. VLSI Circuit Simulation. Computer methods for large integrated circuits. Theory and practice of VLSI circuit simulation. Nodal formulations of networks. Computer generation of sensitivities. Modeling active devices. DC solution of nonlinear networks. Prereq: graduate standing or permission of instructor. Cross-listed with E E 4555.

E E 5617-3. Noise and Random Processes. Probability, sequences of random variables, specification of stochastic processes, stationarity, correlation functions and spectral densities, linear mean-square estimation, central limit theorems, law of large numbers, nonstationary random processes, stochastic differential equations and Karhunen-Loeve expansion, Kalman filtering. Prereq: E E 3316 and E E 3817 and permission of instructor.

E E 5627-3. Stochastic Point Processes. Presents modeling physical phenomena characterized by highly localized events distributed randomly in a continuum. Applications include optical communications, queuing theory, decision theory, nuclear medicine and electron microscopy. Topics include Poisson counting processes and its generalizations; stochastic differential equations used in filtering; martingales and Brownian motion. Prereq: E E 3817 or E E 5617.

E E 5637-3. Digital Signal Processing. Discrete-time signals and systems in the time and frequency domain. Digital filter structures, design of FIR filters by windowing, optimum approximations of FIR filters. Design of digital IIR filters from continuous time domain. Computer-aided design of digital filters. The discrete Fourier transform and DSP algorithm implementation. Analysis of finite word length effects. Application of digital signal processing. Prereq: E E 3316 and 3817. Cross-listed with E E 4637.

E E 5638-3. Digital Image Processing. Basics of two-dimensional (2-D) systems theory, including 2-D Fourier transform, Z-transform and difference equations. Design of 2-D filters for image processing applications. Image transforms, including the 2-D FFT, cosine, Hadamard and KL. Image enhancement and restoration techniques. Method of image coding and compression. Prereq: graduate standing.

E E 5647-3. Adaptive Signal Processing. Optimal filtering and identification of signal processing models. Martingales and analysis of

recursive estimation algorithms. LMS and RLS adaptive filters. Stability, convergence and robustness of adaptive algorithms. Adaptive noise cancellation, time delay estimation and blind equalization. Adaptive differential pulse code modulation, adaptive prediction, adaptive Kalman Filters. Applications and implementation of adaptive algorithms. Prereq: graduate standing or permission of instructor.

E E 5657-3. Detection and Estimation Theory. Introduces detection and extraction methods used in signal processing, including decision theory; detection of known and random signals; optimum receiver design; estimation theory; Wiener filtering; Kalman-Bucy filtering; and applications to communication systems. Prereq: E E 5617.

E E 5667-3. Wavelet Theory and Applications. Topics include: fundamentals of signal decomposition; theory of filter banks; multi-resolution analysis and fast wavelet transforms; applications image and video image and video compression; and denoising and feature detection. Prereq: graduate standing or permission of instructor.

E E 5687-3. Optical Communication Systems. System aspects of optical communication system design. Basic principles of sources, channels, detectors, counting statistics, amplifiers and coding with regard to the performance limitations they place on the communication system. Prereq: E E 4247.

E E 5697-3. Optical and Spatial Information Processing. Processing of two- and three-dimensional spatial information. The scalar diffraction theory necessary to describe the information-bearing wave-front. Wave-front recording, modulations and reconstruction. Holography, Fourier transform properties of lenses, two-dimensional convolution and correlation, pattern recognition and optical information processing. Prereq: E E 3316.

E E 5714-3. Energy Systems Analysis. Transmission line constants, including details of GMD methods, skin effect. Analysis of balanced and unbalanced line using distributed parameters, energy flow from circle diagram approach, traveling-wave phenomena, corona, power cables and fundamentals of DC transmission. Prereq: E E 4184.

E E 5764-3. Power Distribution Systems. Use of per-unit methods to find transient voltage behavior of industrial power systems resulting from motor starting, spotwelders and similar stimuli. System and device responses due to series and shunt capacitors and problems of subharmonics and over-excitation on induction motors. Design of power distribution systems. Prereq: E E 4184.

E E 5774-3. Power Systems Protection and Relaying. Fundamentals of relaying. Primary and back-up protection. Electromechanical and solid-state relays. Protection of generators. Transformers, motors, buses and transmission lines. Application problems. Prereq: E E 4184.

E E 5800-583X-1 to 3. Special Topics. Intermediate courses of variable title and variable credit, usually offered once by guest lecturers. See current departmental notices for details.

E E 5807-3. Special Topics: Computer Controlled Systems. Prereq: graduate standing and consent of instructor. Cross-listed with E E 4807.

E E 5840-1 to 6. Independent Study. Offers the opportunity for independent, creative work. Prereq: permission of instructor.

E E 5980-3. Statistical Quality Control. Introduces statistical methods of quality control. Statistical process control, process capability, statistical design of experiments and total quality management. Prereq: graduate standing or permission of instructor.

E E 6800-6839-1 to 3. Special Topics.

E E 6950-1 to 8. Master's Thesis.

E E 6960-1 to 8. Master's Report.

E E 7800-7839-1 to 3. Special Topics. Courses of variable title and variable credit, usually offered once by guest lecturers. See current departmental notices for details.

E E 7840-1 to 6. Independent Study. Offers the opportunity for independent, creative work. Prereq: permission of instructor.

E E 8990-1 to 10. Doctoral Dissertation.

Electrical Engineering: E E (Engineering)

ELED: Elementary Education (Education)

ELED 4800-1 to 4. Curriculum Workshop.

ELED 5060-3. Improvement of Instruction. Designed to assist the educator in the systematic improvement of instruction. Emphasis is on the emergent knowledge related to successful classroom practices, techniques of assessment, analysis and action related to the improvement of professional skills. Cross-listed with SECE 5060.

ELED 5140-3. Elementary Curriculum: Integrating Language Arts with Literature. Integrating the language arts (reading, writing, listening, speaking) with children's literature. Selection of materials and development and presentation of ways to use children's literature in teaching the language arts. Required for post-baccalaureate pre-service teacher.

ELED 5150-6. Elementary Curriculum: Teaching Mathematics, Science and Social Studies. Emphasis is on the role of the classroom teacher in development, implementation and evaluation of contemporary interdisciplinary curricula. The course demonstrates the relationship between educational theory and classroom pedagogy and is required for the post-baccalaureate pre-service teacher.

ELED 5160-3. Expressive Arts. Familiarizes participants with drama, music, dance, movement, (P E, dance and health) and visual arts.

Provides a rationale for the arts in the elementary curriculum and ways in which arts can be integrated into classroom activities.

ELED 5170-3. Community and Interpersonal Relations. Provides an opportunity for students to develop communication and interpersonal skills that enable them to facilitate positive student self-concept and interaction among professional educators, the the community and social groups. Exposes the student to the urban environment and issues in child abuse. Cross-listed with SECE 5170.

ELED 5180-3. Entomology For Teachers. Introduces teachers to the wonders of the insect world and explores methods for bringing that world into the primary and secondary classroom setting. Topics include insect biology, classification, behavior and ecology, cultural entomology and inquiry science techniques. Cross-listed with SECE 5180.

ELED 5200-3. Classroom Management. Instructional management, physical management and behavior management are studied as interactive components in the establishment and maintenance of an effective learning environment. Cross-listed with SECE 5200.

ELED 5210-3. Models of Teaching. Emphasizes learning, refining, analyzing and redesigning various teaching models, with inquiry concept attainment, role-playing, cooperative learning and advance organizers. Students are assigned to small groups for purposes of planning and teaching lessons designed around various models under examination. Cross-listed with SECE 5210.

ELED 5320-3. Advanced Language Arts in the Elementary School. Current thought, as determined by research and practice in the various areas of the language arts; listening, speaking, reading and writing. Issues, trends and innovative practices for the practicing teacher.

ELED 5350-3. Science in Elementary School. Emphasis on experimental programs and implementation of the newer programs. Supervision and curriculum development considered.

ELED 5400-3. Contemporary Mathematics for Elementary Schools. Surveys contemporary content and methodology with emphasis on interrelations among topics and techniques for providing active learning.

ELED 5401-3. Assessment in Mathematics Education. Curriculum-based assessment covering nature of assessment and its relation to evaluation and grading; teacher-made assessments; validity and authentic assessment; techniques for assessing learning of mathematical concepts, procedures and problem solving. Emphasis on assessment practices of mathematics teachers.

ELED 5410-3. Teaching Numbers and Arithmetic. Teaching methodologies related to arithmetic and its applications. Covers mathematical attitudes, problem solving, math manipulatives, numeration, number concepts, number theory, algorithms, fractions, decimals, calculators and integration of arithmetic with other curriculum areas.

ELED 5411-3. Mathematics Education and Gender. Investigates gender-inclusive curriculum and teaching methods, equity and assessment, mathematical life histories, women in mathematics history, women's individual development and voice, single-sex programs and gender differences.

ELED 5415-3. Math Science Connections: Indoors. (Primarily for pre-secondary teachers.) Explores science concepts through activities appropriate for middle-grade students. Topics include how the nature of science and mathematics informs pedagogy, national and state standards, gravity, density, electricity, simple machines, magnetism, probability, geometry, algebra and elementary chemistry.

ELED 5416-3. Math-Science Connections: Outdoor. (Primarily for pre-secondary teachers.) Explores science concepts through outdoor activities appropriate for middle-grade students. Topics include how the nature of science and mathematics informs pedagogy, national and state standards, earth science and paleontology, orienteering and map usage, water analysis, astronomy and entomology.

ELED 5417-3. Structure of Rational Numbers. Emphasizes the use of multiple solution strategies to examine the structure of rational numbers. The assigned problems allow elementary and secondary teachers to investigate the mathematical notions of equivalence, properties, unitization, partitioning, ratios and proportionality. Prereq: teaching license or permission of instructor. Cross-listed with SECE 5417.

ELED 5418-3. Mathematical Modeling. Elementary and secondary teachers explore settings where mathematics is utilized in everyday activities. Teachers create mathematical models to describe events or situations in the world and use a variety of modeling strategies to solve problems. Prereq: teacher licensure or permission of instructor. Cross-listed with SECE 5418.

ELED 5419-3. Exploring the Structure of Geometry Using Technology. Develops elementary and secondary teachers' conceptual understanding of geometric properties and theorems through investigations on dynamic computer software. The software enhances and extends teachers' ability to solve complex problems by manipulating abstract ideas on the computer. Prereq: teaching license or permission of instructor. Cross-listed with SECE 5419.

ELED 5430-3. Topics in Mathematics Education. An in-depth study of topics such as mathematics and learning, geometry, testing, arithmetic, mathematics laboratories, calculators and computers. (May be repeated as topics vary.)

ELED 5440-3. Problem Solving and Geometry in the Elementary School. Covers problem solving, spatial visualization, informal geometry and computer software with emphasis on incorporating these topics into the elementary curriculum.

ELED 5450-3. Social Studies in Elementary School. Review and analysis of current innovations and concept formation in the social studies. Involves student development and implementation of materials for trial in classroom instruction.

ELED 5464-3. Teaching About Ethnicity, Race and Prejudice. Designed to introduce the nature of racial and ethnic groups, prejudice, discrimination and ethno violence. It also includes the teaching about these and related topics and deals with resolving problems of intergroup relations in schools and institutional settings. Cross-listed with SECE 5464.

ELED 5470-3. Introduction to Middle School. Covers history and philosophy of the middle school, organization plans, team teaching, integrating content areas, characteristics of the early adolescent and classroom management.

ELED 5480-3. Museum Studies in Paleontology. A practical laboratory-based course covering aspects of museum studies related to paleontological collections. Students learn how to stabilize and prepare bones removed from fossil quarries; learn molding and casting techniques for bones and fossils; assist with the cataloging and curation of the collection; and participate in designing museum displays. Prereq: at least one science class. Cross-listed with GEOL 3415, SECE 5480.

ELED 5490-3. Middle School Curriculum. Explores the unique curriculum requirements of requirements of transient youth. Topics include team teaching, interdisciplinary curricula, flexible scheduling, basic

skills development, guidance functions, fine arts, practical arts, industrial arts, career education, teaching strategies and management techniques.

ELED 5660-3. Energy Education. Explores current energy problems. Students examine such topics as fuels from plants, fuels from wastes, fossil fuels, nuclear energy, wind energy, geothermal energy, solar energy and energy conservation. Includes demonstration of available educational resources for grades K-12. The purpose of the course is to make technical aspects of energy accessible to the lay person. Cross-listed with SECE 5660.

ELED 5775-1 to 3. Knowledge of Teaching. Designed for experienced teachers. This course assist them to update their knowledge of research on teaching and extend their use of research findings in their classroom teaching. Prereq: teaching certificate.

ELED 5780-1 to 4. Storytelling. Explores the history, function, philosophy and techniques of storytelling. Includes collecting, selecting, preparing, developing and delivering stories. Research and resources are emphasized.

ELED 5800-.5 to 4. Curriculum Workshop for Elementary Teachers. Opportunity to work on projects and problems in the school in which the student is employed: conferences, study groups, discussion and work in curriculum construction. Topics and credit hours vary. Prereq: 18 semester hours in education and teaching experience or permission of instructor.

ELED 5840-1 to 4. Independent Study.

ELED 5910-1 to 4. Advanced Practicum: Elementary. This course is not to be used as an independent study, it is to be used by students approved in advance by the director of teacher education. Prereq: permission of instructor. Fulfills the student teaching requirement for students seeking a second endorsement. Cross-listed with SECE 5910.

ELED 5920-1 to 4. Readings in Elementary Education.

ELED 5930-1 to 8. Internship in Elementary Education.

ELED 6100-3. Seminar: Elementary Education. Students work on individual topics and report orally and in writing.

ELED 6110-3. Curriculum Development and School Improvement. Places curriculum development in the historical, social and political context of educational change, considering underlying concepts and assumptions and examining the implications of implementation theory and practice for school restructuring and professional development. Prereq: graduate student status.

ELED 6120-3. International Perspectives on the Curriculum. Considers schooling patterns in the U.S., the U.K., Japan, Australia and several European countries. Examines different approaches to curriculum issues in relation to social, historical and economic factors. Prereq: FNDS 5500 or permission of instructor.

ELED 6600-1 to 6. Special Topics: Laboratory in Educational Leadership and Innovation. Laboratories are organized by professors to engage students in on-going research programs. They provide opportunities for students to extend and apply knowledge and skills developed in course work. The laboratories enable students to complete portfolio requirements and work on doctoral dissertations. Prereq: admission to M.A. or PhD programs; permission of instructor. Cross-listed with ELED 7600.

ELED 6950-4. Master's Thesis.

ELED 7600-1 to 6. Special Topics: Laboratory in Educational Leadership and Innovation. Laboratories are organized by professors to engage students in on-going research programs. They provide opportunities for students to extend and apply knowledge and skills developed in course work. The laboratories enable students to complete portfolio requirements and work on doctoral dissertations. Prereq: admission to M.A. or PhD programs; permission of instructor. Cross-listed with ELED 6600.

ELED 7840-1 to 3. Independent Study.

Elementary Education: ELED (Education)

Engineering Non-Departmental: ENGR (Engineering)

ENGL: English (Liberal Arts and Sciences)

ENGL 1006-3. Reading for Speakers of Other Languages. Designed for ESL students who need to improve their reading and vocabulary skills. Students increase their reading ability through vocabulary building, word attack strategies and reading analysis.

ENGL 1007-3. Composition for Speakers of Other Languages I. First course in the ESL composition sequence. Writing begins with sentence-level development and continues with the development of paragraphs based on Western rhetorical patterns. Grammar appropriate to students' needs is emphasized.

ENGL 1008-3. Composition for Speakers of Other Languages II. Second course in the ESL sequence of writing classes. Provides continued work on grammar, syntax, usage and the mechanics of writing. Begins with paragraphs and into essay writing. Special attention is paid to the aspects of the English language which poses particular problems for the nonnative speaker of English.

ENGL 1009-3. Advanced ESL Writing Skills. Third course in the ESL composition sequence. Emphasis on more complex grammatical problems and on the development of longer compositions.

ENGL 1010-3. Writing Workshop. Focuses on the abilities and skills needed to write effective expository prose. Emphasizes frequent writing, both in and out of class, with special attention to writing short essays well. Writers learn to write confidently at the sentence and paragraph levels and to develop their grammatical and mechanical skills.

ENGL 1020-3. Core Composition I: GT-CO1. Provides opportunities to write for different purposes and audiences, with an emphasis on learning how to respond to various rhetorical situations; improving critical thinking, reading and writing abilities; understanding various writing processes; and gaining a deeper knowledge of language conventions.

ENGL 1111-1 to 3. Freshman Seminar.

ENGL 1200-3. Introduction to Fiction. Introduces class members to the works of famous authors as well as to major themes, elements and techniques of fiction in both short stories and novels.

ENGL 1400-3. Introduction to Literary Studies. Helps students develop a sense of literary techniques and issues so they can bring an improved critical sensibility to their reading and writing. Note: Designed for students who plan to major in English or who are seriously interested in literature. Prereq or Coreq: ENGL 1020.

ENGL 1601-3. Telling Tales: Narrative Art in Literature and Film: GT-AH2. Asks students to explore how stories determine who we are. Everything people do fits into a narrative pattern, evident everywhere from TV news to memory to daily schedules. We tell ourselves stories about ourselves and others—how do these stories shape who we are as cultural beings? Prereq or Coreq: ENGL 1020.

ENGL 2030-3. Core Composition II: GT-CO2. Focuses on academic and other types of research-based writing and builds on the work completed in ENGL 1020. Focuses on critical thinking, reading and writing as well as working with primary and secondary source material to produce a variety of research-based essays. Emphasis on using both print-based and electronic-based information. Prereq: ENGL 1020.

ENGL 2070-3. Grammar, Rhetoric and Style. Teaches the basics of English grammar in order to develop a rhetorical and stylistic confidence in reading and writing, using an approach that is more descriptive than prescriptive. Teaches students how to evaluate the grammatical choices of established writers and how to develop flexibility in the grammatical choices they make in their own writing. Prereq: ENGL 1020 or equivalent.

ENGL 2154-3. Introduction to Creative Writing. Reading, discussing, writing short fiction and poetry in a workshop setting. Prereq: ENGL 1020.

ENGL 2250-3. Introduction to Film. Introduces students to the critical study of cinema as an art form and a cultural phenomenon. Topics include cinematography, editing, mise-en-scene and sound; the connections between cinema and related art forms; film genres; the social dimensions of film production and reception; and films by such key filmmakers as Alfred Hitchcock, Maya Deren and Spike Lee.

ENGL 2300-2349-3. Topics in Literature and Film. Courses supplement the regular program of the department, offering such topics as: literary perceptions of motherhood, Asian-American literature, literary classics of science and contemporary women writers. Note: Can be taken more than once if topics vary.

ENGL 2390-3. Writing the Short Script. Examines narrative screenwriting elements—premise, theme, conflict, protagonist/antagonist, setting/situation, dialogue, plot structure, imagery—required to create a strong narrative short film. Prereq: ENGL 1020.

ENGL 2415-3. Introduction to Movie Writing. Examines structural and dramatic elements required to write a feature-length screenplay. Students conceptualize, plan, write and then re-write to complete the first ten pages of their own feature-length screenplay.

ENGL 2510-3. Greek and Roman Mythology. Surveys influential literature from Greece and Rome. Among the Greek works are Homer's epics, Sophocles's tragedies, Plato's and Aristotle's philosophical writings. Among the Roman works are the writings of Vergil, Ovid, the elegists and historians. A brief look at Augustine's writings concludes the course.

ENGL 2520-3. The Bible as Literature. Introduces students to biblical literature. Selections from the various genres of writing in Hebrew (history, wisdom, prophecy, literature) are read and discussed, as well as representative sections from the New Testament, including the gospels and the writings of Paul. Cross-listed with RLST 2700.

ENGL 2600-3. Great Works in British and American Literature: GT-AH2. Traces the traditions British and American literature from medieval times to the present, by examining a variety of texts, studying the impact of different time periods and cultural movements on the evolving literary tradition.

ENGL 2840-1 to 3. Independent Study.

ENGL 2970-3. Russian Cinema and Cultural History. Analyzes the central and most representative scenes of film masterpieces, offering an intellectual experience and insight into how Russian cinema both reflects socio-political issues of the time and acts as a cultural force in shaping history.

ENGL 3001-3. Critical Writing. Introduces literary theory, which provides extensive practice in writing about literature. Note: Required for literature majors and should be taken in the sophomore or junior year. Prereq: ENGL 1400 and two literature courses.

ENGL 3020-3. Poetry Workshop. Practical workshop for developing poetic craft, focusing on writing process and specialized topics. Prereq: ENGL 2154 for English majors and minors only; all others must obtain permission of instructor.

ENGL 3050-3. Fiction Workshop. Practical workshop for developing narrative craft, focusing on writing process and specialized topics. Prereq: ENGL 2154 for English majors and minors only; all others must obtain permission of instructor.

ENGL 3070-3. History of Silent Film. Examines the history of cinema from its 19th-century origins until the introduction of sound. Studies important trends in the silent era, including the beginnings of film comedy, early documentary, the origins of Hollywood narrative, avant-garde cinema, German Expressionism and Soviet Cinema.

ENGL 3075-3. Film Genres. An intensive study of films of one or more significant genres, such as comedy, film noir, science fiction. Note: May be taken more than once when genres vary.

ENGL 3080-3. History of Sound Film. Begins with the early sound period, advent of the studio system and the maturing of the techniques of synchronized sound production. Traces the development of the various Hollywood genres—westerns, musicals, gangster films, etc.—and examines representative Hollywood studio films through the as well as major American films from the post-studio period up to the present. Also covers major developments and filmmakers in European, Latin American, British and Asian filmmaking.

ENGL 3084-3. Advanced Composition. Focuses on the rhetorical examination and production of visual and textual documents in such areas as politics, education, art, culture and advertising. Equal focus on developing individual student writing skills at advanced levels. Prereq: ENGL 2030.

ENGL 3085-3. Film Directors. An intensive study of the films of one or more major directors, such as Chaplin, Keaton, Hitchcock, Welles, Coen Brothers. Note: May be taken more than once when directors vary.

ENGL 3154-3. Technical Writing. Introduces the study and writing of technical documents. Emphasizes the processes, style, structure and forms of technical writing. Attention is paid to audience analysis, organization, clarity and precision. Prereq: ENGL 1020.

ENGL 3160-3. Language Theory. Provides a basic introduction to linguistics and language theory for undergraduates, including phonetics, grammar, semantics, pragmatics, sociolinguistics, cognitive processing and language acquisition. Includes practical applications of the theories and methodologies presented.

ENGL 3170-3. Business Writing. Focuses on the strategies and techniques of business writing, with emphasis on reader, message and form. Prereq: ENGL 1020. ENGL 2030 highly recommended.

ENGL 3200-3. From Literature to Film. Explores the relationship between literature and cinema; the process of adapting and transforming a novel into a feature-length film; and the historical, cultural and commercial influences that shaped the creation of each novel and film studied.

ENGL 3300-3324-3. Topics in Film. Courses supplement the department's regular course offerings. Recent topics have included women and film, movies as history and film comedy. Note: Open to both majors and non-majors. Can be taken more than once when topics vary.

ENGL 3330-3350-3. Topics in Literature. Courses supplement the department's regular course offerings. Recent topics have included Tolkien and international short stories. Note: Open to both majors and non-majors. Can be taken more than once when topics vary.

ENGL 3384-3. J.R.R. Tolkien. Studies the Hobbit and the Lord of the Rings and their sources. Emphasis on the works' mythical, historical and philosophical dimensions, as well as on the craft of storytelling.

ENGL 3385-3. Fantasy Literature. Explores the development of modern fantasy literature and its uses of myth, legend and fairy tale, while also looking at how fantasy imaginatively deals with contemporary issues and makes use of modern narrative forms.

ENGL 3386-3. Classic Science Fiction. Studies the evolution of science fiction literature from its genesis in England at the turn of the century through the New Wave movement in America in the 1980s. Includes authors such as Wells, Huxley, Herbert, Heinlein, Dick and Le Guin.

ENGL 3400-3. Introduction to Women's Studies: Survey of Feminist Thought. Surveys British and American feminist ideas from the French Revolution to the present, using both fiction and nonfiction texts. Serves as an introduction to Women's Studies minor. Cross-listed with HIST 3611.

ENGL 3415-3. Screenwriting Workshop. Continues and expands ENGL 2415. By the end of ENGL 3415, students have completed the first two acts of their screenplay. Note: May be repeated a second time in a different semester to complete entire screenplay.

ENGL 3416-3. Magazine Writing. An intensive, practical course in writing nonfiction with an emphasis on journalistic approaches for daily, weekly and monthly publications. Prereq: ENGL 1020.

ENGL 3450-3. Twentieth Century Women Writers. Examines how women write about a specific theme, such as home, work, family, the "other," as well as how women's writing may differ from men's. Theme and genre vary.

ENGL 3520-3. Religious Narratives. Investigates the language and structure of religious discourse in Western literature. Welcomes interdisciplinary and comparative perspectives with a focus on cultural constructions of the sacred. Cross-listed with RLST 3720.

ENGL 3530-3. The Hero's Journey. The myth of the hero's journey serves as a metaphor for the vicissitudes life puts each of us through. The hero or her/hers represents the ego-self who undertakes the journey—a grand adventure into the realm of the unknown—to seek the treasure. He or she is greatly transformed by the process, ultimately into the great self, who wins the boon to share with all humanity. Versions of the story are found all over the world, such as in the sagas of Gilgamesh, Odysseus, Psyche, King Arthur, Dorothy of Oz and Luke Skywalker from a galaxy far, far, away. Cross listed with RLST 4340.

ENGL 3661-3. Shakespeare. Introduces some of Shakespeare's major plays and poems, which usually includes Richard II, Romeo and Juliet, Measure for Measure, Othello, King Lear, Anthony and Cleopatra and The Tempest.

ENGL 3700-3. American Literature to the Civil War. Surveys American literature from the colonial era to the Civil War. Prereq: ENGL 1020.

ENGL 3750-3. American Literature from the Civil War. Surveys American literature from the Civil War to the contemporary era. Prereq: ENGL 1020.

ENGL 3795-3. Race and Ethnicity in American Literature. Focuses alternately on one of several ethnic American literary traditions (e.g. African American, Chicano) and their historical, geographical, social and economic communities.

ENGL 3797-3. Special Topics International Literature. Fosters an understanding of peoples outside of the US through the study and appreciation of non-western literature. Investigates how historical, cultural and ideological forces constitute race, ethnicity, nationalism and alienation in a single country or across a region. Topic and country/region varies by semester.

ENGL 3840-1 to 3. Independent Study.

ENGL 3939-1 to 3. Internship/Cooperative Education.

Employment situations designed and supervised by members of the faculty; concepts and skills developed in the classroom are used in business and public service contexts. Prereq: junior standing and 2.75 grade-point average. Before enrolling, students should contact the Career Center. Note: Up to six hours may be counted toward the major.

ENGL 4000-3. Studies of Major Authors. An intensive study of works of one major British or American author. Examples: Dickens, Woolf or James. Cross-listed with ENGL 5000.

ENGL 4025-3. Advanced Poetry Workshop. Focuses on the development of poetic craft. Prereq: ENGL 2154 and 3020 for English majors and minors only; all others must obtain permission of instructor.

ENGL 4055-3. Advanced Fiction Workshop. Focuses on the development of narrative craft. Prereq: ENGL 2154 and 3050 for English majors and minors only; all others must obtain permission of instructor.

ENGL 4080-3. History of the English Language. Examines how English has changed since A.D. 800 through examples of writing from different periods, with attention to the way various groups have enriched our vocabulary and altered our syntax. Prereq: ENGL 2070 or one year of a college foreign language. Cross-listed with ENGL 5080.

ENGL 4160-3. Poetics. "Mechanics" of poetry in English, including meter, rhythm, rhyme, line and other systems of measurement and logic. Emphasis is on historical development of poetic art in English. Prereq: ENGL 1400 or permission of instructor. Cross-listed with ENGL 5160.

ENGL 4166-3. History of American Poetry. Examines major American poets and poetic trends from the colonial period to the present, with attention to cultural contexts and to development of distinctively American practices. Cross-listed with ENGL 5166.

ENGL 4180-3. Argumentation and Logic. Explores the history of logic and its role in argumentation, studies various types of logical structures and analyzes current uses of argumentation, with attention to writing arguments on current public issues. Prereq: ENGL 1020, 2030 and 2070.

ENGL 4190-3. Special Topics in Rhetoric and Writing. Focuses on particular issues in rhetoric and writing as they pertain to reading and writing, including language and gender, language and culture and language of political action. Cross-listed with ENGL 5190.

ENGL 4200-3. History of the English Novel I. Rise and development of the English novel from its beginnings in the 18th century through the mid-19th century, including such writers as Defoe, Fielding, Austen and Shelley. Cross-listed with ENGL 5200.

ENGL 4210-3. History of the English Novel II. Overview of the English novel from mid-19th century to World War II, emphasizing the important developments which the form underwent in the hands of

notable novelists, including Charles Dickens, the Brontës, George Eliot, Henry James, Joseph Conrad, D.H. Lawrence and Virginia Woolf. Cross-listed with ENGL 5210.

ENGL 4220-3. African-American Literature. Surveys African-American literature with special emphasis on post-Civil War writing. Cross-listed with ENGL 5220, ETST 4220.

ENGL 4230-3. The American Novel. Surveys major developments in the American novel from the 18th century to the 21st century. Cross-listed with ENGL 5230.

ENGL 4235-3. Faulkner. Studies the works of Faulkner's high period with special attention to southern themes and Faulkner's experimentation with narrative form. Cross-listed with ENGL 5235.

ENGL 4236-3. The American Short Story. Traces the development of the short story in the United States, from its beginnings in colonial tales to its contemporary renaissance as a dominant literary form. Cross-listed with ENGL 5236.

ENGL 4240-3. Topics in Contemporary American Literature. Seminar focusing on a segment of contemporary American literature. Cross-listed with ENGL 5240.

ENGL 4250-3. Twentieth Century Fiction. Deals with novels originating in a variety of countries in an effort to see the similarities and differences that varying nationalities bring to the genre. Cross-listed with ENGL 5250.

ENGL 4280-3. Proposal and Grant Writing. Focuses on research, design, composition and editing original proposals. Includes idea development, identification of funding sources and the creation of persuasive documents. Prereq: ENGL 1020. Cross-listed with ENGL 5280.

ENGL 4300-3. History of British Drama. Intended as a survey of British drama from the miracle plays of the medieval period, through the Renaissance and Restoration, to the "kitchen sink" realists of the 1960s. Cross-listed with ENGL 5300.

ENGL 4320-3. History of Poetry in English. Studies the major schools and eras of English prosody, including the poetry of Great Britain and the United States, from the medieval period to the present. Cross-listed with ENGL 5320.

ENGL 4350-3. History of American Drama. Studies American drama from its foundations in the 18th century through movements including realism, expressionism, symbolism, agit-prop, black nationalism, feminism and performance art. Drama read as both text and performance, as sometimes supporting the status quo and as sometimes subverting it. Cross-listed with ENGL 5350.

ENGL 4400-3. Old English I. Instruction in the Old English language. One year of college foreign language or ENGL 2070 recommended. Cross-listed with ENGL 5400.

ENGL 4410-3. Old English II: Beowulf. Continuing training in the reading of Old English and intensive reading of Beowulf. Prereq: ENGL 4400 or 5400. Cross-listed with ENGL 5410.

ENGL 4420-3. Film Theory and Criticism. (1) Familiarizes students with some of the central concepts and debates in film theory and criticism, both classic and contemporary, (2) enables students to develop advanced analytic and interpretive skills and (3) guides students toward discovering and articulating original critical and theoretical perspectives. Prereq: ENGL 2250 and 3070, 3080 or permission of instructor. Cross-listed with ENGL 5420.

ENGL 4460-3. Contemporary World Literature. Surveys literature written by world writers since World War II. Note: Texts read in English. Cross-listed with ENGL 5460.

ENGL 4500-3. Medieval Literature. Introduces representative writers from the Norman Conquest to about 1550. Emphasis on a variety of genres, including religious poetry, Arthurian romance, dream vision and drama. Cross-listed with ENGL 5500.

ENGL 4510-3. Whores and Saints: Medieval Women. Studies how women are presented in texts, as well as works by women. Investigates the roles open to women and societal attitudes toward women, who were considered seductresses, saints, scholars and warriors in the Middle Ages. Cross-listed with ENGL 5510, RLST 4730.

ENGL 4520-3. English Renaissance. Introduces some of the important writers in this major period of English literature (1500-1660). Special attention to the works of Sidney, Milton, Spenser, Shakespeare, Donne, Herbert and Johnson. Cross-listed with ENGL 5520.

ENGL 4530-3. Milton. Extensive reading in John Milton's poetry (Lycidas, Paradise Lost, Paradise Regained, Samson Agonistes) as well as his political, social and theological writings. Cross-listed with ENGL 5530.

ENGL 4540-3. Restoration and the 18th Century. Introduces some of the important writers of the "Age of Reason." Emphasis on such figures as Bunyan, Burke, Dryden, Johnson, Pope and Swift. Cross-listed with ENGL 5540.

ENGL 4560-3. English Romanticism. Studies major works of the chief English writers of the first part of the 19th century, with emphasis on such representative figures as Wollstonecraft, Godwin, Blake, Wordsworth, Coleridge, Hazlitt, Byron, Keats and Shelley. Cross-listed with ENGL 5560.

ENGL 4580-3. The Victorian Age. Examines the main currents of Victorian thought in prose and poetry from about 1830 to the end of the century, including such writers as Browning, Carlyle, Mill, Newman, Ruskin, Swinburne and Tennyson. Cross-listed with ENGL 5580.

ENGL 4600-3. Modern British and Irish Literature. Surveys British and Irish literature from the beginning of the 20th century to World War II, including Eliot, Forster, Joyce, Lawrence, Pound and Yeats. Cross-listed with ENGL 5600.

ENGL 4601-3. Principles and Practices of Second Language Acquisition. Overview of basic principles and practices in the learning and teaching of English as a second language. Cross-listed with ENGL 5601.

ENGL 4701-3. Multimedia in the Community. Produce dossier-quality multimedia shorts by researching and writing digital compositions for selected community organizations. Topics for research range across numerous social issues and involve all disciplines. Prereq: ENGL 2030, 3154 and 3170 or permission of instructor. Cross-listed with ENGL 5701.

ENGL 4720-1 to 3. Honors in Literature. Designed for students taking departmental honors in English. Prereq: Students must have written permission from the honors advisor.

ENGL 4730-3. Chaucer's Canterbury Tales. An intensive study of Chaucer's Canterbury Tales, as an introduction to the historical, ideological and literary genres of the period. Learn to read Middle English by studying Chaucer's text. Cross-listed with ENGL 5730.

ENGL 4731-3. Chaucer's Early Poetry. Examines Chaucer's dream visions and Troilus and Criseyde through sources and historical and ideological factors influencing the texts. Learn to read Middle English by reading Chaucer's texts. Cross-listed with ENGL 5731.

ENGL 4735-3. Philosophy and Literature. Considers the philosophical dimensions of literature. Cross-listed with ENGL 5735, PHIL 4730, 5730.

ENGL 4740-1 to 3. Honors in Writing. Designed for students taking departmental honors in English writing. Prereq: Student must have written permission from honors director and faculty advisor.

ENGL 4770-3. Topics in English: Film and Literature. May look at specific genres, aesthetic approaches to literature, ideological or socio-political agendas, or other special topics in literature and/or film. Cross-listed with ENGL 5770.

ENGL 4800 thru 4805-3. Special Topics in Creative Writing. Writing-intensive courses combining reading, directed writing, peer- and instructor-led workshops in a topic to be determined by instructor. Topics may include projects in a specialized genre, such as science fiction or noir writing, or in a field of professional endeavor related to creative writing, such as the editing and production of a literary journal. Prereq: ENGL 2154; permission of instructor may be required.

ENGL 4840-1 to 3. Independent Study.

ENGL 4920-3 to 6. Directed Readings. Explores an area of English literature not covered in regular course work. Note: May be taken as a precursor to honors essay, in which case student should consult with the honors advisor. Prereq: senior status.

ENGL 4990-3. Senior Writing Project in Creative Writing or Film Studies. Individual writing project consisting of a creative manuscript or critical study. Manuscript must be 30 pages of high quality text.

Note: Available only to students in the creative writing and film tracks.

ENGL 4991-3. Senior Seminar in Writing. Students focus on rhetorical studies through extensive reading, writing, discussion and reflection upon their own literacy practices. Students produce individual and collaborative writing projects for a final portfolio.

Prereq: ENGL 3084 and senior standing.

ENGL 4995-3. Senior Writing Project. Individual writing project in any genre and any discipline upon approval of faculty advisor. Manuscript must be 30 pages of high quality text.

ENGL 4999-3. Literary Studies Senior Seminar. Allows students to pursue, learn and apply advanced methodologies such as bibliographical, archival/historical, or cultural and ideological, and apply them to a single author, genre, or period of text. Students engage in research under the tutelage of their instructor. Note: Senior capstone course for literature majors in the literary studies track.

ENGL 5000-3. Studies of Major Authors. An intensive study of works of one major British or American author. Examples: Dickens, Woolf or James. Cross-listed with ENGL 4000.

ENGL 5001-1 to 6. Special Topics. This variable credit course offers intensive study of the teaching of writing in a collaborative action-oriented approach.

ENGL 5080-3. History of the English Language. Examines how English has changed since A.D. 800 through examples of writing from different periods, with attention to the way various groups have enriched our vocabulary and altered our syntax. Prereq: ENGL 2070 or one year of a college foreign language. Cross-listed with ENGL 4080.

ENGL 5093-3. Rhetoric and the Teaching of Writing. Deals with the analysis of rhetorical theory with an emphasis on practical applications in the classroom, with attention to alternative pedagogies in teaching.

ENGL 5100-3. Literary Research and Writing. Designed to prepare students for graduate scholarship and writing in literature; should be taken soon after entering the program. Introduction to the research methodologies of literary scholarship as well as the practical strategies and the formal and stylistic standards for writing graduate-level analytical-interpretive essays. Prereq: Must be enrolled or accepted into the MA in Literature program.

ENGL 5110-3 to 9. Denver Writing Project. An intensive extended workshop in the development of one's personal and professional writing and in the teaching of writing. Open to those who are members of the Denver Writing Project.

ENGL 5120-1. Denver Writing Project Advanced Institute.

Advanced institutes provide intensive examination of an issue related to the teaching of writing. The specific issues are of two kinds—repeatable ones such as “Alumni Institute” and “Writing Retreat” and variable, such as “Action Research” and “Writing Across the Curriculum.”

ENGL 5150-3. Critical Inquiry and Classroom Research. Studies the intellectual disposition and the reading, writing and thinking characteristic of “critical inquiry” and its relationship to classroom research. Emphasizes understanding critical inquiry and literacy through reading and writing and through conducting projects that illuminate the nature and place of critical inquiry in the classroom.

ENGL 5160-3. Poetics. “Mechanics” of poetry in English, including meter, rhythm, rhyme, line and other systems of measurement and logic. Emphasis is on historical development of poetic art in English. Prereq: ENGL 1400 or permission of instructor. Cross-listed with ENGL 4160.

ENGL 5166-3. History of American Poetry. Examines major American poets and poetic trends from the colonial period to the present, with attention to cultural contexts and to development of distinctively American practices. Cross-listed with ENGL 4166.

ENGL 5171-3. Language Theory. Introduces linguistic theory to the beginning graduate student. Builds upon the material included in the undergraduate class, by adding materials pertaining to the teaching of writing and graduate language studies.

ENGL 5190-3. Special Topics in Rhetoric and Writing. Focuses on particular issues in rhetoric and writing as they pertain to reading and writing, including language and gender, language and culture and language of political action. Cross-listed with ENGL 4190.

ENGL 5200-3. History of the English Novel I. Rise and development of the English novel from its beginnings in the 18th century through the mid-19th century, including such writers as Defoe, Fielding, Austen and Shelley. Cross-listed with ENGL 4200.

ENGL 5210-3. History of the English Novel II. Overview of the English novel from mid-19th century to World War II, emphasizing the important developments which the form underwent in the hands of notable novelists, including Charles Dickens, the Brontës, George Eliot, Henry James, Joseph Conrad, D.H. Lawrence and Virginia Woolf. Cross-listed with ENGL 4210.

ENGL 5220-3. African-American Literature. Surveys African-American literature with special emphasis on post-Civil War writing. Cross-listed with ENGL 4220, ETST 4220.

ENGL 5230-3. The American Novel. Surveys major developments in the American novel from the 18th century to the 21st century. Cross-listed with ENGL 4230.

ENGL 5235-3. Faulkner. Studies the works of Faulkner's high period with special attention to southern themes and Faulkner's experimentation with narrative form. Cross-listed with ENGL 4235.

ENGL 5236-3. The American Short Story. Traces the development of the short story in the United States, from its beginnings in colonial tales to its contemporary renaissance as a dominant literary form. Cross-listed with ENGL 4236.

ENGL 5240-3. Topics in Contemporary American Literature. Seminar focusing on a segment of contemporary American literature. Cross-listed with ENGL 4240.

ENGL 5250-3. Twentieth Century Fiction. Deals with novels originating in a variety of countries in an effort to see the similarities and differences that varying nationalities bring to the genre. Cross-listed with ENGL 4250.

ENGL 5280-3. Proposal and Grant Writing. Focuses on research, design, composition and editing original proposals. Includes idea development, identification of funding sources and the creation of persuasive documents. Prereq: ENGL 1020. Cross-listed with ENGL 4280.

ENGL 5300-3. History of British Drama. Intended as a survey of British drama from the miracle plays of the medieval period, through the Renaissance and Restoration, to the “kitchen sink” realists of the 1960s. Cross-listed with ENGL 4300.

ENGL 5320-3. History of Poetry in English. Studies the major schools and eras of English prosody, including the poetry of Great Britain and the United States, from the medieval period to the present. Cross-listed with ENGL 4320.

ENGL 5350-3. History of American Drama. Studies American drama from its foundations in the 18th century through movements including realism, expressionism, symbolism, agit-prop, black nationalism, feminism and performance art. Drama read as both text and performance, as sometimes supporting the status quo and as sometimes subverting it. Cross-listed with ENGL 4350.

ENGL 5400-3. Old English I. Instruction in the Old English language. One year of college foreign language or ENGL 2070 recommended. Cross-listed with ENGL 4400.

ENGL 5410-3. Old English II: Beowulf. Continuing training in the reading of Old English and intensive reading of Beowulf. Prereq: ENGL 5400 or 4400. Cross-listed with ENGL 4410.

ENGL 5420-3. Film Theory and Criticism. (1) Familiarizes students with some of the central concepts and debates in film theory and criticism, both classic and contemporary, (2) enables students to develop advanced analytic and interpretive skills and (3) guides students toward discovering and articulating original critical and theoretical perspectives. Prereq: ENGL 2250 and 3070, 3080 or permission of instructor. Cross-listed with ENGL 4420.

ENGL 5460-3. Contemporary World Literature. Surveys literature written by world writers since World War II. Note: Texts read in English. Cross-listed with ENGL 4460.

ENGL 5500-3. Medieval Literature. Introduces representative writers from the Norman Conquest to about 1550. Emphasis on a variety of genres, including religious poetry, Arthurian romance, dream vision and drama. Cross-listed with ENGL 4500.

ENGL 5510-3. Whores and Saints: Medieval Women. Studies how women are presented in texts, as well as works by women. Investigates the roles open to women and societal attitudes toward women, who were considered seductresses, saints, scholars and warriors in the Middle Ages. Cross-listed with ENGL 4510, RLST 4730.

ENGL 5520-3. English Renaissance. Introduces some of the important writers in this major period of English literature (1500-1660). Special attention to the works of Sidney, Milton, Spenser, Shakespeare, Donne, Herbert and Johnson. Cross-listed with ENGL 4520.

ENGL 5530-3. Milton. Extensive reading in John Milton's poetry (*Lycidas*, *Paradise Lost*, *Paradise Regained*, *Samson Agonistes*) as well as his political, social and theological writings. Cross-listed with ENGL 4530.

ENGL 5540-3. Restoration and the 18th Century. Introduces some of the important writers of the "Age of Reason." Emphasis on such figures as Bunyan, Burke, Dryden, Johnson, Pope and Swift. Cross-listed with ENGL 4540.

ENGL 5560-3. English Romanticism. Studies major works of the chief English writers of the first part of the 19th century, with emphasis on such representative figures as Wollstonecraft, Godwin, Blake, Wordsworth, Coleridge, Hazlitt, Byron, Keats and Shelley. Cross-listed with ENGL 4560.

ENGL 5580-3. The Victorian Age. Examines the main currents of Victorian thought in prose and poetry from about 1830 to the end of the century, including such writers as Browning, Carlyle, Mill, Newman, Ruskin, Swinburne and Tennyson. Cross-listed with ENGL 4580.

ENGL 5600-3. Modern British and Irish Literature. Surveys British and Irish literature from the beginning of the 20th century to World War II, including Eliot, Forster, Joyce, Lawrence, Pound and Yeats. Cross-listed with ENGL 4600.

ENGL 5601-3. Principles and Practices of Second Language Acquisition. Overview of basic principles and practices in the learning and teaching of English as a second language. Cross-listed with ENGL 4601.

ENGL 5650-3. American Literature to the Civil War. Graduate survey of American literature from the Colonial period to the Civil War, with particular attention to the question of what makes this literature distinctly American. Explores a wide range of genres of American literature in an effort to assess how this tradition of letters shaped our historical past and continues to influence contemporary American culture and ideology. Prereq: Graduate standing.

ENGL 5655-3. American Literature: Civil War to the Cold War. Graduate survey of American Literature from the Civil War to the Cold War considered central to the tradition of American Literature. Students will consider how new ideas about gender, race, class, nationality, postcoloniality, history and aesthetics have influenced the field of American literary studies. Prereq: Graduate standing.

ENGL 5701-3. Multimedia in the Community. Produce dossier-quality multimedia shorts by researching and writing digital compositions for selected community organizations. Topics for research range across numerous social issues and involve all disciplines. Prereq: ENGL 2030, 3154 and 3170 or permission of instructor. Cross-listed with ENGL 4701.

ENGL 5730-3. Chaucer's Canterbury Tales. An intensive study of Chaucer's *Canterbury Tales*, as an introduction to the historical, ideological and literary genres of the period. Learn to read Middle English by studying Chaucer's text. Cross-listed with ENGL 4730.

ENGL 5731-3. Chaucer's Early Poetry. Examines Chaucer's dream visions and *Troilus and Criseyde* through sources and historical and ideological factors influencing the texts. Learn to read Middle English by reading Chaucer's texts. Cross-listed with ENGL 4731.

ENGL 5735-3. Philosophy and Literature. Considers the philosophical dimensions of literature. Cross-listed with ENGL 4735, PHIL 5730, 4730.

ENGL 5770-3. Topics in English: Film and Literature. May look at specific genres, aesthetic approaches to literature, ideological or socio-political agendas, or other special topics in literature and/or film. Cross-listed with ENGL 4770.

ENGL 5840-1 to 3. Independent Study.

ENGL 5913-1 to 3. Practicum in Language and Rhetoric. Supervised work in applied language or rhetoric and the teaching of writing.

ENGL 5950-1 to 8. Master's Thesis.

ENGL 6001-3. Critical Theory in Literature and Film. Designed to enrich students' understanding of a variety of modes of theoretical discourse that have influenced modern critical practice in literary and film studies. While the course explores the evolution of criticism, it gives primary emphasis to recent developments. Prereq: ENGL 5100 or permission of instructor.

ENGL 6002-3. Rhetorical Theory: Teaching Writing. Examines the principles and applications of rhetorical theory and its relationship to writing.

ENGL 6010-6019-3. Studies of Major Authors. Note: May be repeated when topics vary.

ENGL 6100-6109-3. Special Topics in Rhetoric. An intensive study of specialized topics in rhetoric. Note: May be repeated when topics vary.

ENGL 6110-6119-3. Special Topics in Literature. An intensive study of specialized topics in English and/or American literature. Note: May be repeated when topics vary.

ENGL 6120-6129-3. Special Topics in Film. An intensive study of specialized topics in film. Note: May be repeated when topics vary.

ENGL 6210-3. Teaching Second Language and Second Dialect Speakers. Covers problems for second language/dialect speakers, including: issues in listening and speaking in inter/subcultural communication; maturational constraints; and personal and social factors that affect learners' achievement of the acquisition of L2 speech.

ENGL 6220-3. Teaching Second Language and Second Dialect Writers. Topics include the similarities between first and second language writing, the processes of composition and revision, teacher response to student writing, student processing of feedback, writing assessment and the reading or writing connection.

ENGL 6840-1 to 3. Independent Study.

ENGL 5920-1 to 3. Directed Readings. Offers graduate students instruction on an individual basis. Serves as preparation for the MA (literature) comprehensive examination.

ENGL 6950-1 to 6. Master's Thesis.

ENGL 6960-1 to 8. Master's Project.

ENGR: Engineering Non-Departmental (Engineering)

ENGR 1000-1. Introduction to Engineering. Introduces engineering profession, engineering design and practice; and the tools used by engineers to accomplish design. The specialties within engineering are described. Students are involved in application projects and use word processors, spreadsheets and engineering software. Prereq: high school trigonometry.

ENGR 1025-3. Engineering Graphics and Computer-Aided Design. Introduces microcomputer-based, menu-driven, 3D computer-aided design systems, spreadsheets and freehand drawing; three-dimensional modeling of solid objects; principles of engineering drawing and descriptive geometry with applications to engineering design and analysis. Prereq: high school geometry and algebra.

ENGR 1208-12X8-1 to 3. Special Topics.

ENGR 2208-22X8-1 to 3. Special Topics.

ENGR 3012-3. Thermodynamics. Introduces thermodynamic properties and state relationships, processes and cycles with work and heat transfer. Applications of the first and second laws to energy-related engineering systems. Prereq: MATH 1401 and PHYS 2311.

ENGR 3208-32X8-1 to 3. Special Topics.

ENGR 3400-3. Technology and Culture. Explores the cultural and political foundations of technology and the impact of technology upon the individual and society. Contributions to technological advances and

the impact of technology on women and diverse ethnic groups are examined in the context of specific engineering designs and case studies. Prereq: two courses in social science and two courses in science or math. (Satisfies campus core multicultural diversity requirement for majors in College of Arts & Media, The Business School, CLAS and College of Engineering.)

ENGR 3600-3. International Dimensions of Technology and Culture.

This course provides students with an understanding of how science, technology and international issues interrelate in a world that has become more interconnected and interdependent. The course will focus on the technical, organizational and cultural aspects of information and other technologies with an emphasis on their impact on third world countries. Prereq: one course in the social sciences, one course in the humanities, one course in science.

ENGR 4208-42X8-1 to 3. Special Topics.

ENGR 4840-1 to 3. Independent Study.

ENGR 5208-52X8-1 to 3. Special Topics.

ENGR 5800-3. Long Range Infrastructure Planning and Design: Colorado 2050. The goal of this course is to equip students to address the problems of long term future resource limitation and its influence on urban infrastructure in Colorado.

ENTP: Entrepreneurship (Business)

ENTP 3000-3. Principles of Entrepreneurship. Focuses on the concepts, skills, know-how, practical information, attitudes and alternatives that are relevant for start-up companies. The materials are designed to enhance the student's capacity to anticipate HR, financial, marketing problems through the application of proper planning. The primary objective of the course is to teach participants the practical aspects of entrepreneurship in order to change the odds of success.

ENTP 3780-3. Small Business Management. Teaches future new and small business owners the practical aspects of small business management, to develop a comprehensive business plan and to develop the skills necessary to improve the odds of success. The course will consider strategies to leverage limited resources for maximum effect. Also covers small organization and group behavior, performance, leadership and motivation in small business settings and focuses on the owner/manager as the principle success factor in the context of a small organization.

Note: For nonbusiness majors only. Does not count towards business degree but does count towards Entrepreneurship Certificate. Prereq: MGMT 1000, ACCT 2200 and ENTP 3000.

ENTP 4950-3. Special Topics. A variety of topics in entrepreneurship are offered. Consult the current "Schedule Planner" for semester offerings. Prereq: topics vary.

ENTP 6000-3. Fundamentals of Entrepreneurship. Focuses on the concepts, skills, know-how, attitudes, information and alternatives that are relevant for start-up and early-stage entrepreneurs, entrepreneurial managers and their stakeholders. Speakers, exercises and lectures focus on the critical role of opportunity creation and recognition, and the entrepreneur as the principal success factor in new entrepreneurial formation and building.

ENTP 6020-3. Business Plans and Seed Financing. Business plan development which incorporates all key ingredients necessary for various users. Includes the ins and outs of business plans for new ventures through environmental scans of new business opportunities, case studies, by sharing the experience of entrepreneurs and investors that have been through the process and by writing a business plan, either individually or with a team of other students.

ENTP 6040-3. Growing Your Venture. Provides a series of concepts, frameworks and heuristics that enable the entrepreneur to anticipate and deal with the challenges that accompany growth of an existing business. Cases, exercises, lectures and speakers are used to focus on choosing opportunities, allocating resources, motivating employees and maintaining control, while not stifling innovation. A key component of the course is how to sustain entrepreneurial thinking in mid-sized ventures as they continue to grow.

ENTP 6800-3. Special Topics. A variety of topics in entrepreneurship are offered. Consult the current 'Schedule Planner' for semester offerings.

ENTP 6820-3. Business Consulting. Assists to understand how to successfully grow experience and current knowledge so that any future business consulting goals are realized, regardless of whether the student is an "inside" consultant to the organization or an "outside" consultant to many organizations. Students are expected to identify experiences, current knowledge and future goals. The course includes "practice" of 32 topics within 16 classes. Students learn how to identify root problems instead of treating the symptoms. Most importantly, student deliver recommendations and implement the optimum solution.

ENTP 6822-3. Legal Issues of Entrepreneurship. Addresses the legal issues most frequently encountered by entrepreneurs and others involved in in start-ups and small, closely held or family businesses. The focus is on how to avoid legal aspects of raising capital, taxation, contracts, intellectual property law, employment law, product liability and the problem of managing lawyers and litigation. An emphasis on "e-law" and how it relates to the "new" economy is a primary focus.

ENTP 6824-3. Entrepreneurial Financial Management. Provides a foundation for the financial management of a small business, including financial and legal aspects of setting up different forms of small business and overview of financial reporting and cash flow analysis for small businesses, financial planning and budgeting techniques, working capital management and long-term asset decisions, practices in obtaining funds, business valuation, franchising, lease versus buy decisions, financial aspects of international trade and different methods of obtaining capital including: trade credit, loans, private placements, angel capital and venture capital. Students cannot receive credit if they have taken FNCE 6460. Prereq: BUSN 6550 or previous accounting course and ability to read financial statements.

ENTP 6826-3. International Entrepreneurship. Provides the student with an overview of key trends and developments in international business. Familiarize the student with selected theories and concepts of international business and how it affects entrepreneurial functions, including finance, marketing, accounting, organization design and management.

ENTP 6828-3. Assess and Develop Market Opportunities. Seeks to discern how entrepreneurs identify, assess and exploit market opportunities. Provides a series of guest speakers, business cases and a project, an informal survey of how entrepreneurs use both systematic and nontechnical entrepreneurial ventures to illustrate this process. The ultimate objective is to provide a roadmap of the interaction between the entrepreneur and market opportunities, which facilitates the development of student skills in assessing market opportunities. Prereq: one previous graduate level class or permission of instructor.

ENTP 6830-3. Launching Technology-Based Ventures. Provides an introduction to concepts and activities applicable to launching and managing technology-based ventures. Emphasis is placed on evaluating and financing new technology-based ventures. Other course topics include: identifying and specifying opportunities; creating profitable business models and strategies; marketing and managing and working in new ventures. Course readings, case studies and discussions highlight key issues and concepts. Successful entrepreneurs, professional investors and other business professionals visit the class to share their experiences and insights.

ENTP 6832-3. Corporate Entrepreneurship and Innovation. Includes building, running and growing an entrepreneurial organization. Addresses the principles of organizational architecture, group behavior and performance, interpersonal influence, leadership and motivation in entrepreneurial settings. It addresses strategies to leverage limited resources for maximum effect. Students develop competencies in organizational behavior in the context of an entrepreneurial firm.

ENTP 6834-3. Entrepreneurial Marketing. Designed to help students learn about best practices recent lessons on Internet economy. companies large and small face unique challenges successfully building a competitive advantage with limited marketing resources. Covers the analysis of marketing opportunities, identification of the targets, audience and the development of a marketing strategy, brand positioning and an

integrated marketing plan. Reviews product and service development processes. Provides a basis for establishing pricing and pricing plans.

Assesses Internet economy.

ENTP 6836-3. Designing and Leading the Entrepreneurial

Organization. Addresses the principles of organizational architecture, group behavior and performance, interpersonal influence, leadership and motivation in entrepreneurial settings. It addresses strategies to leverage limited resources for maximum effect. Students develop competencies in organizational design, human resources management, leadership and organizational behavior in the context of an entrepreneurial firm.

ENTP 6838-3. Real Estate for the Entrepreneur. This course will address issues critical to the success of any new venture location including business site selection and negotiation of real estate leases and purchases. General principles of real estate development, financing and urban planning, applicable to entrepreneurs, will also be discussed. Zoning, affordable housing, ADA issues, property management, real estate investing, historic preservation and selected taxation issues are also covered.

ENTP 6842-3. New Concept Development. Designed to help entrepreneurs address questions related to assessing the viability of new business opportunities. Using marketing theory provides tools for understanding and evaluating the attractiveness of industries and potential receptiveness of markets. Both Individual and group projects teach students to identify potential new business opportunities and to assess the viability in various industries and markets.

ENTP 6844-3. Managing New Entrepreneurial Ventures. Focuses on the decisions owner-managers make in recognizing and choosing opportunities, positioning themselves in the market place, obtaining and allocating resources, motivating employees and maintaining control while not stifling innovative actions that allow a business to control its own destiny.

ENTP 6846-3. Marketing a New Business. The objective is to help entrepreneurs learn the latest techniques involved in taking a new business or service concept to market. It includes a theoretical analysis of how products diffuse, product life cycle issues, qualitative and quantitative research techniques (including exposure to an analytical software program), consumer behavior issues, strategic positioning given the nature of the product, the company and the external environment, promotion of the new concept and issues regarding the implementation of a marketing solution surrounding the new venture.

ENTP 6848-3. Leadership in New Ventures. Provides the student with an overview of key leadership principles for creating strategy and managing teams in a new venture. It introduces leadership concepts critical to gaining true organizational commitment and focuses on case studies relevant to common business issues. By exploring what entrepreneurial leaders actually do and how visionary leadership is required to develop an organization that is able to execute the strategy through measurable goals and objectives.

ENTP 6852-3. Technology Transfer and New Venture Creation.

Examines the process of technology transfer in the academic, government laboratory and corporate setting. Focuses on the process of creating innovation from inventions, protecting the innovation and intellectual property and deciding whether to proceed with commercialization. The course will be taught by faculty from academia and the private sector and will involve both lectures and case studies.

ENTP 6856-3. Strategic Planning for Entrepreneurs. This course is designed to help students learn and use tools and frameworks to create, implement and update a strategic plan to shape the future and guide an entrepreneurial organization on its path to success.

ENTP 6930-3. Bioscience Internship. The Bard Center for Entrepreneurship Bioscience Internship Program is intended to provide entrepreneurship students with outstanding real world business experience in emerging Colorado bioscience companies. Business graduate students will use their skills in the area of marketing, accounting, management, information systems and finance and apply them to current business needs of the Bioscience companies.

Entrepreneurship: ENTP (Business)

ENVS: Environmental Sciences (Liberal Arts and Sciences)

ENVS 1042-4. Introduction to Environmental Sciences. This laboratory or survey course develops a basic understanding of ecological relationships and environmental systems. Issues such as the effects of human activities on earth's environment, extinction or diversity, greenhouse effect, hazardous or toxic wastes and human population growth are discussed.

ENVS 1342-3. Introduction to Environment and Society: GT-SS2.

Overview of perspectives on environmental issues within the context of sustainable development and taking a systems approach. The focus is on social science approaches to explore the human footprint on the earth, environmentalism, scientific uncertainty, policy creation and social change.

ENVS 2939-3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

ENVS 3082-3. Energy and the Environment. For students of various backgrounds who wish to increase their understanding of the environmental and technical issues of supplying the energy demands of our society. Alternative energy sources and conservation are explored as solutions to promote a sustainable society. Prereq: One course in college science or mathematics. Cross-listed with PHYS 3082.

ENVS 3500-1 to 6. Topics in Environmental Sciences. Note: Topics may vary from one offering to the next.

ENVS 4210-3. Mining and the Environment. Mineral resources such as metals have played an important role in human civilization. However, the extraction, processing and use of metals have left a legacy of damage to the environment and human health. These impacts and their mitigation are examined. Prereq: One course in college mathematics or science.

ENVS 4500-1 to 6. Topics in Environmental Sciences. Note: Topics may vary from one offering to the next. Prereq: Varies according to the topic.

ENVS 5000-3. Biogeochemical Cycles. Topics include an introduction to ecosystem structures and functions of the biosphere, with a focus on the hydrologic cycle and the global cycles of sulfur, nitrogen and carbon. The global carbon cycle is reviewed as it relates especially to global warming. Prereq: GEOG 1202 or 3232 or permission of instructor. Cross-listed with GEOG 4010, GEOL 4000.

ENVS 5020-3. Earth Environments and Human Impacts. Basic concepts describing earth's biomes and physical environment are presented in a systems context. Global warming assessment, from both political and scientific perspectives, is then presented. Model visualization of these concepts to consider human impacts on Earth's biomes is discussed. Earth system viewpoint, having links of Earth's biomes to oceans and atmosphere, completes the course discussion. Cross-listed with GEOG 4020, GEOL 4020.

ENVS 5030-3. Environmental Geology. Applies geological information to the interactions between people and the physical environment, including attention to the ways that companies are required to address the environmental consequences of their actions. Prereq: Admission to MSES or upper-level standings and permission of instructor.

ENVS 5403-3. Unsaturated Zone Hydrology. Focuses on water and contaminant transport through the unsaturated zone, infiltration and drainage and heat and gas transport. Students learn to design, perform field installation and collect data in order to model and predict contaminant movement on/off site. Prereq: Chemistry, physics, calculus or permission of instructor. Cross-listed with GEOL 4402.

ENVS 5410-3. Aquatic Chemistry. Course objectives are to: (1) identify and understand chemical and physical principles and processes that control the composition of natural water, (2) prepare students to critically evaluate scientific literature and experimental design related to water quality and environmental remediation and (3) examine the validity of environmental water data. Prereq: Graduate status and general chemistry and/or CHEM 4700.

ENVS 5500-1 to 6. Topics in Environmental Sciences. Topics may vary from one offering to the next.

ENVS 5600-3. Applied Statistics for the Natural Sciences. Surveys statistical techniques including: quick review of basic statistics, tests for normality and outliers, display of data; simple and multiple regression; ANOVA and its relation to regression. Emphasis on computer or stat-pak analysis and interpretation of statistical results. Prereq: college algebra and geometry. Cross-listed with GEOG 4770, GEOL 4770, 5770.

ENVS 5620-3. Health Risk Communication. Acquaints students with contemporary theory, research and practice in health risk communication. Cross-listed with CMMU 5620, 4620, HBSC 5620, 4620.

ENVS 5730-3. Air Quality Modeling and Analysis. Emphasizes the use of air dispersion modeling tools. Topics include: sources and effects of air pollution, use of the WWW and analysis of modeling results. Note: For graduate students in environmental sciences or engineering and for those working in the environmental field. Prereq: Graduate standing.

ENVS 5840-1 to 3. Independent Study.

ENVS 5939-1 to 6. Cooperative Education.

ENVS 6000-1. Environmental Sciences Seminar. Student and faculty presentations of UCDHSC research projects and other current environmental sciences topics. All environmental sciences students are encouraged to attend, but credit is given only to students who present seminars. Two semesters of this course are required to receive a M.S. in Environmental Science degree: these students must register for this seminar and give presentations the first semester they are in the M.S.E.S. program and the semester in which they defend their master's project. Prereq: Must be an M.S. in Environmental Science student.

ENVS 6002-2. Environmental Sciences Seminar. Introduces research and professional development in the environmental sciences, focusing on current issues and trends in the field, methods of developing research and project proposals and defense of a proposal written during the semester. Students are introduced to the environmental sciences faculty and their research programs. Prereq: Must be an MS Environmental Science student or permission of instructor.

ENVS 6200-3. Risk Assessment. The process of determining the likelihood and extent of harm that may result from an activity or event. Topics covered are: hazard identification, dose-response evaluation, exposure assessment and risk characterization. The subjects of risk management, risk perception and risk communication are also discussed. Prereq: Graduate standing or permission of instructor. Cross-listed with C E 5494, HBSC 7340.

ENVS 6210-3. Human Health and Environmental Pollution. Examines the roles of technology and society in the etiology and control/prevention of adverse health outcomes associated with releases of toxic substances. Examples come from experience and the literature on occupational cancer and reproductive hazards, occupational and environmental regulation of hazardous wastes, air and water pollution. Cross-listed with HBSC 7210.

ENVS 6220-3. Toxicology. Introduces the field of toxicology. Emphasizes the mechanisms by which chemicals produce toxic effects and the methods for assessing toxicity. Note: Designed for students in the environmental sciences and occupational health fields. Prereq: one year college chemistry and one year college biology. Cross-listed with HBSC 7360.

ENVS 6230-3. Environmental Epidemiology. Provides a basic understanding of the methods used to study the effects on human health of exposures to physical, chemical, or biological factors in the external environment. The course explains the use of epidemiologic methods through a problem solving approach to investigating environmental health case studies. Prereq: A basic statistics course and graduate standing or permission of instructor. Cross-listed with HBSC 7310.

ENVS 6840-1 to 3. Independent Study.

ENVS 6950-1 to 6. Master's Thesis.

ENVS 6960-3 or 6. Master's Report.

EPSY: Educational Psychology (Education)

EPSY 5000-2 to 4. Psychological Foundations of Education. Surveys the results of psychological inquiry with emphasis on applications to educational practices. Major topics are motivation, behavior, learning, development, measurement and characteristics of teachers and students.

EPSY 5020-3. Advanced Psychological Foundations of Education. Selected topics in educational psychology are examined; theoretical issues, current research and applications assume the primary emphasis. The course is intended primarily for students who have had prior professional experiences in teaching and psycho-educational settings. Topic areas addressed include research on intelligence, development, motivation, objective analyses of behavior and learning.

EPSY 5050-3. Children's Thinking. A review of the psychology of children's thinking emphasizing developmental changes in modes of thought. Topics include conceptual behavior, problem solving, intelligence, creativity, humor, play and others.

EPSY 5100-3. Advanced Child Growth and Development. Systematic study of the major theories of child growth and development. Focuses on current research regarding infants and children and the implication of such research for education.

EPSY 5110-3. Human Learning. A review of the research on human learning, including related topics such as information processing and motivation. Various theories of learning are examined in-depth and their applications to teaching and practices in schools (and in other educational settings) are considered.

EPSY 5120-3. Behavior Analysis. A systematic survey of current theory in learning and behavior. The course emphasizes analysis of behavior and behavior change.

EPSY 5140-3. Advanced Adolescent Growth and Development. Systematic study of the major theories of adolescent growth and development. Focuses on current research regarding adolescents and the implications of the research for education.

EPSY 5160-3. Behavior Disorders in Exceptional Children. An in-depth study of the psychological, social and behavioral problems of exceptional learners. Topics to be discussed include identification, etiology, educational assessment and strategies, non-educational intervention, parent involvement, programming and evaluation. Attention is given to current research and its applications.

EPSY 5170-3. Behavior Analysis and Intervention. An application-oriented course that focuses on the development of social and affective skills for children and adolescents. Students gain actual experiences in the analysis and implementation of a variety of behavioral, ecological and psycho-educational interventions. Prereq: SPED 5120 and EPSY 5160 or permission of instructor.

EPSY 5180-3. Psychology of Gifted, Talented and Creative Children. Examines the nature of gifted, talented and creative children from an educational psychology perspective. Topics addressed include historical antecedents, identification, characteristics of such children, research initiatives, measurement issues, relevant programs and teaching strategies.

EPSY 5200-3. Social Psychology of Learning. An analysis of social-psychological concepts, such as self-concept, attitude development, person perception, group processes and related phenomena. Applications to education and other settings are considered.

EPSY 5220-3. Adult Learning and Education. Surveys theories and principles of adult learning and adult education with emphasis on practical applications and design of programs of instruction for adult learners.

EPSY 5240-3. Cognition and Instruction. Explores recent developments in cognition and the implications for instructional practices. Includes theory and research in cognitive psychology and resultant educational practices.

EPSY 5260-3. Child Study and Observation. Involves extensive, systematic observation of young children. Recorded observations are analyzed in terms of child development theories, children's background, setting variables and are then presented in written and elaborated form.

EPSY 5500-2 to 4. Student Teaching. Involves an extended period (usually one school year) of apprenticeship teaching under the daily supervision of mentor/master teachers. Over time, the student discusses teaching strategies with the mentor and a university supervisor—and takes on increasing responsibility for the conduct of the classroom. Prereq: enrollment in a teacher licensure program.

EPSY 5800-1 to 4. Workshop: School Applications of Educational Psychology. Research, development and other scholarly activities in educational psychology are studied and reviewed. Applications are then made to school and other educational settings, with student practice and utilization of techniques emphasized.

EPSY 5840-1 to 4. Independent Study.

EPSY 5920-1 to 4. Readings in Educational Psychology.

EPSY 6000-3. Seminar in Educational Psychology. Examines classic research and personalities in the field of educational psychology, broadly conceived. Also includes the history of the field, major divisions in educational psychology, professional organizations and (as appropriate) the teaching of educational psychology.

EPSY 6120-3. Family Dynamics. Review and analysis of issues related to families with exceptional or at-risk young children. Topics include coping skills, family involvement, parent-child interaction and sources of support. Special attention is given to current research and its application to early intervention.

EPSY 6170-3. Assessment of Handicapped and At-risk Infants.

Provides classroom and field-based experience in the assessment of young children, birth to three years. Topics include selection, administration and interpretation of a variety of tests. Norm-referenced and criterion-referenced tests and observational methods are included.

EPSY 6200-3. Human Development Over the Life Span. An inquiry into the experience and meaning of human development over the full span of life. Both analytical and reflective modes of exploration are utilized to approach the study of personhood and the courses and themes of life.

EPSY 6250-3. Advanced Abnormal Psychology. The major objective of this course is to help the student develop a professional level of understanding of the major disorders commonly subsumed under the term “psychopathology” and related treatments. Classification of disorders in the DSM IV is utilized. Cross-listed with CPCE 6250.

EPSY 6350-3. Theories of Personality Development and Change.

Advanced course in personality theory intended to assist students in becoming aware of their personal theory of personality and its implications for change. Students are introduced to an array of personality theories, taught to recognize the assumptions of each and their mechanism for change and taught the implications of each for personal growth and therapy. Cross-listed with CPCE 6350.

EPSY 6500-2 to 4. Student Teaching: Implementation and Reflection.

Involves an extended period (usually one school year) of apprenticeship teaching under the daily supervision of mentor/master teachers. Over time, the student discusses teaching strategies with the mentor and a university supervisor—and takes on increasing responsibility for the conduct of the classroom. Additionally, students meet periodically with professors in seminars to relate their classroom experiences, reflect on their generality and review pertinent (especially psychological) research. Prereq: enrollment in a teacher licensure program.

EPSY 6600-3. Human Motivation. Reviews the research on human motivation. Various theories of human motivation are examined in-depth, and their applications are considered for both teacher and learner in educational settings, primarily (and, in other settings, secondarily). Prereq: EPSY 5020 or permission of instructor.

EPSY 6840-1 to 4. Independent Study.

EPSY 6910-2 to 4. Practicum in Educational Psychology. Field-based experiences in settings (schools, businesses, governmental agencies, special projects.) that are linked closely to the student’s professional objectives. Requires a minimum of 150, 225 or 300 clock hours under supervision (two-four credit hours, respectively). Prereq: permission of instructor.

EPSY 6950-4. Master’s Thesis.

EPSY 7910-2 to 4. Educational Psychology Practicum.

ETST: Ethnic Studies (Liberal Arts and Sciences)

ETST 1111-3. Freshman Seminar.

ETST 2000-3. Introduction to Ethnic Studies: GT-SS3. Multi-disciplinary survey of contemporary and historical research analyses of the diverse social, economic, political and cultural facets of African American, American Indian, Asian American and Latino communities and cultures.

ETST 2024-3. Race and Ethnic Relations. Surveys race and ethnicity, facts and myths about great populations and the social and cultural sources of bias and discrimination.

ETST 2036-3. American Indian Cultural Images. Analysis of images and perceptions of American Indians in American culture, as seen in politics, education, film, photography, advertising, art, literature and the media.

ETST 2105-3. African American Contemporary Social Issues. Exposes students to those areas of intellectual, social, cultural, economic, political and educational concerns relevant to the African American experience. Principally an introductory survey of primary issues currently affecting the African American population.

ETST 2155-3. African American History: GT-H11. Surveys the history of African Americans. Study interpretations and analysis of major problems, issues and trends affecting the African American population from pre-slavery to the present.

ETST 2294-3. Race and the Media. Virtually all Americans are susceptible to the blatant and subtle socializing and conditioning effects of the modern media (film, television, the Internet). Explains the variety of cultural values transmitted through the media, with particular emphasis on racial issues.

ETST 2496-3. American Indian Literature. Introduces American Indian literature and other expressive forms, with emphasis on their aesthetic, linguistic, psychological and historical properties, as well as the contemporary social and cultural influences upon native authors and their material.

ETST 2606-3. The American Indian Experience. Surveys the relationships between Indian and non-Indian peoples, particularly in the context of the unique interaction between tribes and the federal government. Cross-listed with RLST 2680.

ETST 2840-1 to 3. Independent Study.

ETST 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

ETST 3001-3. Urban Sociology. The city and urban society are examined in terms of social structure, residential and institutional patternings, process of interaction, demographic processes and patterns of growth and change. Cross-listed with SOC 3001.

ETST 3002-3. Ethnicity, Health and Social Justice. Surveys core issues contributing to racial or ethnic minority differences in health status. Historical and contemporary U.S. health and social policy, including the areas of environmental health, sexual and reproductive health, children and immigrants, are examined.

ETST 3108-3. Chicano/a and Latino/a History. A historical analysis of person’s descendant from Mexico and Latin America. Areas of focus include ethnohistorical backgrounds, current interrelations and social movements in both rural and urban groups. Other topics include: cultural patterns, identity maintenance, social reforms and problems of national incorporation.

ETST 3129-3. Contemporary Latin American Literature. The best of contemporary Latin American novels. Examines how U.S. policies in Latin America affect literary creation. Note: Taught in English.

ETST 3216-3. Federal Law and American Indians. Examines the legal and political history of the U.S. in relation to American Indian Nations. Focuses on specific laws and Supreme Court cases in federal Indian law, with analysis of U.S. policy. There will be some comparison with Indian policies of other countries. Cross-listed with P SC 3214.

ETST 3224-3. U.S./Middle East Culture and Religion. Explores the history and development of the various major religions, cultures and ethnic groups in the Middle East, their evolution and interaction in the U.S. and the historical impact and influence of the region, which continues to this day. Study of the region is timely and relevant due to U.S. involvement in various conflicts and peace efforts.

ETST 3254-3. Race and Ethnicity in the Inner City. This dynamic course combines aspects of urban studies and sociology. Contemporary cultural factors of the minority ghetto experience are investigated as elements in urban crisis. Emphasis is placed on possible solutions through government agencies and community organization.

ETST 3274-3. Power, Poverty, Culture. Studies the process that has rendered certain groups poor for generations. Studies African Americans, Whites, Chicanos/as and Latinos/as and other ethnic groups that have lived in this society in a state of poverty.

ETST 3297-3. Social History of Asian Americans. Introductory-level course surveys the social history of Asian American groups from the mid-19th century to the present. Examines immigration patterns, the development of communities, social and economic problems and anti-Asian movements and activities. Cross-listed with SOC 3297.

ETST 3307-3. Selected Topics: Asian Americans. Examines specific topics on Asian Americans to be selected by the instructor and the students. Detailed study of subjects relating to the Asian American experience and communities.

ETST 3350-3. Colonial Latin America. Surveys the creation of colonial empires by Spain and Portugal, 1492-1808. Topics include Native American responses to European incursions, women in colonial society and slavery in Latin America. Cross-listed with HIST 3350.

ETST 3357-3. Asian American Literature. Readings in this course examine the experiences of men and women in different generations; how each group attempts to maintain traditional values in a foreign land, to assimilate and to forge a new identity. Includes short stories, poetry, essays and novels by leading Asian American writers.

ETST 3365-3. Aztlan in the United States: Chicano History from 1821. Explores the impact of U.S. rule on the Southwest, paying particular attention to legal, economic and social changes that created new political and cultural identities in the Southwest. Cross-listed with HIST 3365.

ETST 3394-3. Literature of Social Protest from an Ethnic Perspective. The literature of social protest of various ethnic groups is examined from a literary perspective and with reference to political and social theories.

ETST 3396-3. History of the American Indian. Indigenous nations in North America comprise hundreds of diverse cultures. This course examines U.S. Indian policy and how indigenous nations responded; how they creatively adapted and resisted cultural change; and how they continue to persist culturally, socially and politically. Cross-listed with HIST 3396.

ETST 3408-3. Social Psychology of Latinos/as. Exposes students to research on Latinos/as in the areas of intelligence and achievement, language and learning ability, attitudes, perception and motivation.

ETST 3567-3. Asian American Women. Examines processes of change in values, roles and relations of Asian American women, using contemporary and historical readings that address problems such as generational differences, assimilation and changing roles.

ETST 3574-3. Topics in Ethnic Studies. Topics vary from term to term based upon interest and availability of instructors in specialized areas.

ETST 3616-3. Selected Topics: American Indians. Detailed study of subjects related to American Indian experience and communities. Note: Specific topics to be selected by the instructor and students.

ETST 3697-3. Contemporary Asian American Issues. Examines several contemporary Asian American issues, including the adaptation of new immigrants and refugees, economic and educational problems, ethnic identity, intermarriage, anti-Asian discrimination and other civil rights issues and recent political activism.

ETST 3704-3. Culture, Racism and Alienation. The effects of racism on the personality of participants in racist cultures.

ETST 3794-3. Ethnic Diversity in American Literature. Surveys the cultural perspectives of various ethnic writers and their contributions to American literature.

ETST 3838-3. History of the Mexican American in Colorado. Mexican Americans in Colorado from the 1800s to the present. Topics include founding of Colorado towns, labor strikes, farm worker issues, land and water rights, the Chicano Movement and political power.

ETST 3840-1 to 3. Independent Study.

ETST 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA.

ETST 4000-3. Research Methods in Ethnic Studies. Emphasizes the acquisition of a variety of data or information collection and analytic skills, especially those applicable to historical and social inquiry in ethnic studies.

ETST 4144-3. Indigenous Political Systems. Surveys political theory and practice in indigenous societies in the Americas. Examines the impact of indigenous political thought on Euro-American politics, especially the U.S. Constitution and explores the contemporary impact of indigenous people on current politics. Cross-listed with P SC 4144.

ETST 4146-3. Indigenous Politics. Surveys the status of the world's native peoples and nations and the role of law and politics in the future of indigenous peoples in the global arena. Examines questions of human rights, economic development and international law and politics. Cross-listed with P SC 4146, 5145.

ETST 4156-3. The Arab-Israeli Peace Process. Critical analysis of Arab and Israeli perspectives on the on-going peace negotiations in the Middle East. Historical background and religious-cultural aspects of current problems. Prereq: Upper division standing. Cross-listed with P SC 4156.

ETST 4220-3. African-American Literature. Surveys African-American literature with special emphasis on post-Civil War writing. Cross-listed with ENGL 4220 and 5220.

ETST 4411-3. Modern Mexico. Designed to familiarize students with the critical issues of Mexican political, economic and social history.

Traces the emergence of independence and the difficult consolidation of an independent nation state. Cross-listed with HIST 4411, 5411.

ETST 4515-3. The African American in Politics. Examines African American politics in the U.S.; the role of African American interest groups, structure and function of African American political organizations, goals and political styles of African American politicians, trends and the future of African American politics in the United States.

ETST 4555-3. International Women's Resistance. Examines local and international struggles of women to build peace and justice by resisting systems of inequality such as colonialism, racism, patriarchy, globalization and religious intolerance. Cross-listed with P SC 4555, 5555.

ETST 4558-3. Chicano and Latino Politics. Analysis of the social, cultural and economic factors that affect political behavior of Latinos. Special attention is paid to the Mexican American cultural heritage and to relations between Mexican Americans and Anglo Americans. Cross-listed with P SC 4554.

ETST 4574-3. Special Topics.

ETST 4616-3. Selected Topics: Chicanos/as and Latinos/as.

Examines various contemporary issues in ethnic studies regarding Chicanos/as and Latinos/as.

ETST 4726-3. North American Indian Art. Surveys major tribal styles of the North American continent.

ETST 4730-3. Peoples and Cultures of Sub-Saharan Africa.

Covers various types of societies and civilizations that have existed in sub-Saharan Africa. Explores foragers, pastoralists, agricultural societies, chiefdoms, kingdoms and empires, as these emerged and interacted with each other. Details their ideas and social orders, including the following topics: race, ethnicity, kinship, politics, economics, religion, magic, witchcraft, sorcery, marriage, age, gender, stratification, art, literature and oral traditions. Also addresses the impact of colonialism, the rise of nations, changes in the post-colonial period, warfare and the impact of globalism on Africa today. Prereq: Upper division standing. Cross-listed with ANTH 4730 and 5730.

ETST 4768-3. Chicano/Chicana Narrative and Social History.

Provides a general, chronological and thematic introduction to short stories and novels written by U.S. citizens of Mexican descent. Begins with early 20th century narratives by women, continues with the corrido and Post-World War II male writers and ends with more recent publications by contemporary women writers. Social, historical and political backgrounds are also emphasized, along with an analysis of the literary techniques and motifs. Cross-listed with ENGL 4768.

ETST 4827-3. Women and the Law. Examines the role of the courts in the development of public policy toward women; how the legal system affects the economic power, family roles, safety and political participation of women. Cross-listed with P SC 4827.

ETST 4840-1 to 3. Independent Study.

ETST 4960-3. Senior Seminar in Ethnic Studies. Examines recent research in ethnic studies. Intended to be the capstone course for students minoring in ethnic studies.

FA: Fine Arts (Arts & Media)

FA 1001-3. Introduction to Art: GT-AH1. Introduces art, both in our everyday lives and in the more formal appreciation of the art world in general. Note: This course will not satisfy any degree requirements for Visual Arts Majors.

FA 1100-3. Drawing Foundations. Introduces survey of elements of the art of drawing, with an emphasis on observation. Mark, shape, volume and perspective are explored in linear terms. Light, texture and atmosphere provide the focus for a study of tonal media. Composition and design theory is studied through class work and discussion of Art historical models.

FA 1140-1 to 3. Topics in Photography.

FA 1150-3. Introduction to Photography. Introduces the breadth of photographic practice. Techniques covered in the course include an in-depth exploration of how to use your camera, film processing, basic black and white printing, color photography, alternative processes, digital imaging and other photographic techniques. This course builds a foundation for critical thinking and intelligent image making through readings, presentation, idea development and expressive uses of the medium.

FA 1400-3. Two-Dimensional Design Foundations. Introduces principle design and composition as applied to artistic practice and theory of two-dimensional art through a variety of Assignments using different media.

FA 1410-3. Color Theory. Understand the physical and optical manipulation of color. Prereq: FA 1400.

FA 1420-3. Introduction To 3D Graphics Processes and

Techniques. A lecture-laboratory course that explores the fundamentals of creating digital 3D content for a diverse grouping of industries. Primary focus is on an introduction industry leading 3D graphics and animation software. Class lectures and demonstrations expose the student to the expectations for commercial high end 3D graphics and animation production. Note: offered through Extended Studies due to separate tuition structure. Prereq: FA 1000 and a basic knowledge of computer operating systems.

FA 1425-3. Digital 3D Preproduction. A lecture-laboratory course that explores the theory and fundamentals of the preproduction and previsualization process for a 3D graphics and animation project before the creative work commences. Prereq: FA 1000, FA 1100 and MUME 1400.

FA 1500-3. Three-Dimensional Design. One of five required courses comprising the fine arts studio foundation, with an emphasis on problem solving, spatial awareness and traditional and nontraditional forms of sculpture.

FA 2000-3. Basic Life Drawing. Builds on theory and practice explored in FA 1100, introduces the student to the human figure as subject. Proportion, anatomy, movement and composition are addressed. Discussion of historic and contemporary examples, together with regular critique supplement studio practice. Prereq: FA 1100 or equivalent.

FA 2010-3. Freshman Art Seminar. Students explore creativity processes and develop the critical thinking, writing and verbal skills needed to become articulate artists. The theory and ethics of developing strong studio practice are discussed. This course work includes class discussions, lectures, visiting artists presentations, research papers and oral presentations. Fine Arts majors who FA 1000 will not receive credit for FA 1000 in their area of emphasis. Prereq: Must be a Fine Arts Major.

FA 2130-3. Experiments in Color/Photography for Non-Majors. Explores both practical and innovative ways to manipulate color materials. Students gain technical mastery in understanding their cameras, using creative camera controls, color balancing film and exposing color film while creating a portfolio of work that reveals experimental and innovative uses of color photographic materials. Prereq: FA 1150.

FA 2140-1 to 3. Topics in Photography.

FA 2155-3. Introduction to Digital Photography. Introduces digital imaging as it relates to photographic practice and theory. Through creative assignments that emphasize skill building and conceptual development, students learn basic digital image manipulation, input and output strategies, digital cameras and creative camera controls.

Through presentations, required readings, research projects and class discussions, students explore contemporary theory in relationship to digital imaging and gain greater insight into the role of digital imaging in photography. (Priority given to photography majors and minors.) Prereq: FA 1150.

FA 2200-3. Basic Painting. Introduces the elements of painting. Supports and grounds; pigments and media; methods and concepts. Course projects link the theory and practice of painting. Traditional and contemporary issues are explored, focusing on composition. Prereq: FA 1400.

FA 2210-3. Painting II. Working from observation of light and color, the human figure is introduced as subject. Students are encouraged to work from a variety of painting supports and media and explore different painting strategies. Emphasis is placed on consideration of "the figure in space" stressing unified compositions and color-formed pictorial space. Prereq: FA 2200

FA 2400-3. Multimedia Applications I. A workshop approach to the mastery of software skills related to digital illustration, time-based motion graphics and Web-based interfaces. Students complete instructor-guided exercises and demonstrate a proficiency of principles covered by passing skills-based exams and completing projects. Prereq: FA 1400. Must be taken concurrently with FA 2410 if a multimedia major. (Priority seating given to multimedia majors.)

FA 2410-3. Methods in Conceptualization I. Designed to provide students with an introduction to digital theory, the study of hypermedia and motion graphics. Special attention is paid to how new technologies are being understood, used and implemented in artistic and commercial practices. The class consist of lectures, studio and research assignments. (Taught in conjunction with the Applications I course.) Prereq: FA 1400 or permission of instructor. (Priority seating given to multimedia majors.)

FA 2420-3. Multimedia Applications II. A workshop approach to the mastery of software skills related to digital imaging, audio and video applications. Prereq: FA 1400. Must be taken concurrently with FA 2430 if a multimedia major. (Priority seating given to multimedia majors.)

FA 2430-3. Methods in Conceptualization II. Designed to provide students with an introduction to the study of image, audio and video editing techniques and aesthetics. Special attention paid to the study of narrative and how new technologies are implementing it into artistic and commercial practices. Consist of lectures, studio and research assignments. (Taught in conjunction with the Application II course.) Prereq: FA 2420 or permission of instructor. (Priority seating given to multimedia majors.)

FA 2500-3. Bronze Casting and metal Sculpture. Students learn the ceramic shell and lost wax process of bronze casting. Beginning with the modeling and mold making, the course introduces all aspects of the foundry and continues with metal fabrication, welding and power tools. Individual visual vocabularies are explored and design skills are stressed. Prereq: FA 1500 or permission of instructor.

FA 2510-3. Wood and Metal Sculpture. Subtractive and additive techniques of working three dimensionally with wood, metal fabrication and introducing the found object. Individual visual vocabularies are explored and design skills are stressed to further the development of conceptual ideas. Prereq: F A 1500 and 2500 or permission of instructor.

FA 2600-3. History of Art I (survey): GT-AH1. Overview of various cultures of humankind from cave painting to the Renaissance.

FA 2610-3. History of Art II (survey). Survey of various cultures of humankind from the Renaissance to the present.

FA 2995-1 to 15. Travel Study Topics. Created for students doing travel study in a foreign country. Students register through the office of International Education.

FA 3000-3. Intermediate Drawing. Explores spatial, narrative and compositional motifs and drawing fundamentals are applied to more complex visual tasks. Course work sequences and critical discussions are focused on identification of personal creative starting-points and goals. Critical methods appropriate to drawing are discussed and developed. Prereq: F A 1100 and 2000.

FA 3020-3. Intermediate Life Drawing. An intensive study of the human figure based on drawing from observation using structural models based on movement and physical anatomy. Figuration is explored within the context of pictorial space, revealing opportunities and directions for creative visual expression. Critical methods appropriate to life drawing are discussed and developed. Prereq: F A 1100 and 2000.

FA 3110-3. Imaging and Identity. Experiential grounding in the issues of cultural diversity within the context of Artistic process and art criticism. Focuses on a study of cultural differences through the image of self in art.

FA 3120-3. Visual Culture Studies. Introduces the challenges of exploring images from the perspective of visual culture as influenced by the study of emerging technologies, critical thought and observation. Prereq: must have at least two art history survey courses.

FA 3130-3. Photography, Optics and Perspectives in Italy. In this study abroad seminar course, students develop an understanding of their work within the context of the history of Art and photography, particularly the artistic and scientific breakthroughs of the Renaissance, by exposing them to strategies and theories exemplified by the remarkably diverse and historically significant artwork that is available in collections in Florence, Italy. Prereq: F A 1150 and 2155. Students must apply to the study abroad program to enroll in this class. Coreq: F A 3135.

FA 3135-3. Historic Photographic Processes in Italy. Investigates the relationship between critical concepts and alternative photographic processes in the unique cultural and artistic setting of Florence, Italy. Students create images using historic photographic methods such as salted paper, P.O.P., albumen, photo-polymer gravure and bromoil. (offered summer term only.) Prereq: F A 1150 and F A 2155.

FA 3140-3. Postcolonial Art and Theory. Introduces the art, artists and culture of the postcolonial world as a cultural and historic phenomenon that is continually unfolding. Prereq: must have at least two art history survey courses.

FA 3150-3. Feminism and Art. Introduces students to feminist art, artists and their topical positions. The study of feminist art and theory as a cultural and historic phenomenon are explored and debated. Prereq: not less than two art history survey courses.

FA 3155-3. Digital Book Making/Narrative Strategies. Students create hand-made artists books using digital technologies. Projects build conceptual skills in the areas of idea development, the use of text and image, strategies for creating narratives and storytelling. Technical skills explored include digital image manipulation, digital printing, film scanning, flatbed scanning and basic book binding techniques. Offered flatbed scanning and basic book binding techniques. only in the *Fall*. Prereq: F A 1150, and 2155. Photography majors must also have completed the Fine Arts Foundation Core including: F A 1100, 1400, 1410, 1500, 2010, 2600 and 2610. Photography majors and minors must apply to the program to enroll to enroll in this class.

FA 3160-3. Color and Studio Lighting Dynamics. Explores color photography and lighting dynamics while continuing to build skills in

the areas of idea development, critical thinking and expressive uses of the medium. Students gain expertise in balancing film to light sources, chromogenic printing, the use of flash, an understanding of color theory and studio lighting techniques. Prereq: F A 1150, and 2155. Photography majors must, also have completed the Fine Arts Foundation Core including: F A 1100, 1400, 1410, 1500, 2010, 2600 and 2610. Photography majors and minors must apply to the program to enroll in this class.

FA 3165-3. Concepts and Processes in Photography. Designed to help students explore the relationships between ideas and alternative photographic techniques. Processes covered may include cameraless and pinhole photography, reticulation, nonsilver printing, enlarged negatives, liquid emulsions, solvent transfers, alternative toning and manipulation of Polaroid materials. Emphasis is placed upon nontraditional ways of creating images. (offered spring term only.) Prereq: F A 1150, 2155 and 3170. Photography majors must also have completed the fine arts foundation core including: F A 1100, 1400, 1410, 1500, 2010, 2600, 2610. Photography majors and minors must apply to the program to enroll in this class.

FA 3170-3. Photography: Constructing the Fine Print. Students advance their black and white printing skills while exploring photography as a means of creative expression. Techniques covered include the zone system, split filter printing, toning, montage printing, paper and film choices and darkroom safety. Projects are coupled with readings in contemporary theory and criticism. Fall only. Prereq: F A 1150, and 2155. Photography majors must also have completed the Fine Arts Foundation Core including: F A 1100, 1400, 1410, 1500, 2010, 2600 and 2610. Photography majors and minors must apply to the program to enroll in this class.

FA 3175-3. Photography: Creative Commercial Applications. Explores how photographic artists can apply their creative, technical and conceptual skills to commercial photographic applications. Students create a body of work that is influenced by commercial applications such as editorial and studio or location photography, while exploring commercial business practices, shooting strategies, equipment and presentation solutions. Prereq: F A 1150,, 2155, 3160. Photography majors must also have completed the Fine Arts Foundation Core including: F A 1100, 1400, 1410, 1500, 2010, 2600 and 2610. Photography majors and minors must apply to the program to enroll in this class.

FA 3180-3. Photography: The Modern Era/Criticism and Theory. Introduces the historical texts of photographic criticism. Examines texts relating to the practice of photography as a fine art form, concentrating on photography from 1970 to the present. Critical writing about photography is discussed and practiced.

FA 3200-3. Intermediate Painting. Painting compositions are developed from direct and remote sensing. The practice of preparatory studies is used to develop painting concepts through course assignments. Students are encouraged to exercise imagination, take risks and begin to develop a personal direction. Prereq: F A 1100, 2200 and 2210.

FA 3210-3. Intermediate Painting. Painting compositions are developed from direct and remote sensing. The practice of preparatory studies is used to develop painting concepts through course assignments. Students are encouraged to exercise imagination, take risks and begin to develop a person direction. Prereq: F A 1100, 2200 and 2210.

FA 3220-3. Intermediate Watercolor. Examines the theory and method of working in aqueous media. SurF Aces and supports are reviewed. Transparent watercolor, gouache and other opaque media are explored in relationship to traditional and contemporary models. Prereq: F A 1100 and F A 2200.

FA 3250-3. Sculpture: Contemporary Artists and Concepts. Provides the art student (sculpture majors and non- majors) with a focused opportunity to look at contemporary sculpture, installation and performance art and to examine the philosophical issues, processes methods, motivating practicing artists today Prereq: F A 1500, F A 2600 and F A 2610.

FA 3340-1 to 3. Topics in Studio Art.

FA 3342-1 to 3. Topics in Studio Art.

FA 3343-1 to 3. Topics in Studio Art.

FA 3350-3. Topics in Multimedia. Specialized topics are offered in new multimedia technologies, theories, processes and conceptual thinking. Course titles are unique and changing semester to semester. Prereq: Multimedia majors must have completed all F A 2000 level classes with a 2.75 GPA or have passed portfolio review. Other majors must have permission of instructor. (Priority seating given to multimedia majors.)

FA 3421-3. Digital 3D Surface Modeling. A lecture-laboratory course that explores the fundamentals of creating diverse surface models for digital 3D content. Lessons include the process of modeling complex surface objects by exploring a variety of techniques used to transform, articulate and deform 3D surface textures. Prereq: F A 1000 and MUME 1400.

FA 3423-3. Digital Texture Mapping. A lecture-laboratory course that explores the fundamentals of creating texture maps and materials for digital 3D content. Lessons include in-depth studies of the comparison between real world materials and how to create them digitally through a combination of Acquisition techniques. Prereq: F A 1000 and MUME 1400.

FA 3425-3. Digital 3D Lighting. A lecture-laboratory course that explores the fundamentals of creating lighting scenarios for digital 3D content. Lessons include in-depth studies of real world illumination scenarios and techniques to accurately reproduce the same aesthetics and physics of light digitally. Prereq: F A 1000.

FA 3427-3. Digital 3D Organic Modeling. A lecture-laboratory course that explores the fundamentals of creating models for digital 3D content. Lessons include the process of modeling complex surface objects by exploring a variety of techniques used to shape, mold, transform, articulate and deform digital 3D shapes. Prereq: F A 1000, F A 1100 and MUME 1400.

FA 3429-3. Digital Animation and Applied Effects I. A lecture-laboratory course that explores the fundamentals of Animation and applied visual effects. Lessons include basic animation principles, tweening and key frames, rendering issues as well as emerging technologies for capturing realistic movement. Prereq: F A 1000 and MUME 1400.

FA 3430-3. Digital Design. Covers theories, principles and skills of design composition, typography and color. Students examine various design processes and problem solving techniques. Prereq: F A 1400. (Priority seating given to multimedia majors.)

FA 3431-3. Digital Animation and Applied Effects II. A lecture-laboratory course that explores the fundamentals of Animation and applied visual effects. Lessons include basic cinematography principles, constraints and deformations and advanced visual effects. Prereq: F A 1000, MUME 1400 and 3240.

FA 3433-3. Digital Character and Objects Articulation. A lecture-laboratory course that explores the fundamentals of creating, rigging and animating digital characters and objects for 3D content. Lessons include rigging objects with articulated joints and for manipulating character bones, muscle deformations, clothes, facial features as well as joint and muscle articulation. Prereq: F A 1000, MUME 1400, 3230 and 3240.

FA 3435-3. Designing for Human Experience. Covers concepts and theories of information design, user-centered interface and interaction design and the field of experience design. Topics and projects relate to using design to turn data into visual representations, to create useful human or machine interfaces and to provide meaningful digital and nondigital experiences. Prereq: completion of All required F A 2000 level classes with a 2.75 GPA or has passed a portfolio review. (Priority seating given to multimedia majors and minors.)

FA 3436-3. Digital Animation: Particles. A lecture-laboratory course that explores the fundamentals of creating particle systems for 3D content. Lessons include working with particle emitters and dynamic fields to create effects such as smoke, fire, steam and explosions, as well as other atmospheric, man-made and naturally occurring atmospheric or pyrotechnique effects. Prereq: F A 1000, MUME 1400 and 3240.

FA 3437-3. Digital Animation: Dynamics. A lecture-laboratory course that explores the fundamentals of creating dynamic simulations for 3D content. Lessons include working with dynamic and material properties as well as an exploration of the forces which affect the physics of these properties. Prereq: F A 1000.

FA 3439-3. Digital 3D Post Production. A lecture-laboratory course that explores the fundamentals of the post-production process. Lessons include multi-pass rendering, compositing and matching CG elements with live footage. The techniques and aesthetics for synchronization of Audio to visual are discovered. Prereq: MUME 1400 and 1410.

FA 3440-3. Visible Stories. Focuses on the basics of storytelling using time-based and digital video. Examines the concept of montage (the combination of image with image, image with sound and image and text) and strategies to develop effective video imagery. Prereq: Multimedia majors must have completed all required F A 2000 level classes with a 2.75 GPA and passed a portfolio review. Other majors must have permission of instructor. (Priority seating given to multimedia majors.)

FA 3445-3. Video Exploration. Expands knowledge of time-based imagery or compositing and focuses on utilizing motion graphics as a creative communication tool. Analysis of visual meaning and creation of dynamic content is addressed. Weekly screenings of commercial, documentary and experimental approaches to image making are followed by critique and discussion. Prereq: F A 3440. Multimedia majors must have completed all required F A 2000 level classes with a 2.75 GPA and have passed a portfolio review. Other majors must have permission of instructor. (Priority seating given to multimedia majors.)

FA 3448-3. Investigations of Interaction and New Media. Explores various approaches to the application of design principles for interactive media. Through a series of projects, students research and apply technical and design solutions to conceptual problem solving. Interactive design issues for presentations are discussed. Prereq: Multimedia majors must have completed all required F A 2000 level classes with a 2.75 GPA and have passed a portfolio review. Other majors must have permission of instructor. (Priority seating given to multimedia majors.)

FA 3450-3. Digital Painting. Digital Painting is a studio designed for student exploration of Artistic expression using digital tools for traditional painting and illustration techniques. Prereq: F A 1100 and all F A foundation classes.

FA 3452-3. Advanced Digital Painting. Explores advanced techniques of painting and illustration using digital tools for both commercial and fine art environment. Project-based assignments are given to solidify students understanding of digital painting interaction with other forms of digital media such as video, animation and image manipulation. Prereq: MUME 3450 and all F A foundation level courses or permission of instructor.

FA 3455-3. Issues of Interaction. Focuses on the conceptual tools and advanced skills associated with interaction design. Application of technical and design solutions to conceptual problems involving graphical user interfaces, information structures, navigation strategies and sound and motion design as they apply to fine art, commercial art and other interdisciplinary environments. Prereq: F A 3450. Multimedia majors must have completed all F A 2000 level classes with a 2.75 GPA and have passed a portfolio review. Other majors must have permission of instructor. (Priority seating given to multimedia majors.)

FA 3460-3. Digital Investigations. Explores advanced concepts concerning the role of image, graphics and text, in communication design and artistic practice. Development of comprehensive digital imaging and graphic design skills and explores strategies and methodologies of content development. Emphasis is placed on theoretical aspects of image as it relates to art and design. Prereq: Multimedia majors must have completed all required F A 2000 level classes with a 2.75 GPA and have passed a portfolio review. Other majors must have permission of instructor. (Priority seating given to multimedia majors.)

FA 3465-3. Image, Concept and Theory. Examines how images and graphics support the informational structures of print and interactive media. Narrative structure and its affect on design is explored.

Historical uses of images and graphics within new technologies are explored. Prereq: Multimedia majors must have completed all required F A 2000 level classes with a 2.75 GPA and passed a portfolio review. Other majors must have consent of instructor. (Priority seating given to multimedia majors.)

F A 3470-3. 3D Time-Based Motion and Static Imagery. Introduces the software, skills and techniques needed to develop 3D models and environments for animated and static applications. Through a series of lectures, demonstrations and projects, students learn how to model texture, light and produce key-frame animations. Emphasis is placed on the theories, concepts and uses of effective 3D environments within multimedia applications. Prereq: Multimedia majors must have completed all required F A 2000 level classes with a 2.75 GPA and have passed a portfolio review. Other majors must have permission of instructor. (Priority seating given to multimedia majors.)

F A 3475-3. Advanced 3D Imagery and Media Integration. Explores the integration of 3D animation with current multimedia technologies. Advanced modeling and animation concepts are taught focusing on efficient and constraint driven output. Through a series of projects, students research and apply design solutions to conceptual problems involving animation and 3D graphics. Prereq: F A 3470. Multimedia majors must have completed all required F A 2000 level classes with a 2.75 GPA and have passed a portfolio review. Other majors must have permission of instructor. (Priority seating given to multimedia majors.)

F A 3500-3. Modeling and Casting the Figure. Advanced work with casting, metal and wood facilitates and directs visual vocabulary towards expression with the human form. Cold casting techniques with the resins and synthetic materials are used to explore and study the figure form life. Drawing is integrated in each assignment. Prereq: F A 1100, 1400, 1500, 2010, 2600 and 2610 or permission of instructor.

F A 3505-3. Sculpture Topics. Developed to cover new technical and conceptual areas of sculpture. Some topics may expand traditional processes, others may introduce new processes and ideas.

F A 3510-3. Installation and Site Specific Sculpture. The creation of interior and exterior sculpture which interprets and reflects the spatial dynamics of Architectural and landscape settings. Drawing and exhibition proposals are developed. Prereq: F A 1100, 1500, 1400, 1410, 2010, 2600 and 2610, or permission of instructor.

F A 3520-3. Sculpture: Contemporary Artists and Concepts. Provides the art student (sculpture majors and non-majors) with a focused opportunity to look at contemporary sculpture, installation and performance art and to examine the philosophical issues, processes and methods, motivating practicing artists today. Prereq: F A 1100, 1500, 2600 and 2610.

F A 3600-3. Art History Survey III: Non-Western Art. Introduces the art of non-western cultures through a survey of diverse cultures.

F A 3630-3. History of Photography. Comprehensive history of photography, from 1839 to the present. Slides of historic photographs and a number of original photographs illustrate the various stages, techniques and types of photography and their relationships to the totality of Art.

F A 3640-1 to 3. Topics in Art History.

F A 3644-1 to 3. Topics in Art History.

F A 3645-1 to 3. Aesthetics. Studies aesthetics in art and art history from a theoretical and historical perspective focusing on ancient, modern and contemporary ideas. This course looks at the cultural, political and social environments that define art. Prereq: must have at least two survey classes in art history.

F A 3650-3. Criticism. Studies art criticism from a theoretical and historical perspective, focusing on ancient, modern and contemporary thought and research. Prereq: must have at least two survey classes in art history.

F A 3720-3. Native American Art. Includes discussions of traditional Native American art forms by geographical area, the impact that European contact had upon these forms and the responses of contemporary Native American artists to these issues.

F A 3800-3. Law and the Visual Arts. Serves as an introduction to the areas of law that impact the visual artist. Copyright law and contract law are emphasized as well as business planning issues and artist or gallery relations, including consignment contracts. Free speech and privacy rights are also discussed.

F A 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: junior standing and 2.75 GPA.

F A 3995-1 to 15. Travel Study Topics. Created for students doing travel study in a foreign country. Students register through the office of International Education.

F A 4000-3. Advanced Drawing. As a tool of visual investigation and expression, drawing is bound to critical discourse by assaying practical creative goals against the rigorous application of theoretical models. Drawing is pursued as a means of reasoning beyond the process of visualization; focusing on the development of A personal vision. Prereq: F A 1100, 2000, 3000 or 3020.

F A 4020-3. Advanced Life Drawing. The human figure is studied as a starting point for visual investigation and creative expression. Pictorial, critical and cultural codes that inform figurative issues are identified. Formal and narrative strategies appropriate to personal direction are explored through a demanding process of critical discussion of method, style and content. Prereq: F A 1100, 2000 and 3020.

F A 4140-1 to 3. Topics in Photography.

F A 4195-3. Advanced Photography I/Creating a Personal Vision. Advanced Photography I and II are capstone courses that give students an opportunity to create a cohesive body of work that integrates visual and conceptual ideas with technical mastery. Includes examination of the issues addressed in student work and the relationship of the work to historical and contemporary strategies and practices. Students build expertise in the areas of professional development, the business of Art and the artistic community. Prereq: F A 1100, 1150, 1400, 1410, 1500, 2010, 2420, 2600, 2610, 3155, 3160, 3165, 3170 and 3630.

F A 4196-3. Advanced Photography II. Advanced, project-oriented class with an emphasis on integrating visual and conceptual ideas into a cohesive body of work. Prereq: F A 1100, 1150, 1400, 1410, 1500, 2010, 2421, 2600, 2610, 3155, 3160, 3165, 3170, 3180, 3630 and 4195.

F A 4200-3. Advanced Painting. Critical discourse informs students identification of creative direction and personal vision. Developing a body of work addressed through a demanding regimen of critical inquiry into student's goals, methods and production. Prereq: F A 3200 and 3210. Cross-listed with F A 4210.

F A 4210-3. Advanced Painting. Critical discourse inform students identification of creative direction and personal vision. Developing a body of work addressed through a demanding regimen of critical inquiry into students goals, methods and production. Prereq: F A 3200 and 3210. Cross-listed with F A 4200.

F A 4220-3. Advanced Watercolor. Discussion of critical and practical method focuses on water-based media. Watercolor is employed as a means of Addressing both traditional and contemporary painting issues. Students work to develop a personal approach to aqueous media through a process of production and analysis. Prereq: F A 3220.

F A 4230-3. Abstract Painting. Introduces the study of Abstract painting through an understanding of scale, figure-ground relationships, color formed pictorial space and expensive mark-making systems. Interpretation of master works as well as practical application of theoretical models are emphasized. Prereq: F A 1100 and F A 2200.

F A 4340-1 to 3. Topics in Studio Art.

F A 4350-3. Topics in Multimedia. Specialized topics are offered in new multimedia technologies, theories, processes and conceptual thinking. Course titles are unique and changing semester to semester. Prereq: Multimedia majors must have completed all required F A 2000 level classes with a 2.75 GPA or have passed a portfolio review. Other majors must have permission of instructor as course prerequisites may vary depending on course subject matter. Priority seating is given to multimedia majors. Cross-listed with F A 5350.

F A 4420-3. Transgressive and Subversive Messages. Examines various approaches to transgressive, subversive, or oppositional forms of creative output with an emphasis on electronic media. Students explore the motivations and outcomes of developing subversive messages. Prereq: Multimedia majors must have completed at least two F A 3000 level multimedia classes. Other majors must have permission of instructor. (Priority seating given to multimedia majors.)

F A 4425-3. Information and Interaction: Multimedia Design. Explores the process of collaborative multimedia project development with an emphasis on interaction design. Students work in teams to research and develop a single concept incorporating text, sound, images and motion into a responsive, goal-centric project within a chosen technological delivery system. Prereq: Multimedia majors must have completed at least two F A 3000 level multimedia classes. Others majors must have permission of instructor. (Priority seating given to multimedia majors.)

F A 4430-3. Design and Culture. Examines issues relating to eastern and western graphical forms and structures, as well as bilingual visual and verbal communications. Research and discussion focuses on relationship of Aesthetics culture. Projects approach the challenging area of cross-cultural visual communications using text, color, imagery and iconography within digital contexts. Prereq: Multimedia majors must have completed at least two F A 3000 level multimedia classes. Other majors must have permission of instructor. (Priority seating given to multimedia majors.)

F A 4435-3. Word as Image, Image as Word. Examines use of typography to create visual and textual meaning. Students experiment in typographic composition, evaluating and manipulating the physical aspects of type and interrelationships among typographic forms (contrast, value, unity and hierarchy) and their existence with image. Emphasis are on three particular aspects of text as image and message: the functional, the formal and the technological. Prereq: Multimedia majors must have completed at least two F A 3000 level multimedia classes. Other majors must have permission of instructor. (Priority seating given to multimedia majors.)

F A 4440-3. Truth and Perception in Electronic Media. Explores definitions of truth and perception as they apply to fine art, advertising and forms of digital communications. Students conduct research and produce a creative body of work emphasizing the power of Aesthetics and narrative as a tool of persuasion. Prereq: Multimedia majors must have completed at least two F A 3000 level multimedia classes. Other majors must have permission of instructor. (Priority seating given to multimedia majors.)

F A 4445-3. Interdisciplinary Exploration. Focuses on the principles and methods that join the visual arts with other disciplines in and outside of the arts. Collaborative design projects are the vehicle through which students explore the possibilities for creative synergies. Creative individuals from different disciplines work together towards a singular focus. Prereq: Multimedia majors must have completed at least two 3000 level multimedia classes. Other majors must have permission of instructor. (Priority seating given to multimedia majors.)

F A 4450-3. Electronic Media Installation. Explores experimental artistic practices utilizing computer and electronic technologies in media installations for events, concerts, galleries and other nontraditional exhibition venues. Projects explore the conceptual and aesthetic possibilities of combining diverse technologies through critique, research and collaboration. Prereq: Multimedia majors must have completed at least two 3000 level multimedia classes. Other majors must have permission of instructor. (Priority seating given to multimedia majors.)

F A 4500-3. Kinetic Sculpture. Expands on the students technical knowledge previously acquired and advances conceptual levels of understanding. Includes exploration to integrate movement, sound and other aspects to work that addresses environment. Drawing, portfolio development and writing are required. Work is exhibited on campus and in other public settings. Prereq: F A 1500, 2500, 3500 and 3510.

F A 4510-3. Sculpture III-B. Individual decision making in developing a strong body of work is stressed. Competent technical skills and conceptual ideology are expanded and improved. Portfolio documentation

and presentation are required. Design skills are stressed to support further development of conceptual ideas. Prereq for F A 4510: F A 4500.

F A 4520-3. Performance/Installation in Fine Art. Individual and collaborative projects, pieces and events that develop one's attitudes, trust and abilities to express through the awareness of space, environment and the human condition and body. Prereq: F A 1500.

F A 4522-6. Interdisciplinary Art in Ireland. Introduces the student to the relationship between issues and concepts and the process used to communicate them. (Throughout the course, students work at specific outdoor and indoor sites on related object, image and installation projects using a range of interdisciplinary tools and techniques.) Significant contemporary artists, whose work employs interdisciplinary and nontraditional materials and processed, are discussed. Prereq: junior standing or permission of instructor.

F A 4524-3. Topics in Art History.

F A 4525-3. Museum Studies. Introduces the student to an understanding of the dynamics of the museum as a creative and intellectual institution for the preservation and display of cultural materials. The opportunities and challenges of working in a museum context are explored. Prereq: must have at least two survey classes in art history. Cross-listed with F A 5525.

F A 4526-3. Appraisal and Auction Studies. Introduces fine art appraisal and auction studies. Students develop a market-oriented understanding of Art as a business activity involving the interaction of product, buyers and sellers. Prereq: must have at least two survey classes in art history. Cross-listed with F A 5526.

F A 4527-3. The Business of Art. Introduces the challenges of Art as a business activity. Ways of developing strategies for approaching art as a business activity are explored. Cross-listed with F A 55273

F A 4530-3. Innovation in 3D Imagery and Motion Graphics. A lecture-laboratory course that provides a venue for exploration into new technologies in the field of digital 3D graphics and animation. Guest speakers and assigned research supplement course lectures and laboratory projects. Prereq: MUME 1400 and junior or senior standing.

F A 4610-3. Pre-Columbian Art. Architecture, sculpture and painting of the high cultures of Meso-America and the Andean area before the Spanish conquest. Prereq: F A 2600 or 2610 or permission of instructor. Cross-listed with F A 5610.

F A 4620-3. American Art. Studies American art and architecture from the colonial period to the present. Prereq: F A 2600 or 2610. Cross-listed with F A 5620.

F A 4625-3. Studio Creative Process. Provides students with an understanding of the artistic creative process which is learned through an examination of pre-studio, studio and post-studio practices. Prereq: must have at least two art history survey courses. Cross-listed with F A 4625.

F A 4632-3. History of Digital Music Media. Art historical survey and critical discourse of digital and electronic multimedia that covers the influences which have shaped this medium, its major contributors, the technological innovations and cultural impacts on society as an art form and commercial market form. Prereq: Junior standing or permission of instructor. Cross-listed with F A 5632.

F A 4650-3. Nineteenth-Century Art. History of European movements of the late 19th century from the French Revolution through Post-Impressionism, with attention to Neoclassicism, Romanticism, Realism and Impressionism. Prereq: F A 2600 or 2610. Cross-listed with F A 5650.

F A 4660-3. Twentieth-Century Art. Surveys major trends in painting, sculpture and architecture from Post-Impressionism to the present. Prereq: F A 2600 or 2610. Cross-listed with F A 5660.

F A 4670-3. Greek and Roman Art. Greek art and architecture from Archaic through Hellenistic periods, Etruscan art, Roman art and architecture from the Republican period to the F A of the Empire. Prereq: F A 2600 or 2610. Cross-listed with F A 5670.

F A 4680-3. Art of the Middle Ages. Treats significant issues and themes related to artistic production in Western Europe from the 4th to the 14th centuries. Prereq: F A 2600 or 2610 or permission of instructor. Cross-listed with F A 5680.

FA 4690-3. Renaissance Art. The art and architecture of Italy and Northern Europe (Flanders, France and Germany) from the late 14th century to the late 16th century. Prereq: F A 2600 or 2610. Cross-listed with F A 5690.

FA 4710-3. Baroque and Rococo Art. History of Art in Italy, Spain, France, England and the Low Countries in the 17th and 18th centuries. Prereq: F A 2600 or 2610. Cross-listed with F A 5710.

FA 4712-1 to 3. Applied Digital Media. This laboratory course provides students with the opportunity to execute practical applications in the use of digital 3D media for commercial and/or nonprofit venue. Prereq: permission of instructor.

FA 4720-3. Art of Native America. Surveys major trends in Native American art across North America. Prereq: F A 2600 or 2610 or permission of instructor. Cross-listed with F A 5720.

FA 4730-3. Arts of Japan. Appreciation and chronological development of the arts of Japan. Emphasis is upon the arts of Shinto and Buddhism as well as the particular Japanese aesthetic. Prereq: F A 2600 or 2610. Cross-listed with F A 5730

FA 4740-3. African Visual, Verbal and Musical Metaphors. Introduces students to the visual, verbal and musical traditions of Africa. The artistic traditions of Africa from a comprehensive perspective on the visual cultural are explored. Prereq: junior standing Cross-listed with F A 5740.

FA 4745-3. African American Visual Culture. Thematic exploration of African American art, based on issues of identity. Lectures focus on historical, political, religious and aesthetic aspects of African American visual culture, since the 19th century. Prereq: Junior standing or permission of instructor. Cross-listed with F A 5745.

FA 4750-3. Arts of China. Surveys Chinese painting, sculpture and architecture from the Neolithic period through the present era, including the art of Tibet. Prereq: F A 2600 or 2610. Cross-listed with F A 5750.

FA 4760-3. Art of the Ancient Near East. Surveys the architecture, sculpture and painting of the ancient Near East from their beginnings to the end of the Persian Empire, including the arts of Anatolia, Egypt, Mesopotamia and Persia. Prereq: F A 2600 or 2610. Cross-listed with F A 5760.

FA 4770-3. Art of India and Southeast Asia. Surveys the architecture, sculpture and painting of India and those areas of Southeast Asia influenced by India, from the period of Mohenjo Dato and Harappa to the present. The Himalayan region will be treated, as will Tantric art in general. Prereq: F A 2600 or 2610. Cross-listed with F A 5770.

FA 4780-3. Art of Islam. Art and architecture of the Muslim world from the time of Mohammed to the present. Prereq: F A 2600 or 2610. Cross-listed with F A 5780.

FA 4785-3. Chicano/Chicana Art. Introduces the student to Chicano/a art and visual artistic traditions among Chicano/a people from a cultural perspective. Prereq: junior standing. Cross-listed with F A 5785.

FA 4787-3. Oceanic Art. Introduces students to artistic traditions of Oceania from a comprehensive perspective with an emphasis on the visual culture. African forms and artists are explored through the writing of research essays. Prereq: junior Standing Cross-listed with F A 5787.

FA 4790-3. Methods in Art History. Seminar in the nature and purpose of the study of the history of Art, in which the student is introduced to basic approaches and various research methodologies in the history of Art. Prereq: F A 2600 or 2610. Cross-listed with F A 5790.

FA 4800-3. Senior Art Seminar. Required of Fine Arts majors in the B.F.A. and B.A. studio degree tracks. Course work is concerned with the intersection of the arts, contemporary trends in the arts, the commerce of the arts and the artist's self-promotion and evolution. Course work may include discussion and research into professional practices, business practices, creative practice and career development. Prereq: 90 credits completed, 45 credits in fine arts; open to UDCDHSC Arts Majors only. Cross-listed with F A 5800.

FA 4840-1 to 3. Independent Study.

FA 4940-3. Multimedia Thesis Preparation. Methods of research,

portfolio development, artistic practice and the development of A singular body of work. Through research, readings, critiques and project development, students explore and experiment with various concepts in preparations for their senior thesis. Prereq: BF A Multimedia Majors only who have attained senior status. Class to be taken the semester prior to graduation. Multimedia majors must have completed at least two F A 3000 and two F A 4000 level multimedia classes. Other majors must have permission of instructor.

FA 4950-1. BF A Thesis. The BF A thesis course involves the preparation, exhibition and critical F Aculty response to creative work and self-promotional materials as developed by graduating seniors on the B.F.A. degree track. Prereq: 90 credits completed, 45 credits in fine arts; open to UCDHSC Arts Majors only. F A 4940 for Multimedia majors.

FA 4951-3. Bachelor of Art Thesis. Prepares students for creative and original thinking demonstrated through the production of A thesis focused on a selected researched topic in Art History. Prereq: senior status in art history.

FA 4990-3. Contemporary Art—1945 To the Present. A lecture for students involving viewing, reading and discussion of conventions of post 1945 art including painting, photography, sculpture, installation, multi-media and other. Prereq: F A 2600 and 2610.

FA 4995-1 to 15. Travel Study Topics. Created for students doing travel study in a foreign country. Students register through the office of International Education.

FA 5000-3. Graduate Drawing. Personal creative work in drawing is examined through rigorous discussions of method, style and content, focusing on contemporary drawing issues. Tracking self-directed projects through an intensive process of critical investigation generates modes of defining drawing's role in artistic, cultural and social discourse. Prereq: F A 1100, 2000, 3000/3020 and 4000/4020.

FA 5020-3. Graduate Life Drawing. Utilization of the human figure in pictorial representation and as a starting point for other creative activity is addressed within the context of traditional and contemporary drawing issues. Individual vision is developed by applying ones method, style and content to the task of navigating established and new F Angled modes of reading the body as image, text and icon. Prereq: F A 1100, 2000, 3020, 4000 or 4020.

FA 5190-3. Graduate Photography. Graduate level project-oriented class with an emphasis on integrating visual and conceptual ideas into a cohesive body of work. The final body of work must demonstrate mastery of technical skills and an understanding of the role of photography in art and contemporary culture. Prereq: F A 1150, 2155, 3155, 3160, 4195 and 4196.

FA 5200-3. Graduate Painting. Personal creative work in painting is examined through rigorous discussions of method, style and content focusing on contemporary painting issues. Tracking self-directed projects through intensive critical investigation defines painting's role in artistic, cultural and social discourse. Prereq: F A 4200 and 4210. Cross-listed with F A 5210.

FA 5210-3. Graduate Painting. Personal creative work in painting is examined through rigorous discussions of method, style and content focusing on contemporary painting issues. Tracking self-directed projects through intensive critical investigation defines painting's role in artistic, cultural and social discourse. Prereq: F A 4200 and 4210. Cross-listed with F A 5200.

FA 5220-3. Graduate Watercolor. Personal creative work in aqueous media is subjected to rigorous discussions of method, style and content, focusing on contemporary painting issues. Tracking self-directed projects through intensive critical investigation locates aqueous media within the context of Artistic, cultural and social discourse. Prereq: F A 4220.

FA 5340-1 to 3. Topics in Studio Art.

FA 5350-3. Topics in Multimedia. Specialized topics are offered in new multimedia technologies, theories, processes and conceptual thinking. Course titles are unique and changing semester to semester. Prereq: Multimedia majors must have completed all required F A 2000 level classes with a 2.75 GPA or have passed a portfolio review. Other

majors must have permission of instructor as course prerequisites may vary depending on course subject matter. Priority seating is given to multimedia majors. Cross-listed with F A 4350.

F A 5500-3. Sculpture IV-A. A tutorial format which asks students to be self-directed. Conceptual ideology is expanded through research connected to projects. Portfolio documentation and presentation are required. Prereq: F A 4510. Cross-listed with F A 5510.

F A 5510-3. Sculpture IV-B. A tutorial format which asks students to be self-directed. Conceptual ideology is expanded through research connected to projects. Portfolio documentation and presentation are required. Prereq: F A 4510. Cross-listed with F A 5500.

F A 5522-6. Interdisciplinary Art in Ireland. Introduces the student to the relationship between issues and concepts and the process used to communicate them. (Throughout the course, students work at specific outdoor and indoor sites on related object, image and installation projects using a range of interdisciplinary tools and techniques.) Significant contemporary artists, whose work employs interdisciplinary and nontraditional materials and processed, are discussed. Prereq: undergraduate degree in fine arts.

F A 5525-3. Museum Studies. Introduces the student to an understanding of the dynamics of the museum as a creative and intellectual institution for the preservation and display of cultural materials. The opportunities and challenges of working in a museum context are explored. Prereq: must have at least two survey classes in art history. Cross-listed with F A 4525.

F A 5526-3. Appraisal and Auction Studies. Introduces fine art appraisal and auction studies. Students develop a market-oriented understanding of Art as a business activity involving the interaction of product, buyers and sellers. Prereq: must have at least two survey classes in art history. Cross-listed with F A 4526.

F A 5527-3. The Business of Art. Introduces the challenges of Art as a business activity. Ways of developing strategies for approaching art as a business activity are explored. Cross-listed with F A 4527.

F A 5610-3. Pre-Columbian Art. Architecture, sculpture and painting of the high cultures of Meso-America and the Andean area before the Spanish conquest. Prereq: F A 2600 or 2610. Cross-listed with F A 4610.

F A 5620-3. American Art. Studies American art and architecture from the colonial period to the present. Prereq: F A 2600 or 2610. Cross-listed with F A 4620.

F A 5625-3. Studio Creative Process. Provides students with an understanding of the artistic creative process which is learned through an examination of pre-studio, studio and post-studio practices. Prereq: must have at least two art history survey courses. Cross-listed with F A 4625.

F A 5632-3. History of Digital Music Media. Art historical survey and critical discourse of digital and electronic multimedia that covers the influences which have shaped this medium, its major contributors, the technological innovations and cultural impacts on society as an art form and commercial market form. Prereq: junior standing or permission of instructor. Cross-listed with F A 4632.

F A 5644-1 to 3. Topics in Art History.

F A 5650-3. Nineteenth-Century Art. History of European movements of the late 19th century from the French Revolution through Post-Impressionism, with attention to Neoclassicism, Romanticism, Realism and Impressionism. Prereq: F A 2600 or 2610. Cross-listed with F A 4650.

F A 5660-3. Twentieth-Century Art. Surveys major trends in painting, sculpture and architecture from Post-Impressionism to the present. Prereq: F A 2600 or 2610. Cross-listed with F A 4660.

F A 5670-3. Greek and Roman Art. Greek art and architecture from Archaic through Hellenistic periods, Etruscan art, Roman art and architecture from the Republican period to the Fall of the Empire. Prereq: F A 2600 or 2610. Cross-listed with F A 4670.

F A 5680-3. Art of the Middle Ages. Treats significant issues and themes related to artistic production in Western Europe from the 4th to the 14th centuries. Prereq: F A 2600 or 2610 or permission of instructor. Cross-listed with F A 4680.

F A 5690-3. Renaissance Art. Art and architecture of Italy and Northern Europe (Flanders, France and Germany) from the late 14th

century to the late 16th century. Prereq: F A 2600 or 2610. Cross-listed with F A 4690.

F A 5710-3. Baroque and Rococo Art. History of Art in Italy, Spain, France, England and the Low Countries in the 17th and 18th centuries. Prereq: F A 2600 or 2610. Cross-listed with F A 4710.

F A 5720-3. Art of Native America. Surveys major trends in Native American art across North America. Prereq: F A 2600 or 2610 or permission of instructor. Cross-listed with F A 4720.

F A 5730-3. Arts of Japan. Appreciation and chronological development of the arts of Japan. Emphasis upon the arts of Shinto and Buddhism as well as the particular Japanese aesthetic. Prereq: F A 2600 or 2610. Cross-listed with F A 4730.

F A 5740-3. African Visual, Verbal and Musical Metaphors. Introduces students to the visual, verbal and musical traditions of Africa. The artistic traditions of Africa from a comprehensive perspective on the visual cultural are explored. Prereq: junior standing Cross-listed with F A 4740.

F A 5745-3. African American Visual Culture. Thematic exploration of African American art, based on issues of identity. Lectures focus on historical, political, religious and aesthetic aspects of African American visual culture, since the 19th century. Prereq: junior standing or permission of instructor. Cross-listed with F A 4745.

F A 5750-3. Arts of China. Surveys Chinese painting, sculpture and architecture from the Neolithic period through the present era, including the art of Tibet. Prereq: F A 2600 or 2610. Cross-listed with F A 4750.

F A 5760-3. Art of the Ancient Near East. Surveys the architecture, sculpture and painting of the ancient Near East from their beginnings to the end of the Persian Empire, including the arts of Anatolia, Egypt, Mesopotamia and Persia. Prereq: F A 2600 or 2610. Cross-listed with F A 4760.

F A 5770-3. Art of India and Southeast Asia. Surveys the architecture, sculpture and painting of India and those areas of Southeast Asia influenced by India, from the period of Mohenjo Dato and Harappa to the present. The Himalayan region will be treated, as will Tantric art in general. Prereq: F A 2600 or 2610. Cross-listed with F A 4770.

F A 5780-3. Art of Islam. Art and architecture of the Muslim world from the time of Mohammed to the present. Prereq: F A 2600 or 2610. Cross-listed with F A 4780.

F A 5785-3. Chicano/Chicana Art. Introduces the student to Chicano/a art and visual artistic traditions among Chicano/a people from a cultural perspective. Prereq: junior standing. Cross-listed with F A 4785.

F A 5787-3. Oceanic Art. Introduces students to artistic traditions of Oceania from a comprehensive perspective with emphasis on the visual culture. African forms and artists are explored through the writing of research essays. Prereq: junior Standing Cross-listed with F A 4787.

F A 5790-3. Methods in Art History. A seminar in the nature and purpose of the study of the history of Art, in which the student is introduced to basic approaches and various research methodologies in the history of Art. Prereq: F A 2600 or 2610. Cross-listed with F A 4790.

F A 5800-3. Art Seminar. Based on an exchange of ideas basic to students own creative work and to contemporary philosophies and tendencies in the field. Prereq: 90 credits completed, 45 credits in fine arts; open to UCD Fine Arts majors only. Cross-listed with F A 4800.

F A 5840-1 to 3. Independent Study.

F A 5939-1 to 6. Internship/Cooperative Education.

F A 5995-1 to 15. Travel Study Topics. Created for students doing travel study in a foreign country. Students register through the Office of International Education.

FILM: Film/Video Studies (Arts & Media)

FILM 1050-4. Video Production/Post-Production I. Students gain a knowledge of single camera video techniques and are introduced to nonlinear digital editing. Course work is hands-on and collaborative, with several projects shot and edited. Learning centers on storytelling, including pacing and aesthetics. Prereq: THTR 1600 or permission of instructor Cross-listed with THTR 1050.

FILM 1051-4. Introduction to Video Production or Postproduction.

Students gain a knowledge of single camera video techniques and are introduced to nonlinear digital editing. Course work is hands-on and collaborative, with several projects shot and edited. Learning centers on storytelling, including pacing and aesthetics.

FILM 1153-3. Filmmaking Intensive. An intensive hands-on course in 16mm nonsync production and digital post production. Students plan, write, direct and edit three of their own projects while collaborating on projects of other students. Note: offered through NYFA.

FILM 1154-3. Digital Video Intensive. An intensive hands-on course in digital video production. Students plan, write, direct and edit two video projects while learning the director's craft as applied to the digital format. Offered only through NYFA.

FILM 1157-6. Filmmaking Eight Week Intensive. An intensive hands-on course in 16mm production and digital post production. Students plan, write, direct and edit four of their own projects while collaborating on projects of other students. Note: offered through NYFA.

FILM 1158-6. Filmmaking Six Week Intensive. An intensive hands-on course in 16mm production and digital post production. Students plan, write, direct and edit three of their own projects while collaborating on projects of other students. Note: offered through NYFA.

FILM 1164-3. Final Cut Pro. An intensive course designed to familiarize students with skills necessary to work with the Apple's Final Cut Pro. Students edit professionally shot scenes, in exploration of story structure, style and content approaches.

FILM 1165-3. Four Week Avid Intensive. An intensive four week course designed to familiarize students with skills necessary to work with the Avid Xpress. Students edit professionally shot scenes, in exploration of story structure, style and content approaches.

FILM 1167-3. Four Week Animation Intensive. An intensive hands-on four week 3D computer animation workshop. This workshop is designed for individuals who want to learn how to use the high-end 3D computer program, Maya.

FILM 1180-6. Video Production Intensive. An intensive hands-on course in production that covers directing narrative, directing documentaries, hands-on camera and lighting techniques and directing actors. Note: Offered through NYFA.

FILM 1181-6. Video Production/Postproduction Extension. An extension onto the intensive FILM 1080 course, offering production workshops, editing aesthetics and software instruction, production management module and special guest lectures on topics in film directing techniques. Note: Offered through NYFA.

FILM 1550-3. Scriptwriting I. Each student conceptualizes, designs and creates short dramatic scripts. These scripts are for stage and screen, with production lengths from one to ten minutes. Instruction includes story development through first draft and rewrites, incorporation of critical feedback and the merger of image and idea to convey dramatic concepts. Students compare theatrical and video performance realization. Cross-listed with THTR 1550.

FILM 1600-3. Performance Visualization I. The first half of the required integrated foundations class for all TFVP majors. Focuses on fundamentals of design, dramatic literature, film expression and film analysis and the fundamentals of acting for stage and camera. Prereq: TFVP major or permission of instructor. Cross-listed with THTR 1600.

FILM 1601-1. Scenery Laboratory I. This is one of three laboratories required as a co-requisite for THTR/FILM 1600. Students learn the skills needed for technical theatre and scenery construction for building theatre, television and film sets. Must be taken in the same semester with the other two co-requisite laboratories, THTR/FILM 1602 (Costume Laboratory I) and THTR/FILM 1603 (Camera Equipment and Techniques Laboratory I). Prereq: must be a TFVP major. Cross-listed with THTR 1601.

FILM 1602-1. Costume Laboratory I. This is one of three laboratories required as a co-requisite for THTR/FILM 1600. Students learn the skills needed for costume construction for theatre film and television. Must be taken in the same semester with the other two co-requisite

laboratories, THTR/FILM 1601 (Scenery Laboratory I) and THTR/FILM 1603 (Camera Equipment and Techniques Laboratory I). Prereq: must be a TFVP major. Cross-listed with THTR 1602.

FILM 1603-1. Camera Equipment and Techniques Laboratory I. This is one of three laboratories required as a co-requisite for THTR/FILM 1600. Students learn the skills needed for using camera equipment for shooting footage for film and television. Must be taken in the same semester with the other two co-requisite laboratories, THTR/FILM 1601 (Scenery Laboratory I) and THTR/FILM 1602 (Costume Laboratory I). Prereq: must be a TFVP major. Cross-listed with THTR 1603.

FILM 1610-3. Performance Visualization II. The second half of the required integrated foundations class for all TFT majors. Emphasis is placed on the analysis of dramatic literature, the art of television and the continuation of design and development of acting skills for stage and camera. Prereq: Must be a TFVP major; THTR/FILM 1600, 1601, 1602, 1603 or permission from instructor. Cross-listed with THTR 1610.

FILM 1611-3. Acting Laboratory I. This is the co-requisite laboratory required for THTR/FILM 1610. Students develop the acting skills begun in THTR/FILM 1600. Note: All THTR/FILM students must register for THTR/ FILM 1611. Prereq: THTR 1600 or Film 1600. Cross-listed with THTR 1611.

FILM 1612-2. Camera and Shooting Techniques for Film and Television Laboratory I. This is one of two laboratories required as a co-requisite for THTR/FILM 1610. Students learn NTS advanced camera and shooting skills needed for the production of film and television. Note: ALL THTR/FILM STUDENTS MUST REGISTER FOR THTR/FILM 1611. Prereq: Must be a TFVP major; THTR/FILM 1600, 1601, 1602, 1603 or permission of instructor.

FILM 2000-3. Film/Video Production II. Students work in teams to create productions using three chip digital cameras and advanced techniques. Preproduction planning, working with actors and maximizing production values are stressed. Studio and exterior location shoots are included. Prereq: FILM 1050, 1550, 1600, 1610, 2060 or permission of instructor. FILM 2090 can be taken concurrently.

FILM 2060-3. Film and Video Lighting and Grip. Provides an understanding of lighting theory and tools and techniques for lighting for studio and location video and film production. Topics include lighting equipment (lights, stands, nets, flags, grids, diffusion, light meters and wavefore). Lighting aesthetics is addressed in interior, exterior, studio and location settings. Prereq: FILM 1050 and 1600 or permission of instructor.

FILM 2090-3. Production Management Techniques. Teaches students to analyze a script for a film or television show in order to plan, schedule and budget for production. Students learn the use of production boards and software for budgeting and scheduling. Prereq: FILM 1050, 1600 and 1610 or permission of instructor.

FILM 2150-3. Film and Video Post-Production II. Students edit the projects filmed in FILM 2000. Cutting for narrative and storytelling are stressed. Importation of sound and visual effects files are covered. Students use professional nonlinear digital editing software. Prereq: FILM 1050 and 1640 or permission of instructor; coreq: FILM 2000.

FILM 2180-6. Film Production Intensive I. An intensive hands-on course in 16mm and 35mm film production techniques. This is a hands-on course focusing on film camera and lighting techniques and a film production workshop creating original work. Note: Offered through NYFA.

FILM 2181-6. Film Production Intensive II. An intensive hands-on course in producing, directing and editing for film, casting and directing actors and sync sound acquisition and integration in post production. Note: Offered through NYFA.

FILM 2500-3. Introduction to Screenwriting for Film and Television. Addresses the basic elements of the craft of creating a script for film or television. Idea generation, character, scene setting, genre conventions and three act structure are addressed. Prereq: ENGL 1020. ENGL 2030 or 2154 are recommended.

FILM 2640-3. Introduction to Digital Editing. Introduces digital editing tools. This course uses various programs as the platform to

explore the fundamentals of nonlinear digital editing, including digitizing, compression, input, output and software integration.

FILM 3100-3. History of Film Production I. Surveys international film history from a production perspective from the origins of the medium to the development of sound.

FILM 3111-3. Shooting Action and Physical Effects. Examines techniques for shooting action based on the needs of the editor. A workshop for production projects. This course analyzes films, storyboard and shoot projects designed for specific outcomes such as: chase, hand combat and car chases. Prereq: four college-level courses in film/video production and post-production. (For TFVP majors only)

FILM 3150-3. History of Film Production II. Surveys international film history from a production perspective, beginning with the introduction of sound to the present.

FILM 3207-3. Directing Workshop. Students work on scene studies rehearsed outside and presented in class. Emphasis is on capturing performance: working with actors and cameras to reveal character, deliver narrative and illuminate subtext. Prereq: six college-level courses in film/video production, postproduction and acting.

FILM 3222-3. The Film and Video Business. Covers feature film production, finance, distribution as well as an overview of broadcast, cable, industrial, commercial, Internet, music video production, finance, distribution, organization and legal issues.

FILM 3264-3. Advanced Digital Effects. Specialized topics in film and video. Prereq: permission of instructor.

FILM 3270-3. Film/Video Production III. Involves the scripting, planning, casting, storyboarding and production of individual student projects to be shot on film or digital video. Emphasis is on storytelling and professional techniques. Prereq: Six college-level courses in film/video production, postproduction and scriptwriting. For TFVP majors only.

FILM 3275-3. Film and Video Postproduction III. Involves cutting the individual projects shot on film or video in FILM 3270. Emphasis on outputting a professional quality narrative product with full audio and visual sweetening. Prereq: FILM 3270. (Majors only)

FILM 3300-3. Advanced Lighting for Film and Video. Students master film and video set lighting techniques for studio and locations. Focus is on art, technology, methodology, exposure, instruments, rigging and terminology. Prereq: Six college-level courses in film/video production and postproduction.

FILM 3350-3. Editing Aesthetics. Uncover the building blocks, personal decisions and practices that make up the craft of editing. Rhythm, pace, structure and general rules of thumb for cutting in all the genres are covered.

FILM 3400-3. Intermediate Screenwriting. Emphasis is on character, conflict and structure. Discussion of theme, motifs, subplots and story tone are also discovered. Students complete the first act and a 25-page feature film treatment or the first draft of a feature length script. Prereq: One college-level creative writing, script-writing or screenwriting course or permission of the instructor.

FILM 3838-1 to 3. Applications Seminar. Reflection on the intellectual competencies, artistic capabilities and skill sets gained throughout students academic career. Coursework in this seminar includes investigation of career opportunities and trends in the film or video industry. Designed to be an alternative if FILM 3939-Internship is not appropriate or available. Prereq: Senior standing.

FILM 3939-1 to 3. Cooperative Education.

FILM 4209-3. Advanced Production Management. Workshop or project-based class. Students serve as Production Manager or First Assistant Director on advance student or professional projects while refining their mastery of scheduling and budgeting software. Prereq: Six college-level courses in film or video production and postproduction.

FILM 4270-3. Film and Video Production IV. The final production course of the BFA program geared to creating a show reel for employment in the industry. Students plan, cast, budget and shoot a final professional quality film or video to be edited in FILM 4280 the following semester. Prereq: FILM 3270 and 3275.

FILM 4280-3. Film and Video Postproduction IV. Students cut Production IV projects on high-end digital nonlinear edit systems incorporating advanced audio and effects, resulting in a final professional quality project. Prereq: FILM 4270. (For TFVP majors only)

FILM 4350-3. Analysis of Contemporary Motion Picture Editing Techniques. Focuses on analysis of editing techniques, through viewing of contemporary feature films and episodic television exemplars. The techniques of cutting for character, story, action, comedy and genre is covered citing the work of the top editors of our time. Prereq: Junior standing. Cross-listed with FILM 5350.

FILM 4400-3. Advanced Screenwriting. Students complete a full-length feature screenplay. Particular attention are paid to three-act structure, dialogue, believable characterization and the polishing of a saleable screenplay or teleplay. Prereq: FILM 3400 or permission of the instructor.

FILM 4500-3. Writing for Episodic Television. Explores the constructive and critical process of writing prime-time dramatic television. Each student is guided through a series of viewings, readings and writing exercises culminating with the written completion of an episode from a current television series. Prereq: FILM 2500 or permission of instructor. Cross-listed with FILM 5500.

FILM 4600-1 to 3. Topics in Film. Specialized topics in film and video. Prereq: permission of instructor.

FILM 4720-1. Reel Prep. Students will work with a faculty member to prepare a sample of the student's creative work and projects in an "industry standard" format used to secure employment. This work is referred to as an artists "reel". Note: It is suggested to take this course during your final semester. Prereq: FILM 4270. Prereq/Coreq: Film 4280.

FILM 4840-1 to 3. Independent Study: Film.

FILM 5350-3. Analysis of Contemporary Motion Picture Editing Techniques. Focuses on analysis of editing techniques, through viewing of contemporary feature films and episodic television exemplars. The techniques of cutting for character, story, action, comedy and genre is covered citing the work of the top editors of our time. Cross-listed with FILM 4350.

FILM 5500-3. Writing for Episodic Television. Explores the constructive and critical process of writing prime-time dramatic television. Each student is guided through a series of viewings, readings and writing exercises culminating with the written completion of an episode from a current television series. Prereq: FILM 2500 or permission of instructor. Cross-listed with FILM 4500.

FILM 5600-1 to 3. Topics in Film. Specialized topics in film and video. Prereq: permission of instructor.

FILM 5840-1 to 3. Independent Study: Film.

Fine Arts: F A (Arts & Media)

FNCE: Finance (Business)

FNCE 3200-3. Principles of Finance II.

Fall, Spring, Summer. Focuses on the basic principles governing the management of capital in the business firm. Topics include financial statement analysis, principles of bond and stock valuation; cost of capital, capital budgeting, capital structure decisions and management of working capital. (Part of the required business core). Prereq: FNCE 3100 (and its prerequisites), ACCT 2220, DSCI 2010, MATH 1080 and junior standing.

FNCE 3500-3. Management of Business Capital. *Fall, Spring, Summer.* Students learn the basic principles of managing capital in the business firm. Topics include financial statement analysis, management of working capital, theory and management of capital structure and cost of capital. A grade of a 'C' or better must be earned to receive credit for this course and to take subsequent courses for which it is a prerequisite. Prereq: MATH 1080, DSCI 2010, ACCT 2220, FNCE 3000 with a grade of 'C' or better.

FNCE 3939-1 to 3. Internship/Cooperative Education. Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: senior standing and 3.5 GPA.

FNCE 4330-3. Investment and Portfolio Management. In this course students will learn about the different types of investment vehicles, including methods to estimate their value and analyze their risk. They will also be introduced to portfolio management, including the identification of objectives and constraints and the analysis and use of investment information. Topics include functioning of security markets, asset allocation, security valuation and portfolio analysis. A grade of a 'C' or better must be earned to receive credit for the course and to take subsequent courses for which it is a prerequisite. Prereq: FNCE 3500 (and its prerequisites) and prereq and/or coreq FNCE 4350.

FNCE 4350-3. Financial Markets and Institutions. *Fall, Spring.* Focuses on the supply and demand for loanable funds, the process of money creation, the structure of interest rates and the role of banks and the Federal Reserve in the financial system. Special attention is devoted to the impact of monetary and fiscal policies on interest rates, the flow of funds and economic activity; and the operations of financial markets and institutions. A grade of a 'C' or better must be earned in this course to receive credit for the area of emphasis and to take subsequent courses for which it is a prerequisite. Prereq: FNCE 3000 and its prerequisites.

FNCE 4370-3. International Financial Management. *Fall, Spring, Summer.* Financial management in the international environment. Topics include international capital movements; international operations as they affect the financial functions; foreign and international institutions; and the foreign exchange process. Also considers foreign exchange theory and risk management, financial requirements, problems, sources and policies of firms doing business internationally. A grade of a 'C' or better must be earned to receive credit for the and to take subsequent courses for which it is a prerequisite. Prereq: FNCE 3000.

FNCE 4500-3. Corporate Financial Decisions. This is a required capstone course for the financial management emphasis. It uses the case method to develop the analytical and decision making skills of students. Students are required to apply theories and concepts learned in previous finance and accounting classes to real world scenarios. Topical coverage includes financial analysis, planning, control, working capital management, long-term investment and financing decisions and corporate valuation. A grade of a 'C' or better must be earned to receive credit towards graduation. Prereq: FNCE 3000, 3500 and 4330 all with a grade of 'C' or better and senior standing.

FNCE 4750-3. Business Intelligence and Financial Modeling. In this course, the student learns to analyze and solve financial problems with spreadsheet models, apply Oracle Financial and Business Intelligence software that is widely used in corporate financial operations and model risk and uncertainty with Monte Carlo software. Prereq: FNCE 3000 and 3500 with a grade of 'C' or better. Cross-listed with ISMG 4750.

FNCE 4840-1 to 8. Independent Study.

FNCE 4950-3. Special Topics. Research methods and results, special topics and professional development in finance. Prerequisites vary according to topic and instructor requirements.

FNCE 5939-1 to 3. Internship or Cooperative Education. Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: 21 semester hours and 3.5 GPA.

FNCE 6290-3. Quantitative Methods for Finance. This course provides statistical foundation for subsequent courses in the Master of Science in Finance program. Major topics include descriptive statistics, probability theory, statistical estimation and inference and regression analysis. The emphasis is on finance applications, such as risk measurement, for portfolio diversification and the "market model". In addition, students develop competence in the use of statistical software packages. This course provides preparation for the statistical portions of the Certified Financial Analyst professional examinations. Note: students cannot receive credit for both FNCE 6290 and BUSN 6530.

FNCE 6300-3. Macroeconomics and Financial Markets. Covers the U.S. financial system in the global economy. Specific topics include financial institutions, money creation and monetary policy; the Federal Reserve System and its operation; the international financial system; interest rate determination, yield curves and their relation to fiscal policy; the role of households and business in financial markets; stock markets; and money markets and instruments. (Required for the M.S.

in Finance Finance degree.) Prereq: BUSN 6620 (may be taken concurrently if student has previous economics coursework).

FNCE 6310-3. Financial Decisions and Policies. Emphasizes investment and financing decisions and the analysis of the financial condition of the firm. Specific topics include capital budgeting, cost of capital, financing mix and strategy, firm valuation and management of working capital. Instruction is by the case method. Prereq: BUSN 6640.

FNCE 6330-3. Investment Management Analysis. In this course students will learn investment theories and how to apply them to portfolio management. Topics covered include asset allocation, security markets, the analysis and use of investment information, risk analysis and security valuation. This course is required for the M.S. in Finance degree. Prereq: BUSN 6620 and 6640.

FNCE 6340-3. Security Analysis and Firm Valuation. Focuses on the practical application of fundamental analysis techniques to the diagnosis of firms' financial condition; the valuation of publicly traded firms and privately owned businesses; and the valuation of debt and equity securities. These techniques are useful in a variety of situations such as qualifying firms for bank loans or partnerships, valuing firms for mergers and acquisitions and decisions and the valuation of stocks for investment decisions. Prereq: BUSN 6640.

FNCE 6350-3. Financial Innovations. Covers financial innovations in fixed income securities, including zero coupon bonds, floating rate instruments and inflation indexed bonds, asset backed securities, structured notes, collateralized mortgage obligations and the use of interest rate swaps in hedging. The student learns about the markets and pricing of these securities and how they are used to manage interest rate risk. The course prepares the student for careers in corporate treasury management, structured financing, swaps trading and mortgage backed securities. Prereq: BUSN 6640 or consent of instructor.

FNCE 6360-3. Management of Financial Institutions. Presents an analysis of the structure, markets, regulation, chartering of commercial banks and other financial institutions. Topics include problems and policies of the internal management of funds, loan practices and procedures, investment behavior, deposit and capital adequacy, liquidity and solvency. Analytical methodology for these problems is developed. (Case format) Prereq: BUSN 6640.

FNCE 6365-3 to 9. Banking Principles and Practices. Covers money and capital markets, commercial lending, asset and liability management, loan portfolio management and bank management. This class is only available to Colorado Graduate School of Banking students. Similar material is covered in FNCE 6300 and FNCE 6360. Therefore Business School students must enroll in those courses. Banking students cannot receive credit for FNCE 6300 or FNCE 6360.

FNCE 6370-3. International Financial Management. Addresses financial management in an international context that considers international capital movements and foreign exchange problems and international operations as they affect financial functions. It reviews foreign and international institutions and the foreign exchange process and considers financial requirements, problems, sources and policies of firms doing business internationally. (Meets concurrently with INTB 6372.) Prereq: BUSN 6640. Cross-listed with INTB 6372.

FNCE 6372-3. Business Forecasting. Modern businesses use forecasts in marketing, finance, accounting, human resources management and supply chain and production management decision making. This course focuses on practical application of forecasting techniques, choosing and comparing appropriate methods and applying the results to the business application. Prereq: BUSN 6530 or FNCE 6290. Cross-listed with BUSN 6824 and DSCI 6230.

FNCE 6380-3. Futures and Options. Covers both speculation and hedging using futures and options. The student learns about futures pricing, how futures are related to the underlying commodities and how to hedge risks. Stock index futures and How interest rates futures get particular attention. The course covers the theory and application of option pricing, focusing on the binomial and Black-Scholes models. Option trading strategies such as bull and bear spreads, straddles, strangles and other popular strategies are discussed. Prereq: BUSN 6640.

FNCE 6382-3. Survey of Financial Derivatives: Futures, Options and Swaps. This course provides an overview of financial derivatives and their markets. It covers futures, options, interest rate and currency swaps, convertible bonds, asset-backed securities and mortgage derivatives. Diagrams and simple mathematics are used to show how these instruments work and how they are used in corporate financing. This course is a less technical presentation of the topics covered in both **FNCE 6350, Financial Innovations** and **FNCE 6380, Futures and Options**. The course is suitable for both MBA and MS-Finance students. However, MS-Finance students who are interested in the deeper knowledge necessary for trading derivatives are advised to take either or both **FNCE 6350** and **FNCE 6380**. Prereq: BUSN 6640.

FNCE 6410-3. Corporate Financial Strategy Under Uncertainty. Because of future uncertainties, companies need to position themselves, not only to take advantage of future opportunities, but also prepare for the possible downside. Projects are structured to be able to respond to change. Strategic options arise from the ability to alter projects mid-course or to enter into new projects as a result of prior strategic investments. Methods are developed to quantitatively value: the option to wait and learn before investing; the option to make follow-on investments if a strategic investment project succeeds; the option to abandon a project; and the option to vary the firm's output or production methods. Also, corporate hedging strategy which may protect against the downside of projects is developed. Prereq: BUSN 6640. (Good mathematical and analytical skills are needed.)

FNCE 6411-3. International Corporate Governance. Discusses the structure and goals of the modern corporation, the primary governance mechanisms used to help companies achieve these goals and how and why these roles, goals and mechanisms vary across nations. The topics to be covered in the course include how share ownership, particularly by institutional shareholders, managerial compensation and board of director activities are being used to improve corporate governance systems. The class compares the Codes of Best Governance Practices from several countries as well as recent innovations in individual company governance rating systems. Prereq: BUSN 6640. Note: students cannot receive credit for both **FNCE 6411** and **INTB 6411**. Cross-listed with **INTB 6411**.

FNCE 6420-3. Mergers and Acquisitions. Examines the processes and decisions by which mergers, takeovers and other corporate restructuring occur, the transactions occur. Analyzes merger and acquisition decisions as part of strategic decision making and how firms are valued in mergers. Discusses the market for corporate control and the public policy implications of mergers and corporate governance. Prereq: BUSN 6640.

FNCE 6430-3. Practical Equity Analysis & Portfolio Management. This class focuses on the application of the concepts of portfolio theory and security valuation to the tasks of analyzing security investments and managing a security portfolio. Topics include the economic and financial analysis of the industry, understanding how financial statements are used in security analysis, security valuation methods and portfolio management. Prereq: BUSN 6640 and **FNCE 6330**.

FNCE 6450-3. Short-Term Financial Management. This course is a survey of methods for managing short term assets and liabilities. Specific topics include the analysis of the firm's liquidity and cash flow, banking relationships; collection and disbursement systems; management of short term investment and financing; management of receivables, payables and inventory; and short term forecasting. This course is affiliated with the Association of Financial Professionals, allowing students earning at least a 'B' to sit for the Certified Treasury Professional (CTP-A) exam. Prereq: BUSN 6640.

FNCE 6460-3. Small Firm Financial Management. This course is no longer offered as a FNCE course, but is now offered as **ENTP 6824: Entrepreneurial Financial Management** taught at the Bard Center, (also see course description under **ENTP** courses in the catalog). This course can be used as a graduate finance course elective and an entrepreneurship elective. Provides a foundation for the financial management of a small business, including financial and legal aspects of setting up different forms of a small business and overview of financial reporting and cash

flow analysis, financial planning and budgeting techniques, working capital management and long-term asset decisions, practices in obtaining funds, business valuation, financial aspects of international trade and different methods of obtaining capital, including loans, franchising and venture capital. (Students cannot receive credit if they have taken **ENTP 6824**.) Prereq: **BUSN 6530** or previous course work in financial accounting.

FNCE 6480-3. Financial Modeling. Develops and implements financial models for purposes of financial planning and decision making. This course is intended to allow the student to increase her or his knowledge and skill in the development of various types of computer-based financial planning models. The student are exposed to the uses of a variety of computer software packages that can be used for modeling financial planning problems. Prereq: **BUSN 6640**, knowledge of computer and spreadsheet software.

FNCE 6800-3. Special Topics. Experimental course offered irregularly for the purpose of presenting new subject matter in finance. Prerequisites vary depending upon topics covered. (Consult the 'Schedule Planner' for semester offerings.) Prereq: **BUSN 6640**

FNCE 6840-1 to 8. Independent Study. Instructor approval required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study.

FNDS: Foundations (Education)

FNDS 5000-3. Teaching as a Profession. General foundations of education course for pre-service candidates. Provides a broad overview of the historical, sociological, philosophical and legal foundations of education. Includes an examination of contemporary issues in schooling, school organizational patterns and the professional rights and responsibilities of the teacher.

FNDS 5050-3. Critical Issues in American Education. Examines the social values and forces in American society which shape or influence the aims, philosophies, methods, content and problems of the American educational enterprise.

FNDS 5100-3. Education in Other Countries. Comparative examination of the political, historical, philosophical, sociological, economic, religious and other foundational aspects of education in several selected countries.

FNDS 5410-3. History and Philosophy of Modern Education. Examines Western intellectual heritage from the 16th to the 20th century; tracing corresponding development of educational theory and practice and its continuing impact on modern society.

FNDS 5420-3. History and Philosophy of Education: Twentieth Century America. Designed around selected themes from 20th century American social, political and economic history. Students examine such issues as immigration, racism war and social reform to identify the larger societal forces, ideas and values that have shaped contemporary American education. Overriding purpose of the course is the development of an enlarged frame of reference from which to exercise professional judgment. Cross-listed with **FNDS 7420**.

FNDS 5500-3. Contemporary Philosophies of Education. Provides an examination of selected contemporary philosophies and their impact on educational thought and practice. Students are challenged to determine their own educational philosophy, while yet recognize and respect the variety of beliefs of educators. Students are asked to re-examine current educational issues from within the perspectives of different philosophies. Cross-listed with **FNDS 7500**.

FNDS 5800-3. Seminar: Foundations of Education. An in-depth exploration of topics, issues and ideas largely generated by students through their other course experiences in foundations. Prereq: at least one graduate level course in foundations and permission of instructor.

FNDS 5810-5814-1 to 3. Special Topics. Variable credit courses designed to deal with specific areas of content not covered in-depth in other program offerings; e.g., the social structure of the classroom.

FNDS 5840-1 to 4. Independent Study.

FNDS 5920-3. Readings in Foundations of Education. Critical examination of very recent publications in the field of foundations:

books and professional journal publications. Prereq: at least one graduate-level course in foundations and permission of instructor.

FNDS 6350-3. Seminar: Foundations of Education.

FNDS 6600-1 to 6. Special Topics: Laboratory in Educational Leadership and Innovation. Laboratories are organized by professors to engage students in on-going research programs. They provide opportunities for students to extend and apply knowledge and skills developed in course work. The laboratories enable students to complete portfolio requirements and work on doctoral dissertations. Prereq: admission to M.A. or PhD programs; permission of instructor. Cross-listed with FNDS 7600.

FNDS 6920-3. Readings in Foundations of Education.

FNDS 6950-3. Master's Thesis.

FNDS 7370-1. Dissertation Seminar.

FNDS 7420-3. History and Philosophy of Education: Twentieth Century America. Designed around selected themes from 20th century American social, political and economic history. Students examine such issues as immigration, racism, war and social reform to identify the larger societal forces, ideas and values that have shaped contemporary American education. Overriding purpose of the course is the development of an enlarged frame of reference from which to exercise professional judgment. Cross-listed with FNDS 5420.

FNDS 7500-3. Contemporary Philosophies of Education. Provides an examination of selected contemporary philosophies and their impact on educational thought and practice. Students are challenged to determine their own educational philosophy, while yet recognize and respect the variety of beliefs of educators. Students are asked to re-examine current educational issues from within the perspectives of different philosophies. Cross-listed with FNDS 5500.

FNDS 7600-1 to 6. Special Topics: Laboratory in Educational Leadership and Innovation. Laboratories are organized by professors to engage students in on-going research programs. They provide opportunities for students to extend and apply knowledge and skills developed in course work. The laboratories enable students to complete portfolio requirements and work on doctoral dissertations. Prereq: admission to M.A. or PhD programs; permission of instructor. Cross-listed with FNDS 6600.

FNDS 7840-1 to 4. Independent Study.

FNDS 7930-3. Teaching Internship in Foundations of Education.

FNDS 8990-3 to 10. Doctor of Philosophy Dissertation.

FNDS 8991-3 to 10. Doctor of Education Dissertation.

Foundations: FNDS (Education)

FR: French (Liberal Arts and Sciences)

FR 1000-3. Introduction to Cultures of the French-Speaking World: GT-AH1. Introduces students to the many cultures of the French-speaking world. Taught in English for accessibility to students from different colleges at the University. The countries studied are: France, its overseas departments (Guadeloupe and Martinique) and territories (Tahiti); Quebec; Senegal; and other African countries.

FR 1010-5. Beginning French I. Basic grammatical and syntactic structures are introduced, together with an elementary vocabulary and cultural items that allow the student to carry on simple conversations in French. Prereq: No previous study of French. Students who have had French in high school or elsewhere should consult with an advisor.

FR 1020-5. Beginning French II. (Continuation of FR 1010.) More complex grammatical structures are introduced and literary and cultural readings are added. Elementary vocabulary and cultural awareness are expanded to enable the student to carry on more complicated conversations. Prereq: FR 1010 with a grade of "C" (2.0) or higher.

FR 1111-1 to 3. Freshman Seminar.

FR 2110-3. Intermediate French I. Designed to: (1) further develop skills in listening, speaking and reading; and (2) continue the student's introduction to French contemporary culture. It provides: (1) cultural readings that reflect the customs, thought and everyday life of the French

people; and (2) activities intended to increase communication skills. Emphasis is on conversation, but there is also a rigorous review of grammar and writing skills. Prereq: FR 1020 with a grade of "C" (2.0) or higher.

FR 2120-3. Intermediate French II. Focuses on developing skills in reading and writing, but also includes oral practice and a rigorous review of grammar. Students are asked to express their reactions to literary and cultural readings and to write compositions based on the texts studied or on related subjects. Prereq: FR 2110 with a grade of "C" (2.0) or higher.

FR 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

FR 2995-3 to 6. Travel Study: Amiens, France. An intensive language and culture course, taught in Amiens, France. Students are enrolled in either beginning, intermediate, or advanced courses at the University of Picardie/Jules Verne. Afternoon sessions and weekends include excursions to Paris, the northern coasts, lectures, movies, business tours, discussions and field trips. (Register through the Office of International Education.) Prereq: FR 2110.

FR 3010-3. French Phonetics and Pronunciation. Helps students acquire speech habits through knowledge of phonetics. Topics include the function of the speech organs, accurate production and recognition of sound and the use of phonetic symbols. Prereq: FR 2120 or equivalent.

FR 3020-3. Oral Practice. Conversation course, using dialogues, debates, small-group discussion and short oral presentations to improve fluency in spoken French and to build vocabulary. Discussions center around current issues. Prereq: FR 2120 or equivalent.

FR 3050-3. Advanced Grammar and Composition. Rigorous review of grammar (including past and future tenses, conditional mood and nominal phrase), along with development of writing skills through analysis and discussion of selections from French writers. Through questions and written exercises, students familiarize themselves with vocabulary, spelling, syntax and grammar. Note: May be taken before or after FR 3060. Prereq: FR 2120 or equivalent.

FR 3060-3. Advanced French Language Skills. Rigorous review of grammar (including subjunctive, interrogative, verbal phrase and passive voice), along with development of writing skills through analysis and discussion of selections from French writers. Through questions and written exercises, students familiarize themselves with vocabulary, spelling and grammar. Note: May be taken before or after FR 3050. Prereq: FR 2120 or equivalent.

FR 3082-3. Introduction To Translation. Introduces the methodology and practice of written translation from English to French. Thorough analysis of source texts precedes translation into target language. Note: Students must demonstrate third-year competence and advanced writing skills in English. Prereq: FR 3050 or equivalent.

FR 3112-3. Survey of French Literature I. Introduces survey of the major literary trends and prominent writers of French literature from 842 A.D. to the end of the 18th century. Note: May be taken before or after FR 3122. Prereq: FR 2120 or equivalent.

FR 3120-3. French Cultural Identities: Myths and Realities. The self-assured demeanor of the average French man or woman both attracts and confounds. In fact, a French person's behavior—or that of the French government—can seem impossible to decode if not understood within an authentically French context. This course examines that context and explores how the French view everyday life. Includes analysis of classic French films. Prereq: FR 2120 or equivalent.

FR 3122-3. Survey of French Literature II. Introduces survey of the major literary trends (romanticism, realism and existentialism) and writers of the 19th and 20th centuries. Students become acquainted with prominent writers of the period such as Beauvoir, Chateaubriand, Hugo, Balzac, Flaubert, Proust, Camus and Sartre. Note: May be taken before or after FR 3112. Prereq: FR 2120 or permission of instructor.

FR 3130-3. Current Topics of the French-Speaking World. Combines discussion and writing on political, economic and social conditions in contemporary France and the Francophone world. Articles from current French newspapers, news magazines, television broadcasts and the World Wide Web are analyzed for a better understanding of modern French culture. Prereq: FR 2120 or equivalent.

FR 3140-3. Contemporary Francophone Cultures. Through the reading of short stories and cultural texts, engages students in the exploration of cultures of the Francophone world. Addresses political, economic and geographic status of each region as well as societal identity, immigration, the individual and cultural identity. Prereq: FR 2120 or equivalent.

FR 3212-3. Cultures of the French-Speaking World. Engages students in the exploration of contemporary cultures of the French-speaking world, including studies of Canada, Africa, Asia, Europe and North America. Topics of discussions include identity, immigration, religion and politics and women's issues. Prereq: FR 2120 or equivalent.

FR 3222-3. Francophone Literature. Examines contemporary French literature from many parts of the French-speaking world. Writings with universal appeal representing a wide variety of socioeconomic and cultural circumstances are emphasized. Among the regions to be studied are Africa, Canada, the Caribbean, Vietnam and Europe. Prereq: FR 2120 or equivalent.

FR 3840-1 to 3. Independent Study.

FR 3939-1 to 3. Internship/Cooperative Education.

FR 3970-3. Special Topics. Varying topics in French and Francophone language, literature and culture appropriate to the 3000 level, not otherwise covered by regular courses. Prereq: FR 2120 or equivalent. Note: May be taken more than once, provided that the topic is different each time.

FR 3995-3 or 6. Travel Study: Amiens, France. An intensive language and culture course, taught in Amiens, France. Students are enrolled in either beginning, intermediate, or advanced courses at the University of Picardie/Jules Verne. Afternoon sessions and weekends include excursions to Paris, the northern coasts, lectures, movies, business tours, discussions and field trips. (Register through the Office of International Education.) Prereq: FR 2120 or equivalent.

FR 4010-3. Advanced Composition: Stylistics. Focuses on improvement of writing skills and development of the student's ability to compose logically and convincingly. The writing styles to be studied include: narration, description, portrait, persuasive essay and report. Prereq: FR 3050 or 3060 plus one other 3000-level French course or permission of instructor.

FR 4050-3. Advanced French for Business. Concentrates on the technical language necessary to meet the economic and commercial needs of the modern world. Prepares students for the practical certificate of business and economic French of the Paris Chamber of Commerce. Prereq: FR 3050 or 3060 plus one other 3000-level French course or permission of instructor.

FR 4200-3. French Civilization Through the Nineteenth Century. Development of French culture and civilization from a historical perspective, beginning with the origins of France and continuing through the 19th century. Includes historical background, sciences and techniques, daily life, the arts, literature and philosophy and religion. Note: May be taken before or after FR 4210. Prereq: Two 3000-level courses or permission of instructor.

FR 4210-3. French Civilization - Twentieth and Twenty-First Centuries. (Continuation of FR 4200) The development of French culture and civilization in a historical perspective from the beginning of the 20th century to the present. Includes historical background, sciences and techniques, daily life, the arts, literature and philosophy and religion. Note: May be taken before or after FR 4200. Prereq: Two 3000-level courses or permission of instructor.

FR 4310-3. Seventeenth Century Literature. An in-depth study of the century considered to be the pinnacle of French theatre. Includes plays by Racine, Moliere and Corneille, as well as poetry by LaFontaine and Boileau. Prereq: FR 3112 or 3122 plus one other 3000-level French course or permission of instructor.

FR 4360-3. Eighteenth Century Novel, Theater and Poetry. Studies several novels and plays characteristic of the 18th century as well as some of the more famous poems. Includes Diderot, Rousseau, Voltaire, Marivaux and Laclos. Prereq: FR 3112 or 3122 plus one other 3000-level French course or permission of instructor.

FR 4430-3. Nineteenth Century French Novel. Development of the French novel during the 19th century. Includes such writers as Stendhal, Hugo, Balzac, George Sand, Flaubert, Maupassant and Zola. Prereq: FR 3112 or 3122 plus one other 3000-level French course or permission of instructor. Cross-listed with FR 5430.

FR 4480-3. Twentieth Century French Novel. Represents novels of the 20th century, a period of great innovation in the French novel. Authors generally treated are Camus, Giono, Ernaux and Duras. Prereq: FR 3112 or 3122 plus one other 3000-level French course or permission of instructor. Cross-listed with FR 5480.

FR 4490-3. Twentieth Century French Theater. Surveys the major movements in French literature of the 20th century as represented in the theater arts. Such authors as Jarry, Artaud, Apollinaire, Giraudoux, Sartre and Beckett are discussed. Prereq: FR 3112 or 3122 plus one other 3000-level French course or permission of instructor.

FR 4500-3. Black Literature of the French-Speaking World. Black poetry, drama and novel of the French-speaking world in the 20th century. Prereq: FR 3112 or 3122 plus one other 3000-level French course or permission of instructor.

FR 4510-3. French Women Writers. Designed to explore writings by French and Francophone women from the Middle Ages to the present. Addresses the question of what it means to be a woman and want to write. The selections include a wide variety of genres: autobiographical writings, stories, poems, manifestos, letters, political and historical documents. Prereq: FR 3112 or 3122 plus one other 3000-level French course or permission of instructor. Cross-listed with FR 5510.

FR 4600-3. History of the French Language. Studies phonological, morphological and syntactic changes in the language of Gaul from Latin to modern French. Prereq: FR 3010 and FR 3050 or FR 3060 or permission of instructor. Cross-listed with FR 5600.

FR 4840-1 to 3. Independent Study.

FR 4970-3. Special Topics. Varying topics in French and Francophone language, literature and culture appropriate to the 4000 level, not otherwise covered by regular courses. Prereq: FR 2120 or equivalent. Note: May be taken more than once, provided that the topic is different each time.

FR 4995-1 to 15. Travel Study Topics. For students doing travel study in France; register through the Office of International Education. Cross-listed with FR 5995.

FR 5200-3. French Civilization Through the Nineteenth Century. Development of French culture and civilization from a historical perspective, beginning with the origins of France and continuing through the 19th century. Includes historical background, sciences and techniques, daily life, the arts, literature and philosophy and religion. Prereq: Graduate standing in French.

FR 5210-3. French Civilization - Twentieth and Twenty-First Centuries. (Continuation of FR 5200) The development of French culture and civilization in a historical perspective from the beginning of the 20th century to the present. Includes historical background, sciences and techniques, daily life, the arts, literature and philosophy and religion. Prereq: Graduate standing in French.

FR 5430-3. Nineteenth Century French Novel. Development of the French novel during the 19th century. Includes such writers as Stendhal, Hugo, Balzac, George Sand, Flaubert, Maupassant and Zola. Prereq: graduate standing in French. Cross-listed with FR 4430.

FR 5480-3. Twentieth Century French Novel. Represents novels of the 20th century, a period of great innovation in the French novel. Authors generally treated are Camus, Giono, Ernaux and Duras. Prereq: Graduate standing in French. Cross-listed with FR 4480.

FR 5510-3. French Women Writers. Designed to explore writings by French and Francophone women from the Middle Ages to the present. Addresses the question of what it means to be a woman and want to write. The selections include a wide variety of genres: autobiographical writings, stories, poems, manifestos, letters, political and historical documents. Prereq: graduate standing in French. Cross-listed with FR 4510.

FR 5600-3. History of the French Language. Studies phonological, morphological and syntactic changes in the language of Gaul from Latin

to modern French. Prereq: graduate standing in French. Cross-listed with FR 4600.

FR 5840-1 to 3. Independent Study.

FR 5995-1 to 15. Travel Study Topics. For students doing travel study in France; register through the Office of International Education.

Cross-listed with FR 4995.

GEOG: Geography (Liberal Arts and Sciences)

GEOG 1102-3. World Regional Geography: GT-SS2. Analysis of the relationships of man and the landscape based on geographic distributions in the world.

GEOG 1111-1 to 3. Freshman Seminar.

GEOG 1202-3. Introduction to Physical Geography: GT-SC2.

The science that studies the processes, forms and spatial or geographic structures of natural systems operating at or near the earth's surface, including weather, climate and landform processes.

GEOG 1302-3. Introduction to Human Geography: GT-SS2.

Systematic introduction to basic concepts and approaches in human geographic analysis.

GEOG 1332-1. Topics in Science. A series of five-week modules on various topics in physical geography.

Section 001. Violent Storms. Analysis of the causes, characteristics and regional patterns of thunderstorms, tornadoes and hurricanes, emphasizing the hazards associated with each type of storm.

Section 002. Elementary Surveying. Introduces the various techniques of running a traverse, location of points by intersection and resection, determination of distance by pacing, chaining, stadia and trigonometry and carrying of elevations.

Section 003. Basic Navigation. Introduces the principles of navigation using the sun as the celestial body. Emphasis is on determining latitude and longitude at solar noon.

Section 004. Earthquakes. The characteristics, causes and results of earth movements along faults.

Section 005. Waves and Beaches. Analysis of wind-generated waves in the open ocean and the changes that occur as waves enter shallow water, forming surf. The tides and seismic sea waves are discussed for comparison.

Section 006. Rivers and Flood Plains. Introduces the nature of stream channels and stream landscapes, with emphasis on the problems associated with man's occupation of such landscapes.

Section 007. World Food and Hunger. Analysis of the world food problem with emphasis on the nutritional characteristics of major foods, the physical factors affecting food production and the potential of the world's land for producing food.

Section 008. Volcanoes. Why do some volcanoes erupt and some flow? Why do they occur where they do? How do they affect the environment and man? We discuss these aspects and other characteristics of volcanoes in this course section.

GEOG 1602-3. Introduction to Urban Studies: GT-SS2. Surveys the process of urbanization, emphasizing the development of American cities and using Denver as an example. Topics covered include the evolution of metropolitan form and land use patterns, cultural landscape formation, city planning and architectural design and urban social and policy issues.

GEOG 2202-3. Natural Hazards: GT-SS2. Surveys those physical phenomena that often cause substantial damage when they occur in areas of human settlement.

GEOG 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

GEOG 3080-3. Introduction to Cartography and Computer Mapping. Studies major elements in the preparation of thematic maps, including sources of data collection and manipulation of data and cartographic techniques for display of data.

GEOG 3100-3. Geography of Colorado. An analysis of the physical environment, history of settlement and resource base of Colorado in relation to present economic patterns of the state.

GEOG 3120-3. Geography of Europe. An analysis of the physical environment, resource utilization, economic development and cooperation in Europe. A cultural and political geography which focuses on continuity and change in Eastern and Western Europe.

GEOG 3130-3. Central America and the Caribbean. Surveys the physical environment and cultural development of Central America and the Caribbean Islands.

GEOG 3140-3. Geography of South America. The physical environment, cultural development and political instability within the area are analyzed. Influence of the landscape and climate, as well as Iberian cultural and land tenure patterns on historic settlement and modern growth are discussed. Problems associated with population, economics, politics, education and geography are emphasized.

GEOG 3150-3. Middle East. Physical, cultural and economic approach to the arid lands of the Middle East, including Arab land of the Sahara.

GEOG 3160-3. Geography of China. Geographic survey of the physical, cultural and economic features characterizing the geography of China.

GEOG 3232-3. Weather and Climate. Introduces the processes and systems that govern both day-to-day weather and longer-term climate variations. Covers instrumentation and weather forecasting techniques. Prereq: GEOG 1202 or permission of instructor.

GEOG 3240-3. Colorado Climates. Provides a broad overview of the various weather and climate patterns that are found within the state of Colorado. To accomplish this, the state of Colorado will be divided into regions which (hopefully) have a large degree of homogeneity in terms of weather and climate controls. Note: Taught in a seminar style with students giving presentations and reports on their findings about a given region. Prereq: GEOG 1202 and/or GEOG 3232 or permission of instructor.

GEOG 3302-3. Water Resources. Introduces water resources aimed at students with little or no background in the field. This is a broad course covering topics ranging from the physical aspects of water to water politics and international law. While the course is largely a lecture format, discussion of current issues is a significant part of the class.

GEOG 3411-3. Globalization and Regional Development.

Addresses global political-restructuring and its implications for regional development in the U.S. Both historical and contemporary processes of globalization are examined. Topics include: the environmental basis of American industrial growth, the relationship between technological change and geographical shifts, the rise and decline of Fordism, the transfer of Japanese manufacturing methods to the U.S., the role of regional and national industrial policy and the social consequences of globalization for labor and communities.

GEOG 3430-3. Geography of Tourism. Geographic analysis of trends in recreation, travel and tourism and their economic, social and environmental impacts. Examines growth and change in resorts and tourist destination areas. Prereq: GEOG 1302 or 3411.

GEOG 3770-3. Geography and Film. Geographic analysis of past and current film production and distribution systems and the complex relationships between film making and place in feature, documentary and educational film. Prereq: GEOG 1302 or 2411.

GEOG 3840-1 to 3. Independent Study.

GEOG 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA.

GEOG 3990-3. Special Topics. Investigation of current topics in geography such as analysis of issues (crime, public transportation), techniques (socioeconomic impact analysis), or areas of specialization (climatology). Prereq: Vary with each topic, but no less than six hours in relevant social or physical science.

GEOG 4000-3. Planning Methods I. Focuses on the application of statistical, quantitative and mathematical techniques and computer applications for urban and regional planning and policy development. Major topics include types of data, sampling, basic probability distributions, hypothesis testing, regression and correlation and an introduction to multivariate and cluster analysis. Applications in planning and development are emphasized. Cross-listed with URP 5510.

GEOG 4010-3. Biogeochemical Cycles. Topics include an introduction to ecosystem structures and functions of the biosphere, with a focus on the hydrologic cycle and the global cycles of sulfur, nitrogen and carbon. The global carbon cycle is reviewed as it relates especially to global warming. Prereq: GEOG 1202 or 3232 or permission of instructor. Cross-listed with GEOL 4000, ENVS 5000.

GEOG 4020-3. Earth Environments and Human Impacts. Basic concepts describing earth's biomes and physical environment are presented in a systems context. Global warming assessment, from both political and scientific perspectives, is then presented. Model visualization of these concepts to consider human impacts on Earth's biomes is discussed. Earth system viewpoint, having links of Earth's biomes to oceans and atmosphere, completes the course discussion. Prereq: GEOG 1202 and 3232 or permission of instructor. Cross-listed with ENVS 5020, GEOL 4020.

GEOG 4060-3. Remote Sensing I: Introduction to Environmental Remote Sensing. An in-depth treatment of the use of aerial photographs and other forms of imagery for the analysis of urban-industrial patterns, vegetation, agriculture, landforms and geologic structure. Cross-listed with GEOG 5060, GEOL 4060, 5060.

GEOG 4070-3. Remote Sensing II: Advanced Remote Sensing. Focuses on digital image processing of satellite and aerial images. Students explore the nature of digital image data, gain an understanding of image analysis using PCs and learn about the use of analysis products in the development of GIS databases. Prereq: GEOG 4060/5060 or GEOL 4060/5060 or permission of instructor. Cross-listed with GEOG 5070, GEOL 4070, 5070.

GEOG 4080-3. Introduction to GIS. Introduces various aspects of geographic information systems (GIS), including justification, definition of hardware/software, database design and data conversion. GIS is a computer-based mapping system providing a graphical interface to locational and relational attribute data on facilities and land. Includes hands-on use of a geographic information system workstation. Prereq: GEOG 3080 or permission of instructor. Cross-listed with GEOG 5080.

GEOG 4085-3. GIS Applications. Takes a more detailed look at basic concepts presented in the introductory GIS course, concentrating on how GIS is used to solve real-world geographic problems. Various GIS applications within both the natural and social sciences are highlighted. The selection of specific topics is flexible, based on the interests of enrolled students. Prereq: GEOG 4080 or 5080 or permission of instructor. Cross-listed with GEOG 5085.

GEOG 4090-3. Environmental Modeling with Geographic Information Systems. Expands the basic knowledge of GIS to spatial models. Establishes a comprehensive framework that can be used to address a wide range of applications in natural and built environments. Prereq: GEOG 3080, 4080/5080 or permission of instructor. Cross-listed with GEOG 5090.

GEOG 4095-3. Deploying GIS Functionality on the Web. Covers the core principles and technologies that allow the deployment of geographic information system (GIS) functionality over the World Wide Web. Hands-on exercises make use of the latest commercial software as well as open source technologies. Cross-listed with GEOG 5095.

GEOG 4220-3. Environmental Impact Assessment. The objective of this course is to provide the foundation for understanding the environmental impact assessment process, its legal context and the criteria and methods for procedural and substantive compliance. Prereq: URP 5530 or permission of instructor. Cross-listed with GEOG 5220, URP 6651.

GEOG 4230-3. Hazard Mitigation and Vulnerability Assessment. Examines hazard mitigation and its planning and policy implications, emphasizing how vulnerability assessments play an integral role. Students explore how mitigation minimizes the impacts from hazards and use GIS to conduct a local study. Prereq: GEOG 2202 or permission of instructor. Cross-listed with GEOG 5230.

GEOG 4235-3. GIS Applications in the Health Sciences. Examines how GIS is used throughout the health care industry and public health. Covers environmental health, disease surveillance and health services research.

Students critically review current literature and gain hands-on experience with GIS software. Cross-listed with GEOG 5235, HBSC 7235.

GEOG 4240-3. Principles of Geomorphology. Systematic study of rock structures, weathering, mass wasting, fluvial, wind, glacial, shoreline processes and the landforms they produce. Prereq: introductory college-level geology or physical geography. Cross-listed with **GEOL 4630.**

GEOG 4260-3. Natural Resource Planning and Management. Considers methods for managing renewable and nonrenewable resources using both legislative and economic controls. The role of technology, ideologies and equity are discussed. Decision making techniques are applied to problems of resource and environmental management. The ability to allocate and control resource usage to ensure sustainability are discussed. Cross-listed with URP 6653.

GEOG 4265-3. Sustainability in Resources Management. Sustainability and sustainable development are the dominant economic, environmental and social issues of the 21st century. Follows a multi-disciplinary approach to these concepts. Case studies demonstrate their implementation in different geographical, ecological and socio-economic conditions worldwide. Prereq: ENVS 1042 or permission of instructor. Cross-listed with GEOG 5265.

GEOG 4270-3. Glacial Geomorphology. Provides an in-depth view of the processes and systems found in glacial environments. Topics include: evidence of past glaciation; present-day glacial extent; glacial dynamics; glacial erosional processes and landforms; glacial depositional processes and landforms. Prereq: GEOG 1202 or permission of instructor. Cross-listed with GEOL 4270.

GEOG 4335-3. Contemporary Environmental Issues. Provides an overview of environmental challenges facing society today, focusing on how humans impact and change the environment. Opposing views and environmental policy at the local, state, national and international levels are explored. Cross-listed with GEOG 5335.

GEOG 4350-3. Environment and Society in the American Past. Overview of the geographical development of North American society from the late 15th century to the mid-20th century. A comparative regional approach emphasizing relationships between natural resource exploitation, cultural landscape formation and environmental change. Cross-listed with GEOG 5350.

GEOG 4400-3. Regional Economic Development. Examines the economies of metropolitan, rural, state and national regions, placing each within the fabric of global relations that direct capital, manage productive activities and govern prosperity's geography. Organized both sectorally and spatially, the course addresses key sectors of the emerging global economy, as well as the rationale of the "entrepreneurial" state at the public-private interface. Posits institutional approaches and professional roles in the management of regional economies. Seeks in theory a template of regional change and both the means and purpose of policy intervention. Finds in strategic planning an integration of developmental and environmental perspectives. Prereq: URP 5520 or permission of instructor. Cross-listed with URP 6671.

GEOG 4630-3. Transportation Planning I: Transport Network Analysis. Examines several important aspects of the transport network: accessibility and connectivity of nodes and linkages and the volume and direction of the flow of a transport network. Descriptive, predictive and planning methods and models discussed include graph theoretical measures, connectivity matrices, gravity model, abstract mode model, entropy-maximization, trip generation model and flow allocation models. Prereq: URP 5510 or permission of instructor. Cross-listed with URP 6673.

GEOG 4640-3. Urban Geography: Denver and the U.S. Uses a combined lecture/seminar format to explore research themes in urban geography. Topics covered include both historical and contemporary processes of urban development and transformation. Particular emphasis is placed on the U.S. and Colorado's Front Range. Cross-listed with GEOG 5640.

GEOG 4670-3. Transportation Planning II: Urban Transportation Planning. Examines major issues of transportation in urban development, the urban transportation system, the relationship between land use

planning and transportation planning, urban transportation planning processes and selected issues. Introduces the use of two state-of-the-art multi-modal transportation computer programs - EMME2 and TransCAD. Prereq: URP 6673. Cross-listed with URP 6674.

GEOG 4770-3. Applied Statistics for the Natural Sciences. Surveys statistical techniques including: quick review of basic statistics, tests for normality and outliers, display of data; simple and multiple regression; ANOVA and its relation to regression. Emphasis on computer or stat-pak analysis and interpretation of statistical results. Prereq: college algebra and geometry. Cross-listed with ENVS 5600, GEOL 4770, 5770.

GEOG 4840-1 to 3. Independent Study. Independent research primarily for undergraduate majors. Prereq: permission of department.

GEOG 4940-3. Senior Seminar. Introduces students to the professional literature in the field. Various professionals and faculty lecture about geography/planning research and careers.

GEOG 4950-3. Honors Thesis. A capstone course designed to promote critical thinking, research methodology and writing/oral presentation skills. Students design and develop a research project under the supervision of a faculty advisor. Each student gives an oral presentation or defense of his or her thesis at the end of the semester in which they enroll. Prereq: GEOG 4940 and junior or senior standing.

GEOG 4990-3. Special Topics.

GEOG 5060-3. Remote Sensing I: Introduction to Environmental Remote Sensing. An in-depth treatment of the use of aerial photographs and other forms of imagery for the analysis of urban-industrial patterns, vegetation, agriculture, landforms and geologic structure. Cross-listed with GEOG 5060, GEOL 4060, 5060.

GEOG 5070-3. Remote Sensing II: Advanced Remote Sensing. Focuses on digital image processing of satellite and aerial images. Students explore the nature of digital image data, gain an understanding of image analysis using PCs and learn about the use of analysis products in the development of GIS databases. Prereq: GEOG 5060/4060 or GEOL 5060/4060 or permission of instructor. Cross-listed with GEOG 4070, GEOL 5070, 4070.

GEOG 5080-3. Introduction to GIS. Introduces various aspects of geographic information systems (GIS), including justification, definition of hardware/software, database design and data conversion. GIS is a computer-based mapping system providing a graphical interface to locational and relational attribute data on facilities and land. Includes hands-on use of a geographic information system workstation. Cross-listed with GEOG 4080.

GEOG 5085-3. GIS Applications. Takes a more detailed look at basic concepts presented in the introductory GIS course, concentrating on how GIS is used to solve real-world geographic problems. Various GIS applications within both the natural and social sciences are highlighted. The selection of specific topics is flexible, based on the interests of enrolled students. Prereq: GEOG 5080 or 4080 or permission of instructor. Cross-listed with GEOG 4085.

GEOG 5090-3. Environmental Modeling with Geographic Information Systems. Expands the basic knowledge of GIS to spatial models. Establishes a comprehensive framework that can be used to address a wide range of applications in natural and built environments. Prereq: GEOG 3080, 4080/5080 or permission of instructor. Cross-listed with GEOG 4090.

GEOG 5095-3. Deploying GIS Functionality on the Web. Covers the core principles and technologies that allow the deployment of geographic information system (GIS) functionality over the World Wide Web. Hands-on exercises make use of the latest commercial software as well as open source technologies. Cross-listed with GEOG 4095.

GEOG 5220-3. Environmental Impact Assessment. The objective of this course is to provide the foundation for understanding the environmental impact assessment process, its legal context and the criteria and methods for procedural and substantive compliance. Prereq: URP 5530 or permission of instructor. Cross-listed with GEOG 4220, URP 6651.

GEOG 5230-3. Hazard Mitigation and Vulnerability Assessment. Examines hazard mitigation and its planning and policy implications, emphasizing how vulnerability assessments play an integral role.

Students explore how mitigation minimizes the impacts from hazards and use GIS to conduct a local study. Prereq: GEOG 2202 or permission of instructor. Cross-listed with GEOG 4230.

GEOG 5235-3. GIS Applications in the Health Sciences. Examines how GIS is used throughout the health care industry and public health. Covers environmental health, disease surveillance and health services research. Students critically review current literature and gain hands-on experience with GIS software. Cross-listed with GEOG 4235, HBSC 7235.

GEOG 5265-3. Sustainability in Resources Management. Sustainability and sustainable development are the dominant economic, environmental and social issues of the 21st century. Follows a multi-disciplinary approach to these concepts. Case studies demonstrate their implementation in different geographical, ecological and socio-economic conditions worldwide. Prereq: ENVS 1042 or permission of instructor. Cross-listed with GEOG 4265.

GEOG 5335-3. Contemporary Environmental Issues. Provides an overview of environmental challenges facing society today, focusing on how humans impact and change the environment. Opposing views and environmental policy at the local, state, national and international levels are explored. Cross-listed with GEOG 4335.

GEOG 5350-3. Environment and Society in the American Past. Overview of the geographical development of North American society from the late 15th century to the mid-20th century. A comparative regional approach emphasizing relationships between natural resource exploitation, cultural landscape formation and environmental change. Cross-listed with GEOG 4350.

GEOG 5640-3. Urban Geography: Denver and the U.S. Uses a combined lecture/seminar format to explore research themes in urban geography. Topics covered include both historical and contemporary processes of urban development and transformation. Particular emphasis is placed on the U.S. and Colorado's Front Range. Cross-listed with GEOG 4640.

GEOG 5840-1 to 3. Independent Study. Section 1, economic; 2, physical; 3, urban; 4, social; 5, quantitative; 6, transportation.

GEOG 5939-1 to 6. Internship/Cooperative Education.

GEOG 5990-1 to 6. Special Topics in Geography. Course content varies from semester to semester, depending on faculty member teaching the course. Prereq: Graduate standing.

GEOG 6840-1 to 3. Independent Study. Independent research for graduate major students. Prereq: permission of department.

GEOG 6950-6. Master's Thesis.

GEOG 8990-1 to 8. Doctor's Thesis.

GEOL: Geology (Liberal Arts and Sciences)

GEOL 1022-3. History of Life. nontechnical study of fossils through time and their relationships to environments through earth history. Includes discussion of evolution and extinction events and current controversies.

GEOL 1072-4. Physical Geology: Surface Processes: GT-SC1.

Introductory course in physical geology that covers surface processes and landforms and includes one all-day field trip. Note: Required for geology majors.

GEOL 1082-4. Physical Geology: Internal Processes: GT-SC1.

Introductory course in physical geology that covers internal processes and properties of the earth's interior, with plate tectonics as the underlying theme. Includes one all-day field trip. Note: Required for geology majors.

GEOL 1111-1 to 3. Freshman Seminar.

GEOL 1115-1 to 3. Earth Sciences Content. Covers content areas of undergraduate earth sciences. Topics include physical geology; historical geology; oceanography; meteorology; and astronomy.

GEOL 1202-3. Introduction to Oceanography. Surveys modern scientific knowledge of the world's oceans. Intended for nonscience students, the course offers a nonquantitative introduction to the major facts and principles of physical, chemical, biological and geological oceanography. The impact of natural and anthropic events on the marine environment are included.

GEOL 1302-3. Introduction to Astrogeology. Surveys the geology of the planets and their environments in space, including the origin and destiny of the universe. Intended for non-majors, the course provides an introduction to the geological origin, evolution, structure and geomorphology of the planets.

GEOL 1400-3. Geology of the National Parks. Combines lecture and laboratory exercises to help students interpret Earth history using the national parks as examples. Students learn to identify the common rocks and minerals and how to interpret topographic and geologic maps.

GEOL 1402-3. Introduction to the Ice Ages. Surveys the natural history of earth's ice ages, the processes that led to paleoclimatic change, environmental changes and the effects on the geological earth. Included are topics in ocean-atmosphere influences, glaciers, glacial geology, influences on world flora and fauna, extinction of pleistocene mammal populations and the emergence of hominids.

GEOL 1840-1 to 3. Independent Study.

GEOL 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

GEOL 3011-4. Mineralogy. Principles of mineralogy, including crystallography, crystal chemistry and a systematic study of the more important nonsilicate and silicate minerals. Origins and occurrences of minerals. Prereq: Physical geology and college-level chemistry.

GEOL 3032-3. Geology of Colorado. Introductory course focused on the geology of Colorado. The course is divided into two parts: the first half covers general principles of geology and the second is devoted to the observation of rock types, structures and geologic relationships in the field. Discussion of plate tectonics, rock formation, construction and interpretation of geologic maps, the geologic time scale, geologic provinces of Colorado, evolution of major landforms, formation and development of mineral resources of Colorado and current topics in environmental geology.

GEOL 3100-3. Current Perspectives on the Evolution of Consciousness and Culture. Studies of evolution traditionally regard morphology (anatomy)/behavior and mind/consciousness as separate fields that belong either in biology/paleontology or in psychology/philosophy. The "middle ground" behavior, anthropology, social systems, is also treated separately in most cases. Recent approaches tend toward a more holistic view using unifying principles and "laws of nature" that show similar processes (dissipative effects, information theory, development theory) operating across all fields. Examines the relationships and common threads between the physical anatomical evolution of organisms and their behavior perception and consciousness. Prereq: Introductory course in evolution (biology/paleontology), psychology, philosophy, anthropology or permission of instructor. Cross-listed with PHIL 3100 and RLST 4280.

GEOL 3102-3. Dinosaurs Past and Present. A broad-based, nontechnical new look at the world's most popular prehistoric animals. Stresses the rapid and perennial growth of knowledge about dinosaurs and the relevance of such knowledge in the 20th century. Prereq: Introductory geology and/or biology are recommended.

GEOL 3231-4. Introductory Petrology. Introduces classification, distribution and origin of igneous, metamorphic and sedimentary rocks, including their identification in hand-held specimens. Prereq: Physical geology and mineralogy.

GEOL 3411-4. Introductory Paleontology. Studies invertebrate fossils, including a survey of the organic world and its history in the geological past. Includes an introduction to evolution and paleoecology and discussion of the uses of fossils in geologic correlations. Prereq: Introductory geology-surface processes, or an introductory biology class.

GEOL 3415-3. Museum Studies in Paleontology. A practical laboratory-based course covering aspects of museum studies related to paleontological collections. Students learn how to stabilize and prepare bones removed from fossil quarries; learn molding and casting techniques for bones and fossils; assist with the cataloging and curation of the collection; and participate in designing museum displays. Prereq: At least one science class. Cross-listed with ELED 5480, SECE 5480.

GEOL 3418-1. Field Paleontology. Introduces methods of paleontological field techniques, including care and maintenance of a late Jurassic dinosaur quarry, field conservation techniques, quarry map-making and surveying, paleontological sampling and fossil extraction. Students also contribute to research and fossil collections at CU-Denver. Prereq: at least one science class.

GEOL 3421-4. Sedimentation and Stratigraphy. Introduces the principles of sedimentology and stratigraphy. Emphasis is on dynamic processes within sedimentary environments and the resulting stratigraphic record. Prereq: GEOL 1082 or equivalent.

GEOL 3840-1 to 3. Independent Study.

GEOL 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: junior standing and 2.75 GPA.

GEOL 4000-3. Biogeochemical Cycles. Topics include an introduction to ecosystem structures and functions of the biosphere, with a focus on the hydrologic cycle and the global cycles of sulfur, nitrogen and carbon. The global carbon cycle is reviewed as it relates especially to global warming. Prereq: GEOG 1202 or 3232 or permission of instructor. Cross-listed with ENV5 5000, GEOG 4010.

GEOL 4020-3. Earth Environments and Human Impacts. Basic concepts describing earth's biomes and physical environment are presented in a systems context. Global warming assessment, from both political and scientific perspectives, is then presented. Model visualization of these concepts to consider human impacts on Earth's biomes is discussed. Earth system viewpoint, having links of Earth's biomes to oceans and atmosphere, completes the course discussion. Cross-listed with ENV5 5020, GEOG 4020.

GEOL 4030-3. Environmental Geology. Applies geological information to interactions between people and the physical environment. Increasing awareness of its importance in our society means that this is an expanding field as companies are required to address the environmental consequences of their actions. Prereq: entry into MSES program, senior standing in sciences or geography, or permission of instructor. Cross-listed with GEOL 5030.

GEOL 4060-3. Remote Sensing I: Introduction to Environmental Remote Sensing. An in-depth treatment of the use of aerial photographs and other forms of imagery for the analysis of urban-industrial patterns, vegetation, agriculture, landforms and geologic structure. Cross-listed with GEOL 5060, GEOG 4060, 5060.

GEOL 4111-5. Field Geology. Introduces methods of geologic mapping in sedimentary, igneous and metamorphic rocks. Includes plane table surveying, Brunton and pace methods and the use of aerial photographs. Prereq: GEOL 3011; GEOL 3231 and 3421 strongly recommended.

GEOL 4270-3. Glacial Geomorphology. Provides an in-depth view of the processes and systems found in glacial environments. Topics include: evidence of past glaciation; present-day glacial extent; glacier dynamics; glacial erosional processes and landforms; glacial depositional processes and landforms. Prereq: GEOG 1202 or permission of instructor. Cross-listed with GEOG 4270.

GEOL 4402-3. Unsaturated Zone Hydrology. Focuses on water and contaminant transport through the unsaturated zone, infiltration and drainage and heat and gas transport. Students learn to design, perform field installation and collect data in order to model and predict contaminant movement on/off site. Prereq: Chemistry, physics, calculus or permission of instructor. Cross-listed with ENV5 5403.

GEOL 4460-3. Vertebrate Paleontology and Evolution. Surveys the evolutionary history of the backboned animals from primitive fish through dinosaurs to man. Includes paleoecology, functional morphology and uses of vertebrate fossils in geologic correlations. Prereq: introductory geology, biology or anthropology.

GEOL 4513-3. Geology of the Grand Canyon. Raft down the Grand Canyon and examine the geology of igneous, sedimentary and metamorphic rocks from the Precambrian to the Holocene. Study

marine and terrestrial fossils, migmatization and observe modern sedimentary processes. Prereq: introduction to geology.

GEOL 4630-3. Principles of Geomorphology. Systematic study of rock structures, weathering, mass wasting, fluvial, wind, glacial, shoreline processes and the landforms they produce. Prereq: introductory college-level geology or physical geography. Cross-listed with GEOG 4240.

GEOL 4770-3. Applied Statistics for the Natural Sciences. Surveys statistical techniques including: quick review of basic statistics, tests for normality and outliers, display of data; simple and multiple regression; ANOVA and its relation to regression. Emphasis on computer or stat-pak analysis and interpretation of statistical results. Prereq: college algebra and geometry. Cross-listed with GEOL 5770, GEOG 4770, ENVS 5600.

GEOL 4780-4. Engineering Geology. Studies geology as utilized in engineering and environmental practice. Emphasizes a conceptual integration of geologic materials, processes and rates of change as a basis for successful application of geologic knowledge to environmental planning and engineering design projects. Cross-listed with GEOL 5780 and C E 4780.

GEOL 4840-1 to 3. Independent Study.

GEOL 5001-4. RM-MSMSP: Earth Processes I. Systematic study of geological concepts, rock and mineral formation, plate tectonics, volcanism and earthquakes, landforms and weathering, historical environmental interpretation. Includes a field component. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: permission of project director.

GEOL 5002-4. RM-MSMSP: Earth Sciences II - Sedimentology and Paleontology. Field and lecture course building on Earth Sciences I, which covers internal earth processes. Students learn about erosional processes and how sedimentary rocks are deposited and may be preserved; the different ways fossils are preserved; describing rocks in the field; and collecting, preparing and describing fossils. Provides an overview of the geology of the area so that students can place the detailed studies in context. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: GEOL 5001 (or equivalent) or permission of project director.

GEOL 5030. Environmental Geology. Applies geological information to interactions between people and the physical environment. Increasing awareness of its importance in our society means that this is an expanding field as companies are required to address the environmental consequences of their actions. Prereq: entry into MSES program, senior standing in geography, or permission of instructor. Cross-listed with GEOL 4030.

GEOL 5060-3. Remote Sensing I: Introduction to Environmental Remote Sensing. An in-depth treatment of the use of aerial photographs and other forms of imagery for the analysis of urban-industrial patterns, vegetation, agriculture, landforms and geologic structure. Cross-listed with GEOL 4060, GEOG 4060, 5060.

GEOL 5770-3. Applied Statistics for the Natural Sciences. Surveys statistical techniques including: quick review of basic statistics, tests for normality and outliers, display of data; simple and multiple regression; ANOVA and its relation to regression. Emphasis on computer or stat-pak analysis and interpretation of statistical results. Prereq: college algebra and geometry. Cross-listed with GEOL 4770, GEOG 4770, ENVS 5600.

GEOL 5780-4. Engineering Geology. Studies geology as utilized in engineering and environmental practice. Emphasizes a conceptual integration of geologic materials, processes and rates of change as a basis for successful application of geologic knowledge to environmental planning and engineering design projects. Cross-listed with GEOL 4780 and C E 5780.

GEOL 5939-1 to 6. Internship/Cooperative Education.

GEOL 5950-1 to 8. Master's Thesis.

GEOL 6840-1 to 3. Independent Study.

GEOL 6950-1 to 8. Master's Thesis.

GEOL 6960-1 to 8. Master's Project.

GER: German (Liberal Arts and Sciences)

GER 1000-3. Germany and the Germans: GT-AH1. Introduces the ways in which the various aspects of German culture help define German life and national identity. By examining art, music and media, primarily of the 20th century, students explore what it means to be German. Note: Taught in English.

GER 1010-5. Beginning German I. Introduces basic grammar, sentence structure and speech patterns.

GER 1020-5. Beginning German II. (Continuation of GER 1010.)

Prereq: GER 1010 or one year of high school German.

GER 1111-1 to 3. Freshman Seminar.

GER 2110-3. Intermediate German I. (Continuation of German 1020.) Prereq: GER 1020 or two years of high school German.

GER 2130-3. Intermediate German II. A fourth-semester course designed for those majoring or minoring in International Affairs. Along with grammar review, the course deals with contemporary topics in cultural, political, economic and social affairs. Note: Open to all those wanting to satisfy a fourth semester language requirement to qualify for upper division German courses. Satisfies the language requirement for the minor in International Affairs, may be applied to the major and minor in German and will satisfy the fourth-semester foreign requirement at most graduate schools. Prereq: GER 2110 or placement by exam.

GER 2150-3. Intermediate German II: Grammar Review and Oral Practice. Prepares students for upper division. German language skills courses. Students practice abilities gained in previous semesters of language instruction, improve conversational abilities, develop skills using reference works, learn tactics for reading and discussing newspaper style German and develop written composition abilities. Note: The primary language of instruction is German. Prereq: GER 2110 or equivalent.

GER 2210-3. Readings and Translation. Stresses reading and translation skills rather than speaking. Students work with short German texts in a variety of areas: natural and social sciences, history and literature. Note: Lecture in English. Prereq: GER 1020.

GER 2240-3. Intermediate Composition and Vocabulary Building.

A fourth-semester composition and vocabulary building course. Note: Taught in English. Prereq: GER 2110 or 2210.

GER 2840-1 to 3. Independent Study.

GER 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours with 2.75 GPA.

GER 2995-1 to 15. Travel Study Topics. For students doing travel study in Germany; register through the Office of International Education.

GER 3030-3. Advanced Conversation: Idioms and Vocabulary Building. An advanced conversation course, using small-group discussion, skits and short oral presentations to improve fluency in spoken German and to build vocabulary. Prereq: GER 2130 or fourth semester equivalency.

GER 3050-3. Phonetics and Pronunciation of German. Students acquire skills for articulating German with a high degree of accuracy and systematically develop a more native-like pronunciation of German. Students learn basic linguistic principles for the purpose of gaining insight into the mechanics of spoken German. Note: Taught in German. Prereq: GER 2130.

GER 3060-3. Advanced German Language Skills I. An advanced course in German language skills with equal emphasis devoted to speaking, listening, reading and writing. Students improve their cultural awareness, pronunciation and vocabulary as well. Specific grammar topics include: subjunctive I and II, participles I and II, extended adjectives, verb tenses, gender of nouns and reflexive. Note: Primary language of instruction for this course is German. Prereq: GER 2130 or permission of instructor.

GER 3070-3. Advanced German Language Skills II. An advanced course in German language skills with equal emphasis devoted to speaking, listening, reading and writing. Students improve their cultural awareness, pronunciation and vocabulary. Specific grammar topics

include: semantic categories, functions of nouns, determiners, adjectives, relative clauses, pronouns. Note: Primary language of instruction for this course is German. Prereq: GER 2130 or permission of instructor.

GER 3080-3. Advanced German Language Skills III. An advanced course in German language skills with equal emphasis devoted to speaking, listening, reading and writing. Students improve their cultural awareness, pronunciation and vocabulary as well. Specific grammar topics include: prepositions and idioms, “da” compounds, German syntax, clause typology numerals and time expressions. Note: Primary language of instruction for this course is German. Prereq: GER 2130 or permission of instructor.

GER 3090-3. Advanced German Language Skills IV. An advanced course in German language skills with equal emphasis devoted to speaking, listening, reading and writing. Students improve their cultural awareness, pronunciation and vocabulary. Specific grammar topics include: modal verbs, complex clause and sentence structure, “werden,” passive voice, double infinitives, perfect infinitives and dependent infinitives. Note: Primary language of instruction for this course is German. Prereq: GER 2130 or permission of instructor.

GER 3110-3. Introduction to German Literature I. Selected readings from German short stories, drama and poetry, primarily from the modern period. Emphasis on techniques of reading. Note: Primary language of instruction for this course is German. Prereq: GER 2110.

GER 3130-3. Current Topics of the German-Speaking World. Combines discussion and writing on political, economic and social conditions in contemporary Germany, Austria and Switzerland. Articles from current German newspapers, magazines, television broadcasts and the World Wide Web are analyzed for a better understanding of how citizens of these countries see themselves and the world. Prereq: any third-year German course.

GER 3230-3. German Civilization I: From Medieval Through Age of Idealism. Selected highlights of major cultural aspects of the Middle Ages, the Reformation, the Enlightenment and the Age of Idealism.

GER 3240-3. German Civilization II: The Modern Age. Selected highlights of major cultural aspects of the later 19th century, the Wilhelminian period, the Weimar Republic, the Third Reich and the period since 1945.

GER 3310-3. Techniques of Translation. Trains students in strategic translation skills that aid in rapid comprehension of short German texts and the ability to render them into well written contemporary English. Students choose content areas of individual interest (e.g. history, literature, chemistry). Prereq: GER 2130 or permission of instructor.

GER 3512-3. Faust in Literature and Music. Surveys the Faust legend in literature and music. Includes works by Marlowe, Goethe, Berlioz, Schumann, Gounod, Boito and others.

GER 3540-3. German Cinema and Society. Studies several key German films from 1918 to the present that illuminate the political/cultural discourses of their times. Readings from historical and film-critical texts aid in contextualizing the films. Note: Taught in English.

GER 3840-1 to 3. Independent Study.

GER 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: junior standing and 2.75 GPA.

GER 3995-1 to 15. Travel Study Topics. For students doing travel study in Germany; register through the Office of International Education.

GER 4050-3. Advanced German Phonetics and Language History. Students develop advanced phonetic skills for analyzing the sounds and orthography of German. They apply these skills by examining the diachronic (historic) developments in the grammatical and phonological structures of German over the last two millennia. Note: Taught in German. Prereq: GER 3050 or equivalent.

GER 4840-1 to 3. Independent Study.

GER 4995-1 to 15. Travel Study Topics. For students doing travel study in Germany; register through the Office of International Education.

GER 5995-1 to 15. Travel Study Topics. For students doing travel study in Germany; register through the Office of International Education.

HBSC: Health and Behavioral Sciences (Liberal Arts and Sciences)

HBSC 1111-3. Freshman Seminar.

HBSC 2001-3. Introduction to Community and Population Health Science: GT-SS3. Introduces undergraduate students to the mission, history, knowledge-base, values, concepts and tools of community and population health science, a field that broadly encompasses health and the socio-behavioral sciences and forms the core of public health. Provides an overview of the principal principal strategies and methods of public health.

HBSC 3010-3. Evolution of Human Sexuality. Surveys the biological and social evolution of human sexuality from an interdisciplinary perspective. Encourages critical thinking about human sexual behavior and challenge assumptions about sexuality. Students explore what happens when sexual behaviors that have evolved over the millennia mix with the cultural, political and economic influences imposed by contemporary civilization. Prereq: introductory courses in anthropology, biology, psychology, sociology or political science.

HBSC 3021-3. Fundamentals of Health Promotion. Provides an overview of the field of health promotion, including an introduction to key theories and methods, as well as exposure to the breadth of programs and diversity of settings through several case studies. Includes attention to health behaviors as contributors to current public health problems and community-based approaches to health promotion in addressing them.

HBSC 3031-3. Health, Human Biology and Behavior. Introduces the study of human health and well-being, and the allied disciplines of epidemiology and demography. The course considers the nature of disease, health problems related to nutrition and the physical environment and morbidity and mortality from an integrated “biobehavioral” perspective.

HBSC 3041-3. Health, Culture and Society. A critical, holistic interpretation of health, illness and human bodies that emphasizes power as a key social-structural factor in health and societal responses to illness. Explores those areas of social and cultural life where power differences are most evident in their impact on health.

HBSC 3200-3. Human Migration: Nomads, Sojourners and Settlers. Explores the relationship between human migration, voluntary and forced and social organization and culture in the modern world. Case studies include pastoralists, foragers, refugees, immigrants, sojourners and settlers and their impact on health, culture, identity, ethnicity, tradition and nationality. Cross-listed with ANTH 3200.

HBSC 3939-1 to 3. Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: junior standing and 2.75 GPA.

HBSC 4001-3. Introduction to Epidemiology. Introduces the basic concepts of public health and epidemiology, including assessment of disease in the community, the study of causation and association of disease with lifestyle and environmental risk factors, as well as related special topics. Prereq: upper division standing and course in basic statistical methods. Cross-listed with HBSC 5001.

HBSC 4010-3. Global Health Studies I: The Biocultural Basis of Health. This course is concerned with the underlying biological and cultural determinants of health throughout the human life cycle in global and cross-cultural perspective. Note: The first of a two-course sequence in medical anthropology and global health studies; the second is HBSC 4020. Prereq: upper division and/or graduate standing. Cross-listed with HBSC 5010, ANTH 4010 and 5014.

HBSC 4020-3. Global Health Studies II: Comparative Health Systems. The course has three parts: (1) examines the social and cultural construction of sickness, systems of etiology cross culturally, the therapeutic encounter, varying roles of healer and patient and the cultural basis of all healing systems; (2) considers health systems in the context of global health reform and the history, organization and roles of institutions of global health governance; and (3) considers the inter-relationship of health, foreign policy and global security. Prereq: Upper division and/or graduate standing. Cross-listed with HBSC 5020, ANTH 4020 and 5024.

HBSC 4021-3. Community Health Assessment. Introduces applied methods of public health, including: analyzing community-level assessment data, developing a causal model for selected health outcomes, maximizing community participation in the assessment process, developing assessments as a team and setting the stage for effective intervention and evaluation. Prereq: upper division standing, a course in statistics and an introductory course in epidemiology (HBSC 4001, 5001). Cross-listed with HBSC 5021.

HBSC 4031-3. Ethnographic Research in Public Health. Qualitative, ethnographic tools for practical applications in public health, including methods of direct observation, informant interviews, focus groups, structured ethnographic methods, rapid assessment and participatory action research. Basic analytic strategies, including review of computer software, coding and data display techniques. Cross-listed with HBSC 5031.

HBSC 4060-3. Evolutionary Medicine. Applies evolutionary principles to an understanding of human health and illness. The view complements perspectives on health and disease emanating from biological and social sciences, but considers the health or disease process from the perspective of pathogen and host, current and previous environments, and various phases of the life cycle. Prereq: ANTH 1303. Cross-listed with HBSC 5060, ANTH 4060 and 5060.

HBSC 4080-3. Global Health Practice. A travel-study course that provides students the opportunity to work on global health issues in the context of a supervised internship experience. In addition to a formal internship placement or directed research opportunity, students attend formal lectures and participate in seminars devoted to addressing those health issues most relevant to the country in which the course is being taught. Prereq: HBSC/ANTH 4010/5014, HBSC/ANTH 4020/5024, HLTH 6070 or equivalent. Cross-listed with HBSC 5080, ANTH 4080 and 5080.

HBSC 4090-3. Political Economy of Drug Culture. An anthropological study of how illegal drug use impacts the social, political, economic and medical sectors of any community. Examines the interplay between these sectors and drug users through the lens of political economy. Prereq: ANTH 2102. Cross-listed with HBSC 5090.

HBSC 4200-3. The Global HIV/AIDS Epidemic. Provides a foundation for a critical analysis of HIV/AIDS in global context, concerning topics such as disease, the body, ethnicity/race, gender, sexuality, risk, addiction, power and culture together with a set of ethnographic texts that explore the epidemic's impact. Cross-listed with HBSC 5200.

HBSC 4620-3. Health Risk Communication. Acquaints students with contemporary theory, research and practice in health risk communication. Cross-listed with HBSC 5620, CMMU 4620, 5620 and ENVS 5620.

HBSC 5001-3. Introduction to Epidemiology. Introduces the basic concepts of public health and epidemiology, including assessment of disease in the community, the study of causation and association of disease with lifestyle and environmental risk factors, as well as related special topics. Prereq: upper division standing and course in basic statistical methods. Cross-listed with HBSC 4001.

HBSC 5010-3. Global Health Studies I: The Biocultural Basis of Health. This course is concerned with the underlying biological and cultural determinants of health throughout the human life cycle in global and cross-cultural perspective. Note: The first of a two-course sequence in medical anthropology and global health studies; the second is HBSC 5020. Prereq: Upper division and/or graduate standing. Cross-listed with HBSC 4010, ANTH 4010 and 5014.

HBSC 5020-3. Global Health Studies II: Comparative Health Systems. The course has three parts: (1) examines the social and cultural construction of sickness, systems of etiology cross culturally, the therapeutic encounter, varying roles of healer and patient and the cultural basis of all healing systems; (2) considers health systems in the context of global health reform and the history, organization and roles of institutions of global health governance; and (3) considers the inter-relationship of health, foreign policy and global security. Prereq: Upper division and/or graduate standing. Cross-listed with HBSC 4020, ANTH 4020 and 5024.

Check for updates at <http://courses.cudenver.edu>.

HBSC 5021-3. Community Health Assessment. Introduces applied methods of public health, including: analyzing community-level assessment data, developing a causal model for selected health outcomes, maximizing community participation in the assessment process, developing assessments as a team, and setting the stage for effective intervention and evaluation. Prereq: upper division standing, a course in statistics and an introductory course in epidemiology (HBSC 5001, 4001). Cross-listed with HBSC 4021.

HBSC 5031-3. Ethnographic Research in Public Health. Qualitative, ethnographic tools for practical applications in public health, including methods of direct observation, informant interviews, focus groups, structured ethnographic methods, rapid assessment and participatory action research. Basic analytic strategies, including review of computer software, coding and data display techniques. Cross-listed with HBSC 4031.

HBSC 5060-3. Evolutionary Medicine. Applies evolutionary principles to an understanding of human health and illness. The view complements perspectives on health and disease emanating from biological and social sciences, but considers the health or disease process from the perspective of pathogen and host, current and previous environments, and various phases of the life cycle. Prereq: ANTH 1303. Cross-listed with HBSC 4060, ANTH 4060 and 5060.

HBSC 5080-3. Global Health Practice. A travel-study course that provides students the opportunity to work on global health issues in the context of a supervised internship experience. In addition to a formal internship placement or directed research opportunity, students attend formal lectures and participate in seminars devoted to addressing those health issues most relevant to the country in which the course is being taught. Prereq: HBSC/ANTH 5014/4010, HBSC/ANTH 5024/4020, HLTH 6070 or equivalent. Cross-listed with HBSC 4080, HBSC 5080 and 4080.

HBSC 5090-3. Political Economy of Drug Culture. An anthropological study of how illegal drug use impacts the social, political, economic and medical sectors of any community. Examines the interplay between these sectors and drug users through the lens of political economy. Prereq: ANTH 2102. Cross-listed with HBSC 4090.

HBSC 5200-3. The Global HIV/AIDS Epidemic. Provides a foundation for a critical analysis of HIV/AIDS in global context, concerning topics such as disease, the body, ethnicity/race, gender, sexuality, risk, addiction, power and culture together with a set of ethnographic texts that explore the epidemic's impact. Cross-listed with HBSC 4200.

HBSC 5620-3. Health Risk Communication. Acquaints students with contemporary theory, research and practice in health risk communication. Cross-listed with HBSC 4620, CMMU 5620, 4620 and ENVS 5620.

HBSC 5939-1 to 6. Cooperative Education.

HBSC 6320-3. Human Genetics: Legal, Ethical and Social Issues. Examines legal, ethical and social issues that have come about with advances in human genetics. Topics include privacy, informed consent, discrimination, forensics, medical malpractice and property rights. Prereq: Graduate standing. Cross-listed with HBSC 7320, ANTH 6041.

HBSC 6840-1 to 3. Independent Study.

HBSC 7001-1. Colloquium Series in the Health and Behavioral Sciences. Bi-weekly lectures given by Health and Behavioral Sciences faculty, advanced graduate students and alums, on selected and current topics in the health and behavioral sciences. Required of all first and second year students in HBSC; may be taken up to three times for credit.

HBSC 7011-3. Theoretical Perspectives in Health and Behavioral Science I. Covers the following subject areas: philosophy and epistemology of the social and behavioral sciences as they are applied in public health and health care contexts; historical perspectives of Western biomedicine and public health; cross-cultural perspectives on health systems; class, ethnic and gender correlates of health and sickness; critical perspectives on Western health and health care models; and the structure and organization of health care systems. Note: Part I of a required, two-semester, interdisciplinary, team-taught, seminar-format course that meets three hours a week for the academic year. Prereq: admission to the Health and Behavioral Sciences program.

HBSC 7021-3. Theoretical Perspectives in Health and Behavioral Science II. Reviews multiple approaches and strategies for understanding and changing the health of systems, organizations, communities and individuals. Course is intended to give students content knowledge and practical skills for assessing, planning and implementing change processes. Note: Part II of two-semester seminar course that meets three hours a week for the academic year. Prereq: HBSC 7011 and admission to the Health and Behavioral Sciences program.

HBSC 7031-3. Human Ecology and Environmental Adaptation. Focuses on the interplay of biology, environment, culture and behavior in the causes and exacerbation of disease. The course includes the following topics: health in environmental and evolutionary contexts; models of causation in biomedicine and other medical systems; individual, community and population manifestations of health and disease; and biocultural interaction in disease process. Specific case studies drawn from contemporary health problems are used to illustrate in detail the nature of these processes. Prereq: admission to the Health and Behavioral Sciences program.

HBSC 7041-3. Research Design and Methods in the Health and Behavioral Sciences I. This course has four principal aims: (1) to provide students a working knowledge of research methodology as applied to field research efforts; (2) to enable students to apply research methodologies to areas of particular interest in the health and behavioral sciences; (3) to expose students to data manipulation techniques common to social science quantitative research; and (4) to teach basic research proposal development techniques. Prereq: admission to the Health and Behavioral Sciences program.

HBSC 7051-3. Qualitative Research Design and Methods. Much of the data collected in the social sciences is interview- and text-based. This course explores methods for collecting and analyzing these data and theoretical paradigms that underlie these methods. Cross-listed with ANTH 6063.

HBSC 7071-3. Social and Behavioral Determinants of Health and Disease. Surveys the distribution, determinants and psychological and behavioral aspects of health and disease. Social, economic, environmental and cultural variations in and determinants of health, disease and quality of life, as well as barriers to access and utilization, geopolitical influences, environmental and social injustice, historical trends and future directions are addressed. Prereq: HBSC 5001 or equivalent.

HBSC 7111-3. Applications of the Health and Behavioral Sciences. Students focus on eight or nine specific health problems, applying multiple social and behavioral science perspectives in pursuit of a truly interdisciplinary understanding of the most significant dimensions of each problem. Guest experts provide “grand rounds” type presentations on each selected topic. Prereq: HBSC 7041.

HBSC 7121-6-8. Dissertation Proposal and Research.

HBSC 7210-3. Human Health and Environmental Pollution. Examines the roles of technology and society in the etiology and control/prevention of adverse health outcomes associated with releases of toxic substances. Examples come from experience and the literature on occupational cancer and reproductive hazards, occupational and environmental regulation of hazardous wastes, air and water pollution. Cross-listed with ENVS 6210.

HBSC 7235-3. GIS Applications in the Health Sciences. Examines how GIS is used throughout the health care industry and public health. Covers environmental health, disease surveillance and health services research. Students critically review current literature and gain hands-on experience with GIS software. Cross-listed with GEOG 4235, 5235.

HBSC 7310-3. Environmental Epidemiology. Provides a basic understanding of the methods used to study the effects on human health of exposures to physical, chemical, or biological factors in the external environment. The course explains the use of epidemiologic methods through a problem solving approach to investigating environmental health case studies. Prereq: A basic statistics course and graduate standing or permission of instructor. Cross-listed with ENVS 6230.

HBSC 7320-3. Human Genetics: Legal, Ethical and Social Issues. Examines legal, ethical and social issues that have come about with advances in human genetics. Topics include privacy, informed consent, discrimination, forensics, medical malpractice and property rights. Prereq: Graduate standing. Cross-listed with HBSC 6320, ANTH 6041.

HBSC 7340-3. Risk Assessment. The process of determining the likelihood and extent of harm that may result from an activity or event. Topics covered are: hazard identification, dose-response evaluation, exposure assessment and risk characterization. The subjects of risk management, risk perception and risk communication are also discussed. Prereq: graduate standing or permission of instructor. Cross-listed with CE 5494, ENVS 6200.

HBSC 7360-3. Toxicology. Introduces the field of toxicology. Emphasizes the mechanisms by which chemicals produce toxic effects and the methods for assessing toxicity. Note: Designed for students in the environmental sciences and occupational health fields. Prereq: one year college chemistry and one year college biology. Cross-listed with ENVS 6220.

HBSC 7400-1 to 3. Topics in the Health and Behavioral Sciences. A flexible seminar format for dealing with topics of special interest in the health and behavioral sciences. Topics to be considered vary from semester to semester. Prereq: graduate standing.

HBSC 7420-3. Violence Prevention: A Systems Perspective. Explores violence with an emphasis on violence prevention in family, mental and public health, school and criminal justice systems. Emphasizes interactions among different types of violence and interventions that prevent violent behavior. Prereq: graduate student standing or permission of instructor.

HBSC 8990-1 to 10. Doctoral Dissertation. Prereq: admission to the Health and Behavioral Sciences program.

Health Administration: HLTH (Business)

Health and Behavioral Sciences: HBSC (Liberal Arts and Sciences)

HIST: History (Liberal Arts and Sciences)

HIST 1016-3. World History to 1500: GT-HI1. Surveys the rise of civilizations and their interactions from prehistoric to modern times. The emphasis is on the understanding of the various styles or characteristics of civilizations within a global context.

HIST 1026-3. World History Since 1500: GT-HI1. Surveys the interactions of the world's civilizations in modern times. The emphasis is on understanding the concept of modernization within a global context.

HIST 1111-1 to 3. Freshman Seminar.

HIST 1211-3. Western Civilization I. Introduces ancient Mediterranean civilization and the birth of Europe. Covers topics on economics and society, political organization, intellectual history and art from 3000 B.C. to A.D. 1500.

HIST 1212-3. Western Civilization II. Introduces modern European civilization and its spread over the world. Covers topics on economics and society, political organization, intellectual history and art from A.D. 1500 to the 20th century.

HIST 1361-3. U.S. History to 1876: GT-HI1. Provides an introduction to the major forces, events and individuals that shaped the historical development of American society, beginning with the European settlement of America and concluding with the Civil War, reconstruction and the early growth of an industrial order.

HIST 1362-3. U.S. History Since 1876: GT-HI1. Provides an introduction to the major forces, events and individuals that shaped the historical development of American society from the Civil War to the present.

HIST 1381-3. Paths to the Present I: GT-HI1. Examines several topics of profound interest to historian's world wide: nature and technology, secular and religious faiths and concepts of political union.

The experience of the U.S. as it relates to the experiences of other periods and cultures.

HIST 1382-3. Getting Here: Paths to the Present II: GT-HI1. How do historians work? An evaluation of several significant topics in the history of Europe, the U.S. and the non-Western world.

HIST 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

HIST 3031-3. Theory and Practice of History: An Introduction to the Major. Introduces history majors to the discipline at the outset of their course work. Covers historiographical trends and methodologies and familiarizes students with the various types of research and writing they are likely to encounter in their classes. Note: This course should be taken as early as possible and must be taken before HIST 4839.

HIST 3121-3. The World at War, 1914-1945. Examines World Wars I and II as episodes in a protracted conflict among the nations of the capitalist West, the emerging states of Asia and the colonial world and the USSR. Studies the causes and consequences of the wars.

HIST 3230-3. The American Presidency. Explores the presidency in U.S. History. Topics include; ideological and constitutional foundations; expansion of presidential power in domestic politics and international relations; evolution of presidential campaigns; and dimensions of presidential leadership in politics, society and culture.

HIST 3231-3. Famous U.S. Trials. History of the origins and development of the American constitution, with the famous trials and landmark Supreme Court decisions.

HIST 3232-3. The American Colonies to 1750. The maturation of the American colonies within the British Empire, the development of commercial and intellectual centers, the creation of uniquely American politics and the unfolding of critical differences between North and South.

HIST 3235-3. U.S. Labor History, 1800 to the Present. Explores the experiences, contributions and struggles of working-class Americans from the Civil War to the present. Areas of focus include pre-industrial and post-industrial labor, slavery, agricultural labor, gender and working class culture outside of the work place. Particular attention is paid to immigration, ethnicity, race and gender, as they relate to the history of America's laboring class. Prereq: upper division standing.

HIST 3343-3. Women in U.S. History. An analysis of women's place in society, in the work place and in the political arena over the last 300 years.

HIST 3345-3. Immigration and Ethnicity in American History. Explores the personal and collective experience of immigrants to America. Discusses problems of assimilation, urban and rural experiences and implications for politics, the economy and social attitudes.

HIST 3346-3. The Irish in America. Explores the experiences of Irish immigrants and their descendants in North America. Traces the political, social and cultural influences of the Irish, beginning with the 18th century Scots-Irish immigrants moving to famine refugees and ending with an exploration of a distinctive Irish-American culture that exists today.

HIST 3347-3. African-American History, 1619-Present. Explores the African-American experience, including definitions of citizenship, strategies for protest and resistance, models of leadership, religious life and cultural expression, divisions of class, color and gender.

HIST 3348-3. The African-American Protest Tradition, 1865-Present. Examines a series of influential African-American activists and considers such themes as intra-racial divisions, Pan-Africanism, black nationalism, the use of the courts and legal efforts and black conservatism.

HIST 3350-3. Colonial Latin America. Surveys the creation of colonial empires by Spain and Portugal, 1492-1808. Topics include Native American responses to European incursions, women in colonial society and slavery in Latin America. Cross-listed with ETST 3350.

HIST 3360-3. Denver History. Introduces the social, political, economic and cultural life of this mile high metropolis. Founded in the 1858 gold rush, Denver has grown into a five-county metropolis of over two million. Explore this boom and bust history in lectures, slide shows and walking tours. This course offers students a chance to do their own primary source research project, as well as exams and book reports. Note: Open to all students.

HIST 3364-3. Native Americans and Spaniards in North America.

Examines the interactions between Native Americans and Spanish invaders beginning in the 16th century. The course explores the impact of colonialism in what is today the American Southwest. Focuses on Native American adaptation and resistance to the European presence.

HIST 3365-3. Aztlan in the United States: Chicano History from 1821. Explores the impact of U.S. rule on the Southwest, paying particular attention to legal, economic and social changes that created new political and cultural identities in the Southwest. Cross-listed with ETST 3365.

HIST 3366-3. Environmental History of North America. Examines the conversation that the peoples of North America have had with the earth, from Indian prehistory to modern industrial civilization. Out of the people-land dialogue has emerged a variety of cultures, some of which, as we shall see, successfully adapted to their environment, while others failed. Prereq: HIST 1361, 1362, 1381 or 1382.

HIST 3396-3. History of the American Indian. Indigenous nations in North America comprise hundreds of diverse cultures. This course examines U.S. Indian policy and how indigenous nations responded; how they creatively adapted and resisted cultural change; and how they continue to persist culturally, socially and politically. Cross-listed with ETST 3396.

HIST 3451-3. Introduction to African History. By looking at specific examples of the cultural, political and economic experience of African society, this course attempts to introduce and make comprehensive the diverse history of the people of Africa.

HIST 3460-3. Introduction to Latin American History. Surveys the historical development of the modern Latin American countries, beginning with the independence movements of the early 19th century. Emphasizes the 20th century issues and problems that have characterized these countries and affected their relations with the United States.

HIST 3470-3. Introduction to Asian History. Introduces the origin and development of civilization in India, China and Japan. Explores the relationship between culture and civilization. Readings are drawn from an interdisciplinary syllabus in literature, religion, philosophy, anthropology and history.

HIST 3480-3. Introduction to European History. Students are introduced to the major themes of European history and culture, from the Enlightenment to the present.

HIST 3481-3. Greece and the Hellenistic World. A history of the Greek-speaking world, from the Bronze Age depicted in Homer's epics to Rome's conquest of the eastern Mediterranean (c.2000-27 BC). The political, intellectual, socioeconomic and military history of the eastern Mediterranean, with an emphasis on Greece.

HIST 3482-3. Rome: City and Empire. Pagan Rome from its earliest beginnings to the rise of Christianity. Emphasis is on the military, socio-economic and political history of Rome, its empire in Italy and its domination of the Mediterranean World (ca. 800 B.C. to A.D. 300).

HIST 3483-3. Introduction to Modern South Asia. Surveys the social, economic and political processes that shaped modern South Asia. Considers issues in contemporary political debates within their original historical contexts and trace the power of relationships that affected changes, long-term continuities and revivals.

HIST 3500-3. African History in Novels and Films. Introduces modern Africa through the eyes of creative artists. Various topics, such as childhood, religion and colonialism, are presented from various points of view—African and non-African.

HIST 3601-3. Colorado History. Surveys the boom and bust heritage of the highest state. Students learn how to write their own family, community, or institutional history. Note: Open to all students.

HIST 3606-3. Science, Technology and Society in the Modern World. Examines the relationships among science, technology and society from the early 19th century to the present.

HIST 3611-3. Introduction to Women's Studies: Survey of Feminist Thought. Surveys British and American feminist ideas from the French Revolution to the present, using both fiction and nonfiction texts.

Serves as an introduction to Women's Studies minor. Cross-listed with ENGL 3400.

HIST 3706-3. The Age of Revolution. Examines revolutions in selected societies around the world during the period from 1750 to 1950. The specific revolutions chosen may vary, but representative upheavals in both the Western and non-Western worlds are examined. Prereq: any lower-level history course.

HIST 3810-3. Topics. Topics in history with varying subtitles reflecting course content.

HIST 3840-1 to 3. Independent Study.

HIST 3899-3. Encounters in World History. Explores the theme of encounters and colonialism in world history. Purpose is to offer an innovative forum to investigate major issues in history across global regions and chronological eras.

HIST 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: junior standing and 2.75 GPA.

HIST 3995-1 to 15. Travel Study Topics. Created for students doing travel study in a foreign country; register through the Office of International Education.

HIST 4017-3. History of Early Christianity. History of the rise of Christianity and the decline of paganism in the Roman Empire from the birth of Jesus of Nazareth to ca. 500 A.D. Special emphasis on social, historical, legal and cultural context of Christianity's rise and paganism's decline. Cross-listed with HIST 5017, RLST 3060.

HIST 4020-3. Medieval Europe. Surveys the general history of Europe from the fall of Rome to the opening of modern Europe. Cross-listed with HIST 5020.

HIST 4021-3. Renaissance Europe. Explores the late 13th through the early 16th centuries, when European art and culture changed dramatically against a background of economic expansion, social and religious unrest and when princes ruled in the interests of their dynastic states. Cross-listed with HIST 5021.

HIST 4022-3. Reformation Europe. Between the early 16th and the middle 17th centuries, Europe was torn by explosive ideological conflicts, resulting in religious upheaval, political revolution, and civil and international wars, but also underwent important experiments in representative government and economic controls. Cross-listed with HIST 5022, RLST 3080.

HIST 4024-3. Nineteenth Century Europe. A general study of the evolution of Europe from 1789 to 1900. Covers the French Revolution, industrialization, romanticism, nationalism, realism, socialism and imperialism in the context of European history. Cross-listed with HIST 5024.

HIST 4025-3. Twentieth Century Europe. A general study of the evolution of Europe since 1900. Covers militarism, fascism, communism and existentialism in the context of European history. Cross-listed with HIST 5025.

HIST 4026-3. European Diplomatic History in the Twentieth Century. Examines the European state system and its many crises since 1890. Cross-listed with HIST 5026.

HIST 4027-3. The Enlightenment: Eighteenth Century Intellectual History. Studies the transformation of the European and American intellectual world in the late 17th and 18th centuries. Focuses on the novel ideas, institutions and discursive practices of the philosophies in Europe and America. Themes include the popularization of scientific thinking, rationalism, deism and secularization, the public sphere, popular sovereignty and confidence in the future. Prereq: previous introductory history course or other introductory humanities course. Cross-listed with HIST 5027.

HIST 4028-3. After the Revolution: Nineteenth Century Intellectual History. Romanticism and other 19th century reactions to the dislocation engendered by the bourgeois revolutions and industrialization. Focuses on intellectual and cultural responses to social and economic change, ideologies and social theories. Topics include romanticism, conservatism, liberalism, Marxism, the neo-enlightenment, ideas of progress and Darwinism. Cross-listed with HIST 5028.

HIST 4029-3. Fin de Siecle: Late Nineteenth and Early Twentieth Century Intellectual History. The crisis of confidence in Europe and America in the late 19th and early 20th centuries. Focuses on aesthetic and philosophical disillusionment and attempts to reorient European and American thinking, as well as upon reactions to World War I. Topics include Nietzsche, psychoanalysis, surrealism and other intellectual and artistic movements. Prereq: previous introductory history course or other introductory humanities course. Cross-listed with HIST 5029.

HIST 4030-3. Europe During the World Wars. Covers the history of the two world wars and their origins, political and social upheaval during the interwar economic crisis, the rise of communism, Italian fascism and Nazism, with an emphasis on cultural production and intellectual life. Cross-listed with HIST 5030.

HIST 4031-3. Contemporary Europe. History of Europe since 1945. Students study the economic, social and political history of Europe since World War II, with a special emphasis on the Cold War and intellectual currents. Prereq: HIST 1212. Cross-listed with HIST 5031.

HIST 4032-3. Twentieth Century World History. An interdisciplinary course on contemporary world history and globalization. While the course is historically structured, economic, political and sociological matters are explored. Prereq: a course in world history and one in macroeconomics or permission of instructor. Cross-listed with HIST 5032, S SC 5032.

HIST 4033-3. Genius in the Modern World. The theory and practice of genius. An interdisciplinary course studying innovation and innovators in the arts, sciences and in technology. Cross-listed with HIST 5033, HUM 5033.

HIST 4045-3. Tudor-Stuart England. England's rise from obscurity in 1487 to the dawn of her age of European and world dominance in the early 18th century. Family life and popular culture as well as Henry VIII, Queen Elizabeth, Parliament and Cromwell. Prereq: upper division standing. Cross-listed with HIST 5045.

HIST 4046-3. Victorians and Victorianism. Taking an interdisciplinary perspective, this course examines English people and English life during the reign of Queen Victoria, 1837-1901. What were the defining features of the Victorian age? What did it mean to be "Victorian?" When and why did the Victorian paradigm break down? Prereq: upper division and/or graduate standing. Cross-listed with HIST 5046.

HIST 4051-3. Great Britain: 1760-1914. Studies Britain's long 19th century, with a focus on the social consequences of industrialization, state growth and imperialism. Examines who benefited and who lost as a result of the social, economic, political and cultural changes of the era. Prereq: upper division and/or graduate standing. Cross-listed with HIST 5051.

HIST 4053-3. British Empire. Examines the 19th and 20th century British empire, addressing social, cultural and political themes. Explores the development and collapse of the empire, British imperial identity, relationships between race, gender, class and the ways in which the colonizers and the colonized experienced empire. Prereq: upper division and/or graduate standing. Cross-listed with HIST 5053.

HIST 4054-3. History of Ireland. Ireland's unique history and character is examined from the beginning of the Christian era to the present conflicts in Northern Ireland, with emphasis on the 19th and 20th centuries. Some of the topics covered are the distinctive cultural development, the troublesome relationship with England and the significance and role of the church. Cross-listed with HIST 5054.

HIST 4055-3. The Atlantic Slave Trade: Africa, Caribbean and U.S. Presents a broad overview of the slave trade in the Atlantic World, including discussion of the slave plantation, the creation of Caribbean societies and the consequences of independence from Britain. Cross-listed with HIST 5055.

HIST 4061-3. French Revolution and Napoleon. An analysis of the revolutionary movement in France and Europe from the 1780s to the 1820s. Cross-listed with HIST 5061.

HIST 4062-3. Modern France, 1789 to the Present. Considers the shaping of modern France from the 18th century Bourbon Monarchy and aristocratic society to today's liberal democracy, in which multicul-

turalism, globalization and supranational institutions call into question the very nature of French identity. Cross-listed with HIST 5062.

HIST 4071-3. Modern Germany. Surveys the major political, institutional, social, economic and cultural developments that have occurred in Germany since the late 18th century. Prereq: upper division and/or graduate standing. Cross-listed with HIST 5071.

HIST 4074-3. Post-War Germany. Historical survey of Germany since the second world war, with an emphasis on culture and society. Prereq: upper division and/or graduate standing. Cross-listed with HIST 5074.

HIST 4075-3. Travel Stories and Origins of Cultural Anthropology. Examines the early history of cultural anthropology by means of classic travel literature. Cross-listed with HIST 5075.

HIST 4076-3. History of Modern Science. Surveys the history of science from the 18th century to the present. Treats all disciplines, from physics to physiology, in an attempt to understand how the natural world came to dominate our sense of ourselves. Cross-listed with HIST 5076.

HIST 4080-3. Early Russia to 1700. Covers prehistoric Russia; the richness of the Kievan period, icons, architecture, internationalism of Kiev Mongol society and its influence on Russia; rise of Moscow and its dominance over other contenders for rule; autocracy, serfdom and the ecclesiastical schism. Cross-listed with HIST 5080.

HIST 4081-3. The Emergence of Modern Russia: 1700-1856. The development of imperial political institutions; church-state relationships; class stratification; scientific, educational and cultural developments in 17th, 18th and early 19th-century Russia. Cross-listed with HIST 5081.

HIST 4082-3. Reform and Revolution in Russia: The 1860s to 1917. Emphasis upon Russia's attempts to modernize, beginning with great reforms of the 1860s and 1870s; increasing polarization of government and opposition groups. Examines governmental point of view through several monographs and revolutionary theory, including those of Marx, Engels, Lenin and Trotsky. Cross-listed with HIST 5082.

HIST 4083-3. Russia Since 1917. Studies the development of the Soviet Union from its formation in the October Revolution, through the Civil War, the new economic policy, industrialization, collectivism, the Stalinist purges, up to the present. Cross-listed with HIST 5083.

HIST 4084-3. Russian Intellectual and Cultural History. Students learn about Russian art and architecture through the 19th and early 20th centuries, read great literary works and analyze the Russian music of this period.

HIST 4086-3. Eastern Europe. Studies the countries of Eastern Europe from their origins in the Middle Ages to the present. Cross-listed with HIST 5086.

HIST 4087-3. The USSR: Film and Reality. Focuses on controversial aspects of Soviet History: revolution and revolutionaries; position of women during the 1920's; industrialization, terror and ordinary citizens in the 1930's; World War II and later Stalin Period; Soviet Jews, Orthodox Christians and "godless" Communists. Cross-listed with HIST 5087.

HIST 4088-3. Cold War: Perspectives from Russians. Focuses on the controversial topics of the Cold War period, such as the Soviet political and economic system and attempts at reform; Soviet citizens' belief in and commitment to the prevailing Marxist-Leninist ethos; Soviet views on and attitudes toward the United States and Americans. Cross-listed with HIST 5088.

HIST 4133-3. Management of Material Culture and Museum Collections. Introduces the rudiments of material culture analysis and management. While primarily for those interested in working in history museums, the course is also appropriate for students who want to understand the place of artifacts in studying history. Cross-listed with HIST 5133.

HIST 4210-3. The American Revolution. The crisis of the British Empire in North America from the end of the French and Indian War to the ratification of the American Constitution. Topics include the emerging economy, constitutional arguments against Britain, the conduct of the war and the definition of a republic. Cross-listed with HIST 5210.

HIST 4212-3. U.S. Civil War and Reunion. Begins with the causes and outbreak of the American Civil War, describes the military conflict and

the social aspects of the war, examines the federal efforts to reconstruct the southern states and protect the rights of Black citizens after 1865. Cross-listed with HIST 5212.

HIST 4213-3. The Gilded Age and Early 20th Century Challenges: U.S. History, 1865-1932. Topical study of major events in America, including Reconstruction; the rise of industry and the workers' response; westward expansion and the plight of Native Americans; urbanization and immigration; agrarian upheaval; Progressivism; World War I; the challenges of the 1920s and the onset of the Great Depression. Cross-listed with HIST 5213.

HIST 4216-3. History of American Popular Culture. Explores the evolution of film, radio, television and popular music from the 1940s to the 1980s. The course uses these and other forms of popular art to examine American history in this era. The course focuses on the shifting trends in popular culture, how that culture reflects the larger themes in American history and how these media have impacted the national experience. Cross-listed with HIST 5216.

HIST 4217-3. Consumer Culture. This interdisciplinary course examines the dynamics of the consumer culture in the context of social, economic and technological history. The analysis begins with 17th century European origins and continue through recent world developments, emphasizing the U.S. since 1800. Note: Open to all students. Cross-listed with HIST 5217.

HIST 4218-3. History of American Film, Radio and Television. Traces the evolution and development of film, radio and television in 20th century America. The course uses films, radio and TV programs as source materials as it examines technical, economic and artistic change along with the huge impact of these media on American life. Cross-listed with HIST 5218.

HIST 4219-3. Depression, Affluence and Anxiety: U.S. History, 1929 to the Present. Examines major developments, focusing on the causes of the Depression and efforts to combat it; World War II and postwar readjustments; the Cold War and challenges of world leadership; unparalleled prosperity; Civil Rights movement; the Vietnam War; and economic uncertainties amidst general prosperity. Cross-listed with HIST 5219.

HIST 4220-3. U.S. Foreign Policy Since 1912. The main thrust is the emergence of the U.S. from isolation toward full-scale participation in the affairs of Europe and other areas. Special attention is given to U.S. intervention in two world wars, the Cold War and the overextension of U.S. commitments since 1960. Cross-listed with HIST 5220.

HIST 4222-3. U.S. Society and Thought to 1860. Major topics include the evolution of Protestantism from Puritans to Transcendentalists; humanitarian reforms such as abolition, temperance and women's rights; European influences on American thought; the effect of industrialization on the development of class society; and American nostalgia for agrarian life.

HIST 4223-3. U.S. Society and Thought Since 1860. Topical survey of the main currents of American thought and their impact upon society. Topics include American philosophy, literature (extensively), art, music, immigration and urbanization, technology, extremism of both left and right and education. Cross-listed with HIST 5223.

HIST 4225-3. Urban America: Colonial Times to the Present. Rise of the American city from colonial times to present. Major emphasis on the process of urbanization since 1840: town promotion, the industrial city, immigration, boss politics and reform, urban technology, transportation systems, minorities, city planning and the future of urban America. Cross-listed with HIST 5225.

HIST 4226-3. U.S. Business History. Surveys the major changes in business practices from colonial times to the present. Primary emphasis is placed on the Industrial Revolution and after. Topics include the emergence of major personalities in the Industrial Revolution; the rise of giant corporations; the response of industrial labor unions; government intervention and regulations and the emergence of the post-industrial society. Cross-listed with HIST 5226.

HIST 4227-3. American West. Introduces the diverse peoples, places and approaches to the development of the trans-Missouri West. Cross-listed with HIST 5227.

HIST 4228-3. Western Art and Architecture. Introduces art and architecture of the American West, emphasizing their historical context. Students are required to do book reports and a research paper. Course includes walking tours and museum visits. Cross-listed with HIST 5228.

HIST 4229-3. Colorado Historic Places. Introduces community architecture and history for all students. Students learn how to survey, describe and designate significant historical structures and districts. Cross-listed with HIST 5229.

HIST 4230-3. Women in the West. Focuses on ways in which women, from the mid-19th century through the mid-20th century, of different races, classes and ethnic background, have interacted and been active participants in the development of the Western states. Class emphasizes, especially through research projects, women who have lived in Colorado. Cross-listed with HIST 5230.

HIST 4231-3. History in Museums. Designed to teach students about preserving, studying, interpreting, assembling and exhibiting artifacts for instruction and enjoyment. There are numerous on-site visits to a variety of museums. Through projects, students actually participate in aspects of museum work. Cross-listed with HIST 5231.

HIST 4232-3. Historic Preservation. Introduces the history, methodology and goals of historic preservation. Note: Open to all students. Cross-listed with HIST 5232.

HIST 4234-3. Introduction to Public History. An overview of history outside the academic setting. Students have the opportunity to learn about jobs through on-site visits and presentations made by people engaged in a wide variety of occupations in history other than teaching. Cross-listed with HIST 5234.

HIST 4235-3. Sports and American Society. Examines American society and culture through the history of recreational and professional sport. Issues include class, race, gender, religion, business and politics. Prereq: upper division standing. Cross-listed with HIST 5235.

HIST 4236-3. Colorado Mining and Railroads. Focuses on the transportation network that shaped the inland West and its key role in the extractive industry that gave Colorado its start and nourished the highest state through adolescence. Cross-listed with HIST 5236.

HIST 4238-3. U.S. History Through Fiction. Explores American history through novels, based on the idea that fiction offers a superb “window” through which to view the past, especially to understand the texture of American society. Prereq: upper division standing. Cross-listed with HIST 5238.

HIST 4239-3. American West in Fiction. Novelists such as Willa Cather, Rodolfo Anaya, Mari Sandoz, John Nichols, John Steinbeck, Mark Twain and Wallace Stegner captured western history with breathtaking accuracy and eloquence. This course explores the American West by reading, book reports, discussion, lectures and one major book report. Cross-listed with HIST 5239.

HIST 4240-3. National Parks History. Introduces how the National Park Service uses history to identify, designate, preserve and interpret America’s most outstanding historic and natural history sites. After tours of NPS sites, students select from a wide range of projects. Note: Open to all students. Cross-listed with HIST 5240.

HIST 4241-3. The American West in Popular Culture. This course uses films and some television programs as source materials as it examines the popular history of the American West. The course considers how the West reflects powerful, but not always accurate, beliefs about the history of the West. Cross-listed with HIST 5241.

HIST 4242-3. Oral History. Trains public history students in the collection of oral history interviews. Students master core readings on the theory, practice and ethics of oral history; identify and recruit an interview subject; research the subject background; design and conduct a recorded oral history interview; supervise interview transcription; and prepare a final report to accompany the interview transcripts. Cross-listed with HIST 5242.

HIST 4243-3. Public History Administration. Introduces students to the skills important for the practice of public history, including electronic presentation, proposal and grant writing, basic management and financial skills. Cross-listed with HIST 5243.

HIST 4303-3. Sex and Gender in Modern Britain. Examines modern British history by focusing on sex and gender as central aspects in people’s lives. Considers the ways gender shapes the realms of politics, economics, society and culture in Britain from the 18th century to the present. Cross-listed with HIST 5303.

HIST 4307-3. History of Sexuality. Explores the relationships between gender and norms, sexual practice and ideas about sexuality in Europe and the United States. Examines how sex and sexuality have changed over time and how those changes relate to social, cultural, political and economic history. Cross-listed with HIST 5307.

HIST 4345-3. Gender, Science and Medicine: 1600 to the Present. Examines the ways science and medicine have both shaped and been shaped by ideas about gender. Pays particular attention to the relationship between scientific/medical ideas about the sexes and the social organization of gender. Prereq: upper division and/or graduate standing. Cross-listed with HIST 5345.

HIST 4346-3. Medicine and Society: the Ancients to the Present. Surveys change and continuity in definitions of health and illness, interactions between patients and practitioners, the practice of medical authority and the relationships between science, clinical medicine and the provision of health care. Prereq: upper division and/or graduate standing. Cross-listed with HIST 5346.

HIST 4411-3. Modern Mexico. Designed to familiarize students with the critical issues in Mexican political, economic and social history. Traces the emergence of independence and the difficult consolidation of an independent nation state. Cross-listed with HIST 5411, ETST 4411.

HIST 4412-3. Mexico and the United States: People and Politics on the Border. Examines the convoluted relations between these two republics, focusing on diplomatic, cultural and social interactions. Cross-listed with HIST 5412.

HIST 4414-3. Nationalism and State Building in Latin America, 1750-1850. Explores the problems of nationalism and post-colonial state building by examining the late colonial and early national periods of Latin American history. The course discusses the impact of the enlightenment, the events of the Wars of Independence and the quandaries faced by the new nations. Cross-listed with HIST 5414.

HIST 4415-3. Social Revolutions in Latin America. A theoretical framework and an empirical basis for understanding the large-scale social movements that have influenced the course of Latin American nations. Prereq: upper division and/or graduate standing. Cross-listed with HIST 5415.

HIST 4416-3. The Age of Imperialism. Examines causes, character and consequences of imperialism in the industrial era (ca. 1840-1975). Through intense study of selected cases, students gain an understanding of the different dynamics and varieties of imperialist control.

HIST 4417-3. Commodities and Globalization: Dessert in World History. Traces the impact of “dessert commodities” (sugar, cacao, vanilla and coffee) on Latin America during an early period of globalization (nineteenth century). Explores cultural shifts in North Atlantic countries that created the incessant demand for dessert. Prereq: senior or graduate student standing. Cross-listed with HIST 5417.

HIST 4418-3. Textiles and Trade, Culture and Cloth: The Fabric of Premodern World History. Uses cloth to explore the interconnections that shaped premodern world history, considering the ways that the production, exchange and consumption of cloth were tied to specific forms of political power, social and religious organization and long distance economic relationships. Cross-listed with HIST 5418.

HIST 4420-3. Traditional China: China to 1600. A general introduction to the history of China from the advent of historic civilization to the point of the great encounter with the West. Cross-listed with HIST 5420.

HIST 4421-3. Modern China. Surveys Chinese history in the modern era. Includes examination of Western domination of China; revolution and internal fragmentation of China; Japanese attacks and World War II; and civil war and the communist revolution. Cross-listed with HIST 5421.

HIST 4431-3. Modern Japan. Course of Japanese history since the Perry expedition. Covers Japanese Westernization and industrialization,

the expansion of empire and defeat in World War II, the occupation and the amazing technological and social transformation since the occupation years. Cross-listed with HIST 5431.

HIST 4451-3. Southern Africa. An in-depth history of the clash of peoples and cultures in Africa south of the Zambesi River. African and Afrikaner political, economic and cultural development in a single land and the consequences of several competing nationalisms existing side by side are examined. Apartheid and African opposition to it are analyzed. Cross-listed with HIST 5451.

HIST 4455-3. African Struggle for Independence. An assessment of African leadership from the colonial era to the present. Cross-listed with HIST 5455.

HIST 4460-3. The Islamic World. Examines the Islamic world in broader global terms and the development of Islam, not just in the Middle East, but throughout Asia and Northern Africa, from the 7th century to the present, with special emphasis on Islam in both the religious and cultural senses. Cross-listed with HIST 5460, RLST 3160.

HIST 4461-3. The Modern Middle East. Cross-listed with HIST 5461.

HIST 4471-3. The Second World War. The War in its totality: causes, military strategies (equal treatment to European and Pacific theaters), campaigns, impact of technology and weapons, political and social upheaval. Cross-listed with HIST 5471.

HIST 4472-4. The 1950s: Korean War, the Cold War and Social Transformation. A critical and methodical exploration of several of the social, cultural and political events of the 1950s. Investigates the complex interaction between politics and culture during this decade, paying close attention to anti-Communist thought and the Korean War. Cross-listed with HIST 5472.

HIST 4475-3. The Vietnam War. Covers the conflict in Vietnam, with roots in the period prior to World War II. Main topics include the rise of nationalism in French Indochina, the war against the French, the Northern move to unify Vietnam, American intervention and eventual victory of the Northern regime. Cross-listed with HIST 5475.

HIST 4501-3. World History for Educators. Introduces world history for candidates for teaching positions. Discussion of themes, problems of research and interpretation and relevant instructional methods. Prereq: upper division standing. Cross-listed with HIST 5501.

HIST 4503-3. Topics in History of Science. Themes vary from year to year. Possible topics: Darwinism, Nature of Memory, Time and Space, Origins. Prereq: upper division and/or graduate standing. Cross-listed with HIST 5503.

HIST 4621-3. Explorers and Exploration. Examines the history of travel and exploration from the 13th century to the present. Readings draw primarily from first-person accounts to understand why people voyage, what they hope to discover and what happens to them along the way. Prereq: upper division and/or graduate standing. Cross-listed with HIST 5621.

HIST 4810-3. Special Topics. Cross-listed with HIST 5810.

HIST 4839-3. History Seminar. Covers the use of documentary sources and historical criticism, with students utilizing these skills in a historical research paper. Note: Required for history majors. Preferably taken in the senior year. Prereq: HIST 3031.

HIST 4840-1 to 3. Independent Study.

HIST 4849-3. Independent Study History Honors Research Paper. Students competing for history honors must take this course to prepare their honors paper. The course requires students to produce a finished research paper of professional quality under the direction of a history faculty member. Prereq: open to advanced history majors only.

HIST 5017-3. History of Early Christianity. History of the rise of Christianity and the decline of paganism in the Roman Empire from the birth of Jesus of Nazareth to ca. 500 A.D. Special emphasis on social, historical, legal and cultural context of Christianity's rise and paganism's decline. Cross-listed with HIST 4017, RLST 3060.

HIST 5020-3. Medieval Europe. Surveys the general history of Europe from the fall of Rome to the opening of modern Europe. Cross-listed with HIST 4020.

HIST 5021-3. Renaissance Europe. Explores the late 13th through the early 16th centuries, when European art and culture changed dramatically against a background of economic expansion, social and religious unrest and when princes ruled in the interests of their dynastic states. Cross-listed with HIST 4021.

HIST 5022-3. Reformation Europe. Between the early 16th and the middle 17th centuries, Europe was torn by explosive ideological conflicts, resulting in religious upheaval, political revolution and civil and international wars, but also underwent important experiments in representative government and economic controls. Cross-listed with HIST 4022, RLST 3080.

HIST 5024-3. Nineteenth Century Europe. A general study of the evolution of Europe from 1789 to 1900. Covers the French Revolution, industrialization, romanticism, nationalism, realism, socialism and imperialism in the context of European history. Cross-listed with HIST 4024.

HIST 5025-3. Twentieth Century Europe. A general study of the evolution of Europe since 1900. Covers militarism, fascism, communism and existentialism in the context of European history. Cross-listed with HIST 4025.

HIST 5026-3. European Diplomatic History in the Twentieth Century. Examines the European state system and its many crises since 1890. Cross-listed with HIST 4026.

HIST 5027-3. The Enlightenment: Eighteenth Century Intellectual History. The transformation of the European and American intellectual world in the late 17th and 18th centuries. Focuses on the novel ideas, institutions and discursive practices of the philosophies in Europe and America. Themes include the popularization of scientific thinking, rationalism, deism and secularization, the public sphere, popular sovereignty and confidence in the future. Prereq: previous introductory history course or other introductory humanities course. Cross-listed with HIST 4027.

HIST 5028-3. After the Revolution: Nineteenth Century Intellectual History. Romanticism and other 19th century reactions to the dislocation engendered by the bourgeois revolutions and industrialization. Focuses on intellectual and cultural responses to social and economic change, ideologies and social theories. Topics include romanticism, conservatism, liberalism, Marxism, the neo-enlightenment, ideas of progress and Darwinism. Cross-listed with HIST 4028.

HIST 5029-3. Fin de Siecle: Late Nineteenth and Early Twentieth Century Intellectual History. The crisis of confidence in Europe and America in the late 19th and early 20th centuries. Focuses on aesthetic and philosophical disillusionment and attempts to reorient European and American thinking, as well as upon reactions to World War I. Topics include Nietzsche, psychoanalysis, surrealism and other intellectual and artistic movements. Prereq: previous introductory history course or other introductory humanities course. Cross-listed with HIST 4029.

HIST 5030-3. Europe During the World Wars. Covers the history of the two world wars and their origins, political and social upheaval during the interwar economic crisis, the rise of communism, Italian fascism and Nazism, with an emphasis on cultural production and intellectual life. Cross-listed with HIST 4030.

HIST 5031-3. Contemporary Europe. History of Europe since 1945. Students study the economic, social and political history of Europe since World War II, with a special emphasis on the Cold War and intellectual currents. Prereq: HIST 1212. Cross-listed with 4031.

HIST 5032-3. Twentieth Century World History. An interdisciplinary course on contemporary world history and globalization. While the course is historically structured, economic, political and sociological matters are explored. Prereq: a course in world history and one in macroeconomics or permission of instructor. Cross-listed with HIST 4032, S SC 5032.

HIST 5033-3. Genius in The Modern World. The theory and practice of genius. An interdisciplinary course studying innovation and innovators in the arts, sciences and in technology. Cross-listed with HIST 4033, HUM 5033.

HIST 5045-3. Tudor-Stuart England. England's rise from obscurity in 1487 to the dawn of her age of European and world dominance in the early 18th century. Family life and popular culture as well as Henry VIII, Queen Elizabeth, Parliament and Cromwell. Prereq: upper division standing. Cross-listed with HIST 5045.

HIST 5046-3. Victorians and Victorianism. Taking an interdisciplinary perspective, this course examines English people and English life during the reign of Queen Victoria, 1837-1901. What were the defining features of the Victorian age? What did it mean to be "Victorian?" When and why did the Victorian paradigm break down? Prereq: upper division and/or graduate standing. Cross-listed with HIST 4046.

HIST 5051-3. Great Britain: 1760-1914. Studies Britain's long 19th century, with a focus on the social consequences of industrialization, state growth and imperialism. Examines who benefited and who lost as a result of the social, economic, political and cultural changes of the era. Prereq: upper division and/or graduate standing. Cross-listed with HIST 4051.

HIST 5053-3. British Empire. Examines the 19th and 20th century British empire, addressing social, cultural and political themes. Explores the development and collapse of the empire, British imperial identity, relationships between race, gender and class and the ways in which the colonizers and colonized experienced empire. Prereq: upper division and/or graduate standing. Cross-listed with HIST 4053.

HIST 5054-3. History of Ireland. Ireland's unique history and character is examined from the beginning of the Christian era to the present conflicts in northern Ireland, with emphasis on the 19th and 20th centuries. Some of the topics covered are the distinctive cultural development, the troublesome relationship with England and the significance and role of the church. Cross-listed with HIST 4054.

HIST 5055-3. The Atlantic Slave Trade: Africa, Caribbean and U.S. Presents a broad overview of the slave trade in the Atlantic World, including discussion of the slave plantation, the creation of Caribbean societies and the consequences of independence from Britain. Cross-listed with HIST 4055.

HIST 5061-3. French Revolution and Napoleon. An analysis of the revolutionary movement in France and Europe from the 1780s to the 1820s. Cross-listed with HIST 4061.

HIST 5062-3. Modern France: 1789 to the Present. Considers the shaping of modern France from the 18th century Bourbon Monarchy and aristocratic society to today's liberal democracy, in which multiculturalism, globalization and supranational institutions call into question the very nature of French identity. Cross-listed with HIST 4062.

HIST 5071-3. Modern Germany. Surveys the major political, institutional, social, economic and cultural developments that have occurred in Germany since the late 18th century. Prereq: upper division and/or graduate standing. Cross-listed with HIST 4071.

HIST 5074-3. Post-War Germany. Historical survey of Germany since the second world war, with an emphasis on culture and society. Prereq: upper division and/or graduate standing. Cross-listed with HIST 4074.

HIST 5075-3. Travel Stories and Origins of Cultural Anthropology. Examines the early history of cultural anthropology by means of classic travel literature. Cross-listed with HIST 4075.

HIST 5076-3. History of Modern Science. Surveys the history of science from the 18th century to the present. Treats all disciplines, from physics to physiology, in an attempt to understand how the natural world came to dominate our sense of ourselves. Cross-listed with HIST 4076.

HIST 5080-3. Early Russia to 1700. Covers prehistoric Russia; the richness of the Kievan period; icons, architecture, internationalism of Kiev Mongol society and its influence on Russia; rise of Moscow and its dominance over other contenders for rule; autocracy, serfdom and the ecclesiastical schism. Cross-listed with HIST 4080.

HIST 5081-3. Emergence of Modern Russia: 1700-1856. The development of imperial political institutions; church-state relationships; class stratification; scientific, educational and cultural developments in 17th, 18th and early 19th-century Russia. Cross-listed with HIST 4081.

HIST 5082-3. Reform and Revolution in Russia: The 1860s to 1917. Emphasis upon Russia's attempts to modernize, beginning with great reforms of the 1860s and 1870s; increasing polarization of

government and opposition groups. Examines governmental point of view through several monographs and revolutionary theory, including those of Marx, Engels, Lenin and Trotsky. Cross-listed with HIST 4082.

HIST 5083-3. Russia Since 1917. Studies the development of the Soviet Union from its formation in the October Revolution, through the Civil War, the new economic policy, industrialization, collectivism, the Stalinist purges, up to the present. Cross-listed with HIST 4083.

HIST 5086-3. Eastern Europe. Studies the countries of Eastern Europe from their origins in the Middle Ages to the present. Cross-listed with HIST 4086.

HIST 5087-3. The USSR: Film and Reality. Focuses on controversial aspects of Soviet History: revolution and revolutionaries; position of women during the 1920's; industrialization, terror and ordinary citizens in the 1930's; World War II and later Stalin Period; Soviet Jews, Orthodox Christians and "godless" Communists. Cross-listed with HIST 4087.

HIST 5088-3. Cold War: Perspectives from Russians. Focuses on the controversial topics of the Cold War period, such as the Soviet political and economic system and attempts at reform; Soviet citizens' belief in and commitment to the prevailing Marxist-Leninist ethos; Soviet views on and attitudes toward the United States and Americans. Cross-listed with HIST 4088.

HIST 5133-3. Management of Material Culture and Museum Collections. Introduces the rudiments of material culture analysis and management. While primarily for those interested in working in history museums, the course is also appropriate for students who want to understand the place of artifacts in studying history. Cross-listed with HIST 4133.

HIST 5210-3. The American Revolution. The crisis of the British Empire in North America from the end of the French and Indian War to the ratification of the American Constitution. Topics include the emerging economy, constitutional arguments against Britain, the conduct of the war and the definition of a republic. Cross-listed with HIST 4210.

HIST 5212-3. U.S. Civil War and Reunion. Begins with the causes and outbreak of the American Civil War, describes the military conflict and the social aspects of the war and examines the federal efforts to reconstruct the southern states and protect the rights of Black citizens after 1865. Cross-listed with HIST 4212.

HIST 5213-3. The Gilded Age and Early Twentieth Century Challenges: U.S. History, 1865-1932. Topical study of major events in America, including Reconstruction; the rise of industry and the workers' response; westward expansion and the plight of Native Americans; urbanization and immigration; agrarian upheaval; Progressivism; World War I; the challenges of the 1920s and the onset of the Great Depression. Cross-listed with HIST 4213.

HIST 5216-3. History of American Popular Culture. Explores the evolution of film, radio, television and popular music from the 1940s to the 1980s. The course uses these and other forms of popular art to examine American history in this era. The course focuses on the shifting trends in popular culture, how that culture reflects the larger themes in American history and how these media have impacted the national experience. Cross-listed with HIST 4216.

HIST 5217-3. Consumer Culture. This interdisciplinary course examines the dynamics of the consumer culture in the context of social, economic and technological history. The analysis begins with 17th century European origins and continue through recent world developments, emphasizing the U.S. since 1800. Note: Open to all students. Cross-listed with HIST 4217.

HIST 5218-3. History of American Film, Radio and Television. Traces the evolution and development of film, radio and television in 20th century America. The course uses films, radio and TV programs as source materials as it examines technical, economic and artistic change along with the huge impact of these media on American life. Cross-listed with HIST 4218.

HIST 5219-3. Depression, Affluence and Anxiety: U.S. History, 1929 to the Present. Examines major developments, focusing on the causes of the Depression and efforts to combat it; World War II and

postwar readjustments; the Cold War and challenges of world leadership; unparalleled prosperity; Civil Rights movement; the Vietnam War; and economic uncertainties amid general prosperity. Cross-listed with HIST 4219.

HIST 5220-3. U.S. Foreign Policy Since 1912. The main thrust is the emergence of the U.S. from isolation toward full-scale participation in the affairs of Europe and other areas. Special attention is given to U.S. intervention in two world wars, the Cold War and the overextension of U.S. commitments since 1960. Cross-listed with HIST 4220.

HIST 5223-3. U.S. Society and Thought Since 1860. Topical survey of the main currents of American thought and their impact upon society. Topics include American philosophy, literature (extensively), art, music, immigration and urbanization, technology, extremism of both left and right and education. Cross-listed with HIST 4223.

HIST 5225-3. Urban America: Colonial Times to the Present. Rise of the American city from colonial times to present. Major emphasis on the process of urbanization since 1840: town promotion, the industrial city, immigration, boss politics and reform, urban technology, transportation systems, minorities, city planning and the future of urban America. Cross-listed with HIST 4225.

HIST 5226-3. U.S. Business History. Surveys the major changes in business practices from colonial times to the present. Primary emphasis is placed on the Industrial Revolution and after. Topics include the emergence of major personalities in the Industrial Revolution; the rise of giant corporations; the response of industrial labor unions; government intervention and regulation; and the emergence of the post-industrial society. Cross-listed with HIST 4226.

HIST 5227-3. American West. Introduces the diverse peoples, places and approaches to the development of the trans-Missouri West. Cross-listed with HIST 4227.

HIST 5228-3. Western Art and Architecture. Introduces Western art and architecture, emphasizing their historical context. Students are required to do book reports and a major research paper. Course includes walking tours and museum visits. Cross-listed with HIST 4228.

HIST 5229-3. Colorado Historic Places. Introduces community architecture and history for all students. Students learn how to survey, describe and designate significant historical structures and districts. Cross-listed with HIST 4229.

HIST 5230-3. Women in the West. Focuses on ways in which women, from the mid-19th century through the mid-20th century, of different races, classes and ethnic background, have interacted and been active participants in the development of the Western states. Class emphasizes, especially through research projects, women who have lived in Colorado. Cross-listed with HIST 4230.

HIST 5231-3. History in Museums. Designed to teach students about preserving, studying, interpreting, assembling and exhibiting artifacts for instruction and enjoyment. There are numerous on-site visits to a variety of museums. Through projects, students actually participate in aspects of museum work. Cross-listed with HIST 4231.

HIST 5232-3. Historic Preservation. Introduces the history, methodology and goals of historic preservation. Note: Open to all students. Cross-listed with HIST 4232.

HIST 5234-3. Introduction to Public History. An overview of history outside the academic setting. Students have the opportunity to learn about jobs through on-site visits and presentations made by people engaged in a wide variety of occupations in history other than teaching. Cross-listed with HIST 4234.

HIST 5235-3. Sports and American Society. Examines American society and culture through the history of recreational and professional sport. Issues include class, race, gender, religion, business and politics. Prereq: upper division standing. Cross-listed with HIST 4235.

HIST 5236-3. Colorado Mining and Railroads. Focuses on the transportation network that shaped the inland West and its key role in the extractive industry that gave Colorado its start and nourished the highest state through adolescence. Cross-listed with HIST 4236.

HIST 5238-3. U.S. History Through Fiction. Explores American history through novels, based on the idea that fiction offers a superb

“window” through which to view the past, especially to understand the texture of American society. Prereq: upper division standing. Cross-listed with HIST 4238.

HIST 5239-3. American West in Fiction. Novelists such as Willa Cather, Rodolfo Anaya, Mari Sandoz, John Nichols, John Steinbeck, Mark Twain and Wallace Stegner captured western history with breathtaking accuracy and eloquence. This novel explores the American West by reading, book report, discussion, lectures and one major book report. Cross-listed with HIST 4239.

HIST 5240-3. National Parks History. Introduces how the National Park Service uses history to identify, designate, preserve and interpret America's most outstanding historic and natural history sites. After tours of NPS sites, students select from a wide range of projects. Note: Open to all students. Cross-listed with HIST 4240.

HIST 5241-3. The American West in Popular Culture. This course uses films and some television programs as source materials as it examines the popular history of the American west. The course considers how the Western reflects powerful, but not always accurate, beliefs about the history of the West. Cross-listed with HIST 4241.

HIST 5242-3. Oral History. Trains public history students in the collection of oral history interviews. Students master core readings on the theory, practice and ethics of oral history; identify and recruit an interview subject; research the subjects' background; design and conduct a recorded oral history interview; supervise interview transcription; prepare a final report to accompany the interview transcripts. Cross-listed with HIST 4242.

HIST 5243-3. Public History Administration. Introduces students to the skills important for the practice of public history, including electronic presentation, proposal and grant writing, basic management and financial skills. Cross-listed with HIST 4243.

HIST 5303-3. Sex and Gender in Modern Britain. Examines modern British history by focusing on sex and gender as central aspects in people's lives. Considers the ways gender shapes the realms of politics, economics, society and culture in Britain from the 18th century to the present. Cross-listed with HIST 4303.

HIST 5307-3. History of Sexuality. Explores the relationships between gender and norms, sexual practice and ideas about sexuality in Europe and the United States. Examines how sex and sexuality have changed over time and how those changes relate to social, cultural, political and economic history. Cross-listed with HIST 4307.

HIST 5345-3. Gender, Science and Medicine: 1600 to the Present. Examines the ways science and medicine have both shaped and been shaped by ideas about gender. Pays particular attention to the relationship between scientific/medical ideas about the sexes and the social organization of gender. Prereq: upper division and/or graduate standing. Cross-listed with HIST 4345.

HIST 5346-3. Medicine and Society: the Ancients to the Present. Surveys change and continuity in definitions of health and illness, interactions between patients and practitioners, the practice of medical authority and the relationships between science, clinical medicine and the provision of health care. Prereq: upper division and/or graduate standing. Cross-listed with HIST 4346.

HIST 5411-3. Modern Mexico. Designed to familiarize students with the critical issues in Mexican political, economic and social history. Traces the emergence of independence and the difficult consolidation of an independent nation state. Cross-listed with HIST 4411, ETST 4411.

HIST 5412-3. Mexico and the United States: People and Politics on the Border. Examines the convoluted relations between these two republics, focusing on diplomatic, cultural and social interactions. Cross-listed with HIST 4412.

HIST 5414-3. Nationalism and State Building in Latin America, 1750-1850. Explores the problems of nationalism and post-colonial state building by examining the late colonial and early national periods of Latin American history. The course discusses the impact of the enlightenment, the events of the Wars of Independence and the quandaries faced by the new nations. Cross-listed with HIST 4414.

HIST 5415-3. Social Revolutions in Latin America. A theoretical framework and an empirical basis for understanding the large-scale social movements that have influenced the course of Latin American nations. Prereq: upper division and/or graduate standing. Cross-listed with HIST 4415.

HIST 5417-3. Commodities and Globalization: Dessert in World History. Traces the impact of “dessert commodities” (sugar, cacao, vanilla and coffee) on Latin America during an early period of globalization (nineteenth century). Explores cultural shifts in North Atlantic countries that created the incessant demand for dessert. Prereq: senior or graduate student standing. Cross-listed with HIST 4417.

HIST 5418-3. Textiles and Trade, Culture and Cloth: The Fabric of Premodern World History. Uses cloth to explore the interconnections that shaped premodern world history, considering the ways that the production, exchange and consumption of cloth were tied to specific forms of political power, social and religious organization and long distance economic relationships. Cross-listed with HIST 4418.

HIST 5420-3. Traditional China: China to 1600. A general introduction to the history of China from the advent of historic civilization to the point of the great encounter with the West. Cross-listed with HIST 4420.

HIST 5421-3. Modern China. Surveys Chinese history in the modern era. Includes examination of Western domination of China, revolution and internal fragmentation of China; Japanese attacks and World War II; and civil war and the communist revolution. Cross-listed with HIST 4421.

HIST 5431-3. Modern Japan. Course of Japanese history since the Perry expedition. Covers Japanese Westernization and industrialization, the expansion of empire and defeat in World War II, the occupation and the amazing technological and social transformation since the occupation years. Cross-listed with HIST 4431.

HIST 5451-3. Southern Africa. An in-depth history of the clash of peoples and cultures in Africa south of the Zambesi River. African and Afrikaner political, economic and cultural development in a single land and the consequences of several competing nationalisms existing side by side are examined. Apartheid and African opposition to it are analyzed. Cross-listed with HIST 4451.

HIST 5455-3. African Struggle for Independence. An assessment of African leadership from the colonial era to the present. Cross-listed with HIST 4455.

HIST 5460-3. The Islamic World. Examines the Islamic world in broader global terms and the development of Islam, not just in the Middle East, but throughout Asia and Northern Africa, from the 7th century to the present, with special emphasis on Islam in both the religious and cultural senses. Cross-listed with HIST 4460, RLST 3160.

HIST 5461-3. The Modern Middle East. Cross-listed with HIST 4461.

HIST 5464-3. Problems and Methods in Teaching History and Social Studies I. Introduces students to problem and methods in secondary education history and social studies teaching. Note: Open to students and to practicing teachers in the Initial Professional Teacher Education program or a relevant graduate program.

HIST 5465-3. Problems and Methods in Teaching History and Social Studies II. Introduces students to problems and methods in secondary education history and social studies teaching. Note: Open to students in the Initial Professional Teacher Education program or a relevant graduate program and to practicing teachers.

HIST 5471-3. The Second World War. The war in its totality: causes, military strategies (equal treatment to European and Pacific theaters), campaigns, impact of technology and weapons, political and social upheaval. Cross-listed with HIST 4471.

HIST 5472-4. The 1950s: Korean War, the Cold War and Social Transformation. A critical and methodical exploration of several of the social, cultural and political events of the 1950s. Investigates the complex interaction between politics and culture during this decade, paying close attention to anti-Communist thought and the Korean War. Cross-listed with HIST 4472.

HIST 5475-3. The Vietnam War. Covers the conflict in Vietnam, with roots in the period prior to World War II. Main topics include the rise of

nationalism in French Indochina, the war against the French, the Northern moves to unify Vietnam, American intervention and eventual victory of the Northern regime. Cross-listed with HIST 4475.

HIST 5501-3. World History for Educators. Introduces world history for candidates for teaching positions. Discussion of themes, problems of research and interpretation and relevant instructional methods. Prereq: upper division standing. Cross-listed with HIST 4501.

HIST 5502-1. World History For Educators Workshops. Designed for world history teachers who wish to enhance their knowledge of world history content and pedagogy. If taken in total, the course is comparable to a college survey course in world history plus teaching guides.

HIST 5503-3. Topics in History of Science. Themes vary from year to year. Possible topics: Darwinism, Nature of Memory, Time and Space, Origins. Prereq: upper division and/or graduate standing. Cross-listed with HIST 4503.

HIST 5621-3. Explorers and Exploration. Examines the history of travel and exploration from the 13th century to the present. Readings draw primarily from first-person accounts to understand why people voyage, what they hope to discover and what happens to them along the way. Prereq: upper division and/or graduate standing. Cross-listed with HIST 4621.

HIST 5810-3. Special Topics. Cross-listed with HIST 4810.

HIST 5840-1 to 3. Independent Study.

HIST 5850-1 to 3. History in the Community: History Day Mentoring. Under direction of UCDHSC history faculty, students participate in the Denver Public Schools National History Day program. They gain teaching experience by mentoring DPS students in preparation of History Day projects and may also participate in judging local and state History Day contests. Prereq: permission of department chair.

HIST 5939-1 to 6. Internship/Cooperative Education.

HIST 5950-1 to 8. Master's Thesis.

HIST 5995-1 to 15. Travel Study Topics. Created for students doing travel study in a foreign country; register through the Office of International Education.

HIST 6013-3. Historiography.

HIST 6645-3. Archival Management. Studies theory and principles pertaining to the management of current and noncurrent records, archival (public) materials and manuscript (private) documents, as well as the administration of archival manuscript depositories for housing records of historical value.

HIST 6840-1 to 3. Independent Study.

HIST 6920-3. Readings in European History.

HIST 6921-3. Readings in British History.

HIST 6922-3. Readings in French History.

HIST 6924-3. Readings in Russian History.

HIST 6925-3. Readings in Early U.S. History.

HIST 6926-3. Readings in Later U.S. History, 1865-1932.

HIST 6927-3. Readings in Public History.

HIST 6929-3. Readings in Later U.S. History, 1929 to the Present.

HIST 6930-3. Readings in Gender History. Surveys gender history in Britain and/or the U.S. Proceeds topically as well as chronologically, using a comparative perspective.

HIST 6931-3. Readings: Special Subjects in History. Readings in topics in history with varying subtitles reflecting course content. Prereq: Graduate standing.

HIST 6939-1 to 6. Cooperative Education.

HIST 6950-1 to 6. Master's Thesis.

HIST 6951-1 to 6. Masters Project: Advanced History Curriculum Development. Students develop curricula for secondary-level history courses; must demonstrate thorough knowledge of subjects; understanding of historiographic and methodological problems; command of primary sources and their uses in teaching; and describe teaching strategies, methods and assessments to be used in the curricula. Prereq: permission of instructor.

HIST 6980-3. Seminar in European History.

HIST 6981-3. Seminar in British History.

HIST 6986-3. Seminar in Later U.S. History.

HIST 6989-3. Seminar: Special Subjects in History.

HIST 6992-3. Seminar: Colorado Studies. This advanced interdisciplinary seminar on Colorado starts with a survey of the published literature. Students then select a research topic of their own and complete a publishable paper using primary sources.

HIST 6993-3. Seminar: History of Technology. Explores American and worldwide cases, modern and pre-modern, of technological development through seminar readings and individual research. Considers how technologies evolve within historical contexts and how societies demonstrate values and beliefs as they manipulate nature, building lifestyles and social orders.

HLTH: Health Administration (Business)**HLTH 5939-1 to 3. Cooperative Education.**

HLTH 6010-3. Health Care Systems. *Fall.* Introduces the structure and function of the medical care delivery system. Includes basic concepts and measures of health, disease, quality, values, needs and utilization; issues in health care manpower, institutions and system organization; general issues in policy, reimbursement and regulation; broad community and organizational considerations in medical care organizations. The student is introduced to the principles of epidemiology and environmental health and demonstrates the application of epidemiology concepts to planning for the healthcare service needs of a population.

HLTH 6040-3. Health Care Financial Management. *Fall.* Theory of insurance applied to healthcare, including benefits design and co-payments. Existing and proposed competition in insurance markets, including rating methodologies and selection issues. Managed care and medical spending accounts as responses to problems with traditional insurance. Managerial accounting methods useful for analyzing contracts and managing profitability are presented. Prereq: BUSN 6550 and 6621 or permission of instructor.

HLTH 6055-3. Transformational Leadership/Metaphysical Management. *Fall.* Focuses on the manager's ability to generate transformational changes within the organization. In order to heal the organization, the manager must become a transformational leader, skilled in metaphysical as well as traditional management skills. Transformation means to change the structure of the organization—to move it to a higher form. In this course, we focus on characteristics of transformational leaders and metaphysical management, a spiritual process that expands the awareness of everyone in the organization.

HLTH 6070-3. International Health Policy and Management. *Fall.* A framework for understanding national health reform policy and management issues in the U.S. and other nations, including industrialized, developing and transforming nations. This course combines classroom and on-line teaching.

HLTH 6071-3. Introduction To Health Information Technology. *Spring.* Examines what needs transforming in healthcare to improve value, safety and appropriateness of care, and what the role of IT is in that transformation. It also examines the challenges of cultural change and IT strategy in succeeding with clinical information projects. Differences between installation, implementation, transition and actual transformation are suggested and methods for managing subcultures in healthcare (IT, clinical, administrative) are reviewed.

HLTH 6072-0. Fundamentals of Health Information Technology Management. *Fall.* Provides an introduction to the management of information technology in healthcare. A description of information processing, the origin, content, evolution of healthcare information systems and the methodologies deployed to acquire and manage information requirements are discussed.

HLTH 6075-3. International Health Travel Study. Experiential course, which is designed to open students up to innovative health delivery practices in an international location. Students learn how health issues such as reproductive health, infectious diseases, mental health, health and economy and chronic diseases are handled in community and public health settings. Class trips are usually 14-18

days to an Asian country during the month of January. Prereq: HLTH 6010 or permission of instructor.

HLTH 6740-3. Profiles in Health Care. *Spring.* This colloquium provides a rare opportunity for students to interact with top CEOs from health care organizations around the country. Students learn about HMOs, hospitals, medical group practices, consulting, managing careers, how to get jobs and how to be successful in a job.

HLTH 6800-3. Special Topics. Offered irregularly. Current interests in the health management field. Topics recently offered include: international health, ethics, general systems theory and key issues for health systems. Consult the current 'Schedule Planner' for semester offerings. Prerequisites vary according to topics and instructor requirements.

HLTH 6840-1 to 8. Independent Study. Instructor approval required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study.

HLTH 6911-3. Health Field Studies. The objective of this course is to expose students to health care organizations with which they are not familiar. Each student is assigned to a health care organization and given a specific problem or project to complete. Prereq: HLTH 6010 or permission of instructor.

HON: Honors (Liberal Arts and Sciences)

HON 1111-1 to 3. Honors Gateway Freshman Seminar. Serves as the preliminary course required for a student's application to the college honors program. This seminar explores one major intellectual theme with readings, discussion and field work in the community. Note: Offered every term.

HUM: Humanities (Liberal Arts and Sciences)

HUM 1012-3. The Humanistic Tradition: Modes of Expression. Familiarizes students with humanistic modes of expression through the study of history, literature, philosophy, music and the visual and dramatic arts.

HUM 3250-3. Introduction to Law Studies. Introduces students to the materials and methods of law studies. Students learn how to read case law, brief a case, make a course outline, analyze fact patterns and perform legal research and writing projects.

HUM 5013-3. Philosophical Problems in the Social Sciences and the Humanities. Presents an overview of key theoretical issues currently emerging across academic disciplines. Examines questions about reality, knowledge, ethics that affect social research and writing in the humanities. Readings explore how contemporary philosophical and cultural discourses have altered theory and method. Assignments include influential theoretical pieces by key historical and contemporary thinkers, examples of application in social research and interpretations of thought and affect in cultural contexts. Cross-listed with PHIL/S SC 5013.

HUM 5020-3. Elements of Social Thought. Introduces students to the disciplines that comprise the social sciences (classical anthropology, sociology, sociology of religion, philosophy of history, political theory, classical psychology, etc.). Provides necessary tools for interdisciplinary students to understand the social infrastructure of contemporary society. Cross-listed with S SC 5020 and PHIL 5020.

HUM 5025-3. Methods and Texts of the Humanities. Exposes the beginning graduate student to exemplary works and methodologies of select humanistically oriented disciplines, such as philosophy, fine arts, literature, history, communication, music and theatre.

HUM 5033-3. Genius in the Modern World. The theory and practice of genius. An interdisciplinary course studying innovation and innovators in the arts, sciences and in technology. Cross-listed with HIST 5033/4033.

HUM 5520-3. The City Beautiful: Art, Architecture and Theory in Urban History. How did cities develop and what were the buildings that filled these spaces? Posing this question initially, this course takes a case-study approach to surveying the concerns confronting different cultures as they developed their urban environments sociologically, anthropologically, architecturally and spatially. Cross listed with S SC 5520.

HUM 5550-3. Paris 1910: Art, Philosophy and Psychology. Traces the influences of philosophy, psychology and art in the English, French and German-speaking worlds in the early twentieth century. This intellectual history is extended to broader cultural and political contexts. Key period is between 1910 and 1968, when modernity's key aspirations and tensions became explicit. Cross-listed with PHIL 5550 and S SC 5550.

HUM 5600. Philosophy of Religion. Nature of religion and methods of studying it. Cross-listed with PHIL 4600, 5600, RLST 4060, S SC 5600.

HUM 5650-3. Reflections on Modernity. Explores modernity as a historical epoch and a theoretical space, looking at the commentaries and reflections of influential 20th century thinkers including Adorno, Arendt, Levinas, Merleau-Ponty, Habermas and Foucault. Examines how the theoretical inclinations of modernity were influenced by politics, art, literature and culture. Cross-listed with PHIL 5650 and S SC 5650.

HUM 5720-3. Sexuality, Gender and Their Visual Representation. Studies sexuality, gender and identity representation from classical antiquity through the present in the visual arts. Uses the literature of visibility, feminism, race and queer theory. Explores representations of femininity, masculinity and androgyny and their reinforcement and challenge to gender-identity norms. Cross listed with S SC 5720.

HUM 5750-3. Philosophical Psychology. Explores debates about psyche and body, mind and world, self and others and consciousness and nature. Examines the philosophical questions related to those debates that arise within theories of perception, affect and cognition offered by influential psychological models. Cross-listed with S SC 5750.

HUM 5840-1 to 3. Independent Study.

HUM 5924-3. Directed Research and Reading in Interdisciplinary Humanities. Provides background reading, theory and research approaches for students to develop a thesis, project, or an individualized theme for the oral exam based on their interdisciplinary focus.

HUM 5933-3. Philosophy of Eros. Why is philosophy an erotic activity and what are the implications of this insight? We will explore these issues, first, by reading Plato's erotic dialogues: *Lysis*, *Symposium* and *Phaedrus*. Then we will focus on Freud's influential (and controversial) appropriation of Plato's thought in the writings that span his career, from *The Interpretation of Dreams* (1900) to *Civilization and its Discontents* (1930) and beyond. Finally, we will survey post-Freudian theories of eros, such as Michel Foucault's *History of Sexuality*, as well as the more recent contributions of thinkers such as Jonathan Lear, Thomas Nagel, Martha Nussbaum and Slavoj Zizek. Cross listed with PHIL 4933/5933 and S SC 5933.

HUM 5939-1 to 6. Internship/Cooperative Education.

HUM 5950-1 to 8. Master's Thesis.

HUM 5960-1 to 8. Master's Project.

HUM 5984-3. Topics: Interdisciplinary Humanities.

Information Systems: ISMG (Business)

Initial Professional Teacher Education: IPTE (Education)

Initial Teacher Education: ITE (Education)

INTB: International Business (Business)

INTB 3901-3. The Construction of the European Union. An overview of past and future development in Europe, including economic, political and social aspects from the point of view of EU members, bordering countries and world powers. The single market and its repercussions for businesses and the impact of the creation of a single market are studied. Offered through the ACI Semester in Paris program. Prereq: acceptance to the ACI program.

INTB 3902-3. Intercultural Management: European Values and Behavior. An in-depth study of European cultural differences and what unites the European nations. Histories and cultures of European countries are used to understand differences in communication, management and

organizational development. Case studies provide a synthesis of European and U.S. management practices. Offered through the ACI Semester in Paris program. Prereq: acceptance to the ACI program.

INTB 3903-3. International Business Law. Provides a legal framework necessary for international business transactions and judicial risks. Combining theory and case studies, the course covers contract law, dispute settlement and international business specific operations: international sales, distribution and exclusive concession contracts, franchise contracts, commercial agency contracts and technology transfer contracts. Offered through the ACI Semester in Paris program. Prereq: BLAW 3000 and acceptance to the ACI program.

INTB 3904-3. International Negotiation. Studies the position of the company in the international marketing process; general knowledge of negotiators' external environments; preparation of a negotiation and the negotiating process; and expression of each party within the context of a contract. Offered through the ACI Semester in Paris program. Prereq: acceptance to the ACI program.

INTB 3905-3. International Marketing and Distribution. A practical view of the development of foreign markets, emphasizing strategic decisions of international development and analysis of company expertise regarding preferences and entrance into the marketplace. Problems pertaining to implementation of international sales policies and evolution of product distribution are also studied. Offered through the ACI Semester in Paris program. Prereq: MKTG 3000 and acceptance to the ACI program.

INTB 3906-3. International Communication and Consumer Behavior. Examines the influence of culture on purchasing and consuming as well as the importance of cultural values in consumer behavior. Provides the necessary framework to understand the current global market situation (product development, global market structures, global marketing strategies). An analysis of communication and advertising in an international context. Prereq: MKTG 3000 and acceptance to the ACI program.

INTB 3907-3. European Marketing and Management of a Product Line. Trains students to analyze the main characteristics and trends of the European marketing environment and business development. With extensive use of case studies, it examines such issues as European product launches. Prereq: MKTG 3000 and acceptance to the ACI program.

INTB 3908-3. Organizations and Culture. Introduces a range of ideas about organizations and how they work. Issues of internationalization in the context of organizational structure and culture, covering such topics as the global-local dilemma, the "transnational" approach and structural criteria. Modern organizational challenges assessed: innovation and technology. Prereq: MGMT 3000 and acceptance to ACI program.

INTB 3909-3. Single Market, European Law and Euroland. Overview of past and future steps in the development of Europe, economics, political and social aspects from the point of view of EU members, bordering countries (Central Europe) and world powers (United States, Japan and Asia). The single market and its repercussions for business (free access to the market, common rules, single currency) and the impact of the single market on their strategies. Prereq: acceptance to the ACI program.

INTB 3910-3. International Corporate Finance. The objective of this seminar is to provide an overview of international corporate finance, understand the main differences in accounting standards, interpret and critically analyze the financial reports issued by international firms and have a working knowledge of cost accounting principles. Prereq: FNCE 3100 and acceptance to the ACI program.

INTB 3911-3. The United States of Europe. The objectives of this seminar are to allow students to obtain a practical knowledge of and develop a thorough understanding of the integrative process taking place among several European countries and to give them a unique chance to become familiar with the various political, economical, legal, cultural and human aspects of the European community being developed and institutionalized, on a brand new, historical and transnational level. Prereq: acceptance to the ACI program.

INTB 3939-1 to 3. Internship/Cooperative Education. Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: senior standing and a 3.5 GPA.

INTB 4400-3. Introduction to International Business. An overview of the international business environment, the impact of environmental factors on international business operations and the identification and analysis of complex managerial issues facing international business firms. Prereq: junior standing or permission of instructor. Cross-listed with MGMT 4400.

INTB 4950-3. Special Topics in International Business. Current topics in international business are occasionally be offered. Consult the 'Schedule Planner' for specific course offerings or contact an advisor for information. Prereq: topics vary depending on the topic and the instructor requirements.

INTB 5800-3. Special Topics in International Business. Current topics in international business are occasionally be offered. Consult 'Schedule Planner' for specific course offerings or contact an advisor for information. Prereq: topics vary depending on the topic and the instructor requirements.

INTB 5939-1 to 3. Internship/Cooperative Education. Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: 21 semester hours and a 3.5 GPA.

INTB 6000-3. Introduction to International Business. An overview of the international business environment, the impact of environmental factors on international business operations and the identification of current and complex managerial issues facing organizations engaged in international business. Prereq: completion or waiver of CBK or completion of nine graduate credit hours.

INTB 6020-3. Cross-Cultural Management. Focuses on the management of diverse socio-cultural and political norms and values in the global marketplace. The goal of this course is to develop skills in managing impacts of such values and norms on the effectiveness of international business operations and managerial activities. Prereq: INTB 6000 or permission of instructor.

INTB 6022-3. International Business Negotiations. Examines the international dimensions of business negotiations. It addresses the impact of the cultural, legal, political environments in the negotiation process and examines similarities and differences in negotiation styles and approaches across borders. (This course qualifies as an international elective for the MS in International Business program.)

INTB 6024-3. International Trade Finance and Management. Provides an overview of international trade finance and trade management. It examines the roles played by various parties involved in international trade, addresses key methods of international payment and related financing and provides practical experiences on how to manage the import and export trade management process. (This course qualifies as an international elective for the MS in International Business program.)

INTB 6026-3. International Marketing. *Fall, Spring.* Explores problems, practices and strategies involved in marketing goods and services internationally. Emphasizes analysis of uncontrollable environments, legal systems and economic conditions, as they affect international marketing planning. (This course qualifies as an international elective for the MS in International Business program.) Prereq: BUSN 6560. Note: students cannot receive credit for both MKTG 6020 and INTB 6026. Cross-listed with MKTG 6020.

INTB 6040-3. International Human Resources Management. This course has two objectives: (1) to understand the impact of cultural differences in the management of people in multinational firms; and (2) to compare and contrast critical human resource issues in the contexts of domestic and international operations. Topics include recruitment, staffing, training, performance appraisal, compensation and labor and management relations in markets around the world. (This course qualifies as an international elective for the MS in International Business program.) Prereq: MGMT 6380 or BUSN 6520 (or equivalent). Cross-listed with MGMT 6040.

INTB 6060-3. The Legal Aspects of International Business. Analyzes the legal aspects of international business transactions and considers risk-reducing mechanisms such as letters of credit and arbitration. The course examines NAFTA, the European union and other international trading structures and rules, giving the background for export or import activities. (This course qualifies as an international elective for the MS in International Business program.)

INTB 6080-3. Global Competition. Focuses on the dynamics of the interface between international business operations and their market environments. It addresses the changing structure of international competitive environments and its implications for companies engaged in international business. It examines various approaches to and issues in structuring international business deals in dynamic global competitive environments. (This course qualifies as an international elective for the MS in International Business program.) Prereq: INTB 6000 or permission of instructor.

INTB 6082-3. Marketing in Emerging Markets. Explores problems, practices and strategies involved in marketing goods and services in emerging markets. Emphasizes analysis of uncontrollable environmental forces, including cultures, governments, legal systems and economic conditions, as they affect the marketing plan. (This course qualifies as an international elective for the MS in International Business program.) Prereq: BUSN 6560. Note: students cannot receive credit for both MKTG 6080 and INTB 6082. Cross-listed with MKTG 6080.

INTB 6200-3. International Business Policy. The objective of this course is to develop competence relevant to strategy formulation and implementation in a multi-national enterprise and in an international context. Provides theoretical knowledge, skills and sensitivities that help deal effectively with the strategic and managerial problems of managing in a global environment. Prereq: INTB 6000 and 18 graduate credit hours.

INTB 6370-3. International Accounting. *Spring.* Designed to expose students to the international aspects of accounting and financial management. Includes discussion of some of the different financial accounting practices across countries; financial statement analysis in a global context, international tax implications and the implications of operating within the regulations of the Foreign Corrupt Practices Act, the European Union, North American Free Trade Agreement and General Agreement on Tariffs and Trade. (This course qualifies as an international elective for the MS in International Business program.) Prereq: BUSN 6550 or equivalent. Note: students cannot receive credit for both INTB 6370 and ACCT 6370. Cross-listed with ACCT 6370.

INTB 6372-3. International Financial Management. Addresses financial management in an international context that considers international capital movements movements and foreign exchange problems and international operations as they affect financial functions. It reviews foreign and international institutions and the foreign exchange process and considers financial requirements, problems, sources and policies of firms doing business internationally. Meets concurrently with FNCE 6370. Prereq: BUSN 6640. Cross-listed with FNCE 6370.

INTB 6411-3. International Corporate Governance. Discusses the structure and goals of the modern corporation, the primary governance mechanisms used to help companies achieve these goals, how and why these roles, goals and mechanisms vary across nations. The topics to be covered in the course include how share ownership, particularly by institutional shareholders, managerial compensation and board of director activities are being used to improve corporate governance systems. The class compares the Codes of Best Governance Practices from several countries as well as recent innovations in individual company governance rating systems. (This course qualifies as an international elective for the MS in International Business program.) Prereq: BUSN 6640. Note: students cannot receive credit for both FNCE 6411 and INTB 6411. Cross-listed with FNCE 6411.

INTB 6750-3. Research Methods in International Business. Focuses on three major issues: (1) research design from an international management perspective qualitative, quantitative and ethnographic);

(2) topical issues (e.g., culture, international negotiations, mergers and alliances); (3) trends in international business research (e.g., cross-national project teams, emerging theoretical perspectives). This course qualifies as an international elective for the MS in International Business program. Prereq: INTB 6000 and BUSN 6530 or equivalent.

INTB 6800-3. Special Topics in International Business. Current topics in international business are occasionally offered. This includes international field study courses. Consult the 'Schedule Planner' for specific course offerings or contact an advisor for information. (This course qualifies as an international elective for the MS in International Business program.) Prereq: topics vary depending on topic and instructor requirements.

INTB 6840-1 to 8. Independent Study. Instructor approval required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study. (This course qualifies as an international elective for the MS in International Business program.)

INTB 6950-1 to 8. Master's Thesis. Prereq: INTB 6750.

Instructional Technology: IT (Education)

International Business: INTB (Business)

IPTE: Initial Professional Teacher Education (Education)

IPTE 4000-3. Elementary Literacy Instruction and Assessment. Designed to prepare teacher candidates to develop an appreciation, understanding and application of literacy assessment and instruction in the elementary classroom. Teachers learn how to use the results of various types of assessment to create a reading and writing program that addresses the literacy needs of all children. The course assist teachers in learning how to integrate the teaching of reading and writing across content areas. Prereq: concurrent enrollment in an internship or permission of an instructor is required. Cross-listed with IPTE 5000.

IPTE 4001-1. Elementary Literacy Assessment and Instruction Teaching Laboratory. Designed to support novice and experienced teachers in examining student reading and writing performance data and using the data to plan instruction that assist students meeting reading and writing standards. Conducted by teacher experts in literacy; laboratories utilize classroom data from the elementary students the laboratory participants are teaching. Prereq: concurrent enrollment in an internship or IPTE 4000/5000 or permission of an instructor is required. Cross-listed with IPTE 5001.

IPTE 4002-2. Math Instruction and Assessment. Designed to prepare elementary teachers to teach mathematics in elementary school and to apply the six principles of the National Council of Teachers of Mathematics (NCTM), (equity, curriculum, teaching, learning, assessment and technology) to the four areas of mathematical learning, (number sense, statistics and probability, geometry and measurement, and mathematical functions). Teachers explore ways to help all elementary students become flexible and resourceful problem solvers in mathematics. Prereq: MATH 3040. Concurrent enrollment in an internship or permission of an instructor is required. Cross-listed with IPTE 5002.

IPTE 4004-2. Science in the Elementary Curriculum. Designed to support elementary teachers in developing an understanding and appreciation of active science explorations in elementary classrooms, learning various methods of teaching and assessing science that prepare students to meet science content standards, developing authentic applications of science and integrating science with other elementary content areas, including literacy and math, to support more holistic learning. Cross-listed with IPTE 5004.

IPTE 4005-2. Social Studies in the Elementary Curriculum. Designed to prepare elementary teachers to support students' learning related to the Colorado social studies standards. The course includes attention to social studies curriculum and teaching resources, approaches and strategies for effective teaching and assessment of social

studies content and to the teaching of literacy and math within social studies content. The course also helps teachers understand how to model democratic ideals in a classroom. Cross-listed with IPTE 5005.

IPTE 4006-4. Integrated Science and Social Studies in the Elementary Curriculum. Designed to support elementary teachers in developing an understanding and appreciation of active science and social studies explorations in elementary classrooms, learning various methods of teaching and assessing science and social studies that prepare students to meet content standards, developing authentic applications and integrating with other elementary content areas, including literacy and math, to support more holistic learning. Cross-listed with IPTE 5006.

IPTE 4020-3. Exploring Diversity in Content and Pedagogy I. An essential feature of standards-based curriculum design and instruction is the ability of teachers to draw from students' previous experience, help students make connections between new information and previous knowledge and skills and support students in transferring new information to real-life contexts and environments. The purpose of the year-long two-part workshop is to guide teacher candidates through a process for achieving these outcomes for all students utilizing curriculum that integrates reading, writing, math, science, social studies, movement and the expressive arts. Prereq: concurrent enrollment in an internship. Cross-listed with IPTE 5020.

IPTE 4025-3. Secondary Literacy Instruction and Assessment. Provides knowledge and practice in using specific literacy methods to enhance students' content learning and literacy development in middle schools and high schools. Various methods of literacy assessment are emphasized as is the use of assessment information to guide instruction for students. Instructional strategies for special populations, especially speakers of English as a second language, are also addressed. Prereq: concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 5025.

IPTE 4026-1. Content Literacy Assessment and Instruction Teaching Laboratory. The secondary literacy teaching laboratory is designed to support novice and experienced teachers from all content areas in examining students' reading and writing performance data and using the data to plan instruction that assist secondary students in meeting reading and writing standards through work in content area classes. Conducted by teacher experts who possess knowledge of literacy strategies useful in content area teaching, laboratories utilize the data from the students that the laboratory participants are teaching. Prereq: IPTE 4025 and 4910 or teaching experience. Concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 5026.

IPTE 4050-1. Planning for the First Year of Teaching. Designed to assist those who are about to enter into their first year of teaching in planning for the first year, with a focus on: 1) creating community; 2) professional learning; and 3) curriculum and instruction. Cross-listed with IPTE 5050.

IPTE 4120-3. Negotiating the Classroom Culture with Children. A central purpose of classroom management is to establish and maintain a learning environment that fosters both effective and efficient instruction in the context of a positive social culture that models democratic ideals for students. This course focuses on the dimensions of classroom life as they are directly influenced by the social and cultural background of elementary students. Prereq: concurrent enrollment in an internship. Cross-listed with IPTE 5120.

IPTE 4121-3. Negotiating the Classroom Culture with Adolescents. A central purpose of classroom management is to establish and maintain a learning environment that fosters both effective and efficient instruction in the context of a positive social culture that models democratic ideals for students. This course focuses on the dimensions of classroom life as they are directly influenced by the social and cultural background of middle and high school students. Prereq: concurrent enrollment in an internship. Cross-listed with IPTE 5121.

IPTE 4130-3. Democratic Schooling: Issues of Laws and Ethics. Designed to provide an understanding of the legal, social, ethical and democratic context of schools, the teacher's legal and ethical role in

schools and to examine the related issues that currently face teachers, parents, students, legislators and administrators. The aim is to facilitate the clarification of a personal value system through readings and discussions of the foundations of schooling in America. Cross-listed with IPTE 5130.

IPTE 4300-3. Curriculum and Methods in Secondary Math.

Focuses on the development of competencies in consultation and collaboration. The overall purpose is to encourage the development of understanding and skills that enhance teachers' ability to work and communicate effectively with school personnel, including paraprofessionals and parents. The goal of collaboration is to support and determine together the instructional scenarios that best meet the needs of students. Specific competencies include problem solving, conflict resolution, data-collection/ observation skills, conferencing, facilitating meetings and interacting with others while respecting diverse discourses and multicultural backgrounds. Prereq: concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 5300.

IPTE 4350-3. Modern Trends in Science Education. Recent developments in theory, curriculum, methods, politics and materials in secondary science are examined for their contribution to the objectives of science education. Prereq: concurrent enrollment in an internship or permission of instructor is required. Cross-listed with IPTE 5350.

IPTE 4351-3. Inquiry Science Methods. Designed to provide an in-depth study of inquiry science methods and how inquiry science supports standards-based education. The course provides a review of research on the pedagogy that supports student understanding, problem solving and creativity through the use of inquiry science. Participants learn a variety of methods, techniques and resources for teaching inquiry science, understand the processes of "doing" science and develop lessons that actively engage students in science in their own classrooms. Prereq: concurrent enrollment in an internship or permission of instructor is required. Cross-listed with IPTE 5351.

IPTE 4401-3. Assessment in Math Education. Applied examination of traditional and alternative assessment techniques and practices in mathematics. Primary focus of the course is the questions teachers ask to probe mastery and understanding of standards-based mathematics and what to look for in student responses to those questions. Topics including the history of assessment of mathematical understanding, types of mathematical knowledge, performance, authentic assessment, traditional assessment techniques, interactive interviews, CSAP math tests, language and culture as factors in mathematics, recent research and the influence of technology on assessment. Prereq: concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 5401.

IPTE 4460-3. Thoughtful Inquiry in Teaching Social Studies: Culture, People and Change. Focuses on the themes of culture, people and change, this course equips secondary teachers with the skills and knowledge needed to plan and implement secondary social studies curriculum using integrated methodology. Additionally, this course increases teachers' understanding regarding the role of social studies education in the school curriculum and familiarizes teachers with problems, issues and trends associated with social studies curricula. Prereq: concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 5460.

IPTE 4465-3. Thoughtful Inquiry in Teaching Social Studies: Power, Technology and Society. Focuses on the themes of power, technology and society, this course equips secondary teachers with the knowledge and skills needed to plan and implement secondary social studies curriculum using integrated methodology. Additionally, this course increases teachers' understanding regarding the role of social studies education in the school curriculum and familiarizes teachers with problems, issues and trends associated with social studies curricula. Prereq: concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 5465.

IPTE 4740-3. Adolescent Literature. Reading and evaluation of fiction and nonfiction appropriate for students in middle and senior high school. Emphasis is on modern literature written for students from

a variety of ethnic backgrounds. Course is also appropriate for teachers working with adults to improve their reading. Prereq: concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 5740.

IPTE 4760-3. Theory and Methods of Teaching Secondary English. Focuses on teaching/learning theories and practical classroom strategies for teaching English Language Arts to adolescent learners in middle school, junior high school and high school classes. Prereq: concurrent enrollment in an internship or permission of instructor is required. Cross-listed with IPTE 5760.

IPTE 4910-2. Internship and Site Seminar I. Teacher candidates engage in systematic observation of, participation in, design of and reflection on curricular, instructional and management practices across the full range of educational programs within a school (e.g., general special education, bilingual education, Title I services, etc.). Cross-listed with IPTE 5910.

IPTE 4911-2. Internship and Site Seminar II. Teacher candidates engage in systematic observation of, participation in, design of and reflection on curricular, instructional and management practices across the full range of educational programs within a school (e.g., general and special education, bilingual education, Title I services, etc.). Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the School Internship Handbook. In partner schools, the partner school site coordinator and the site professor are responsible for coaching and supervising teacher candidates and for supporting the clinical teachers in their work with teacher candidates. Site coordinators and professor conduct site seminars focused on providing teacher candidates with information about the partner school context and support for success within that context. In internships outside of partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: IPTE 4910 with a B or better. Cross-listed with IPTE 5911.

IPTE 4912-3. Internship and Site Seminar III. Teacher candidates engage in systematic observation of, participation in, design of and reflection on curricular, instructional and management practices across the full range of educational programs within a school (e.g., general and special education, bilingual education, Title I services, etc.). Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the School Internship Handbook. In partner schools, the partner school site coordinator and the site professor are responsible for coaching and supervising teacher candidates and for supporting the clinical teachers in their work with teacher candidates. Site coordinators and professor conduct site seminars focused on providing teacher candidates with information about the partner school context and support for success within that context. In internships outside of partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: IPTE 4911 with a B or better. Cross-listed with IPTE 5912.

IPTE 4913-6. Internship and Site Seminar IV. Teacher candidates engage in systematic observation of, participation in, design of and reflection on curricular, instructional and management practices across the full range of educational programs within a school (e.g., general and special education, bilingual education, Title I services, etc.). Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the School Internship Handbook. In partner schools, the partner school site coordinator and the site professor are responsible for coaching and supervising teacher candidates and for supporting the clinical teachers in their work with teacher candidates. Site coordinators and professor conduct site seminars focused on

providing teacher candidates with information about the partner school context and support for success within that context. In internships outside of partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: IPTE 4912, with a B or better, passing score on the PLACE/PRAXIS content exam and satisfactory progress in the program. Cross-listed with IPTE 5913.

IPTE 4915-4. Internship and Seminar I. Teachers working in their own classrooms while earning an initial teaching license engage in assessment, instruction, management and collaborate with their colleagues across the full range of educational programs in their school (e.g., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or performance-based assessments. Prereq: continuing contract as a teacher, satisfactory completion of the preceding internship and concurrent enrollment in scheduled IPTE coursework.

IPTE 4916-4. Internship and Seminar II. Teachers working in their own classrooms while earning an initial teaching license engage in assessment, instruction and management and collaborate with their colleagues across the full range of educational programs in their school (e.g., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or on performance-based assessments. Prereq: IPTE 4915 and continuing contract as a teacher.

IPTE 4917-4. Internship and Seminar III. Teachers working in their own classrooms while earning an initial teaching license engage in assessment, instruction and management and collaborate with their colleagues across the full range of educational programs in their school (e.g., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or on performance-based assessments. Prereq: continuing contract as a teacher, satisfactory completion of the preceding internship and concurrent enrollment in scheduled IPTE coursework.

IPTE 4918-4. Internship and Seminar IV. Teachers working in their own classrooms while earning in initial teaching license engage in assessment, instruction and management and collaborate with their colleagues across the full range of educational programs in their school (i.e., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or on performance-base assessments. Prereq: a continuing teaching contract; satisfactory completion of the preceding internships and coursework and concurrent enrollment in scheduled coursework or permission of instructor.

IPTE 5000-3. Elementary Literacy Instruction and Assessment. Designed to prepare teacher candidates to develop an appreciation, understanding and application of literacy assessment and instruction in the elementary classroom. Teachers learn how to use the results of various types of assessment to create a reading and writing program that addresses the literacy needs of all children. The course assist teachers in learning how to integrate the teaching of reading and writing writing across content areas. Prereq: concurrent enrollment in an internship or permission of an instructor is required. Cross-listed with IPTE 4000.

IPTE 5001-1. Elementary Literacy Assessment and Instruction Teaching Laboratory. Designed to support novice and experienced teachers in examining student reading and writing performance data and using the data to plan instruction assist students in meeting reading and writing standards. Conducted by teacher experts in literacy; laboratories utilize classroom data from the elementary students the laboratory participants are teaching. Prereq: concurrent enrollment in an internship or IPTE 5000/4000 or permission of an instructor is required. Cross-listed with IPTE 4001.

IPTE 5002-2. Math Instruction and Assessment. Designed to prepare elementary teachers to teach mathematics in elementary school and to apply the six principles of the National Council of Teachers of Mathematics (NCTM), (equity, curriculum, teaching, learning, assessment and technology) to the four areas of mathematical learning, (number sense, statistics and probability, geometry and measurement, and mathematical functions). Teachers explore ways to help all elementary students become flexible and resourceful problem solvers in mathematics. Prereq: MATH 3040. Concurrent enrollment in an internship or permission of an instructor is required. Cross-listed with IPTE 4002.

IPTE 5004-2. Science in the Elementary Curriculum. Designed to support elementary teachers in developing an understanding and appreciation of active science explorations in elementary classrooms, learning various methods of teaching and assessing science that prepare students to meet science content standards, developing authentic applications of science and integrating science with other elementary content areas, including literacy and math, to support more holistic learning. Cross-listed with IPTE 4004.

IPTE 5005-2. Social Studies in the Elementary Curriculum. Designed to prepare elementary teachers to support students' learning related to the Colorado social studies standards. The course includes attention to social studies curriculum and teaching resources, approaches and strategies for effective teaching and assessment of social studies content and to the teaching of literacy and math within social studies content. The course also helps teachers understand how to model democratic ideals in a classroom. Cross-listed with IPTE 4005.

IPTE 5006-1-4. Integrated Science and Social Studies in the Elementary Curriculum. Designed to support elementary teachers in developing an understanding and appreciation of active science and social studies explorations in elementary classrooms, learning various methods of teaching and assessing science and social studies that prepare students to meet content standards, developing authentic applications and integrating with other elementary content areas, including literacy and math, to support more holistic learning. Cross-listed with IPTE 4006.

IPTE 5020-3. Exploring Diversity in Content and Pedagogy I. An essential feature of standards-based curriculum design and instruction is the ability of teachers to draw from students' previous experience, help students make connections between new information and previous knowledge and skills and support students in transferring new information to real-life contexts and environments. The purpose of the year-long two-part workshop is to guide teacher candidates through a process for achieving these outcomes for all students utilizing curriculum that integrates reading, writing, math, science, social students, movement and the expressive arts. Prereq: concurrent enrollment in an internship. Cross-listed with IPTE 4020.

IPTE 5025-3. Secondary Literacy Instruction and Assessment. Provides knowledge and practice in using specific literacy methods to enhance students' content learning and literacy development in middle schools and high schools. Various methods of literacy assessment are emphasized as is the use of assessment information to guide instruction for students. Instructional strategies for special populations, especially speakers of English as a second language, are also addressed. Prereq: concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 4025.

IPTE 5026-1. Content Literacy Assessment and Instruction Teaching Laboratory. The secondary literacy teaching laboratory is designed to support novice and experienced teachers from all content

areas in examining students' reading and writing performance data and using the data to plan instruction that assist secondary students in meeting reading and writing standards through work in content area classes. Conducted by teacher experts who possess knowledge of literacy strategies useful in content area teaching, laboratories utilize the data from the students that the laboratory participants are teaching. Prereq: IPTE 5025 and 5910 or teaching experience. Concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 4026.

IPTE 5050-1. Planning for the First Year of Teaching. Designed to assist those who are about to enter into their first year of teaching in planning for the first year, with a focus on: 1) creating community; 2) professional learning; and 3) curriculum and instruction. Prereq: IPTE 5913 with a grade of "B" or better. Cross-listed with IPTE 4050.

IPTE 5070-2. Teacher Inquiry I. The teachers develop a greater understanding of strategies and methods for conducting classroom and beyond-the-classroom inquiry that help them explore important questions about teaching and learning. Prereq: IPTE 5913 with a grade of "B" or better.

IPTE 5071-1. Teacher Inquiry II. Part II: Teachers conduct school and/or community-based inquiries in collaboration with each other and/or with their mentor teachers. Teachers share their clinical findings with their new school colleagues. Prereq: IPTE 5070.

IPTE 5080-3. Principles and Practice of Change. Teachers read widely from the literature on the societal, institutional, managerial and political contexts of change in schooling. They examine their roles as instructional leaders, reflective practitioners and change agents as they use scholarly treatment of these topics in their daily work. Prereq: IPTE 5912 with a grade of "B" or better.

IPTE 5120-3. Negotiating the Classroom Culture with Children. A central purpose of classroom management is to establish and maintain a learning environment that fosters both effective and efficient instruction in the context of a positive social culture that models democratic ideals for students. This course focuses on the dimensions of classroom life as they are directly influenced by the social and cultural background of elementary students. Prereq: concurrent enrollment in an internship. Cross-listed with IPTE 4120.

IPTE 5121-3. Negotiating the Classroom Culture with Adolescents. A central purpose of classroom management is to establish and maintain a learning environment that fosters both effective and efficient instruction in the context of a positive social culture that models democratic ideals for students. This course focuses on the dimensions of classroom life as they are directly influenced by the social and cultural background of middle and high school students. Prereq: concurrent enrollment in an internship. Cross-listed with IPTE 4121.

IPTE 5130-3. Democratic Schooling: Issues of Laws and Ethics. Designed to provide an understanding of the legal, social, ethical and democratic context of schools, the teacher's legal and ethical role in schools and to examine the related issues that currently face teachers, parents, students, legislators and administrators. The aim is to facilitate the clarification of a personal value system through readings and discussions of the foundations of schooling in America. Cross-listed with IPTE 4130.

IPTE 5300-3. Curriculum and Methods in Secondary Math. Focuses on the development of competencies in consultation and collaboration. The overall purpose is to encourage the development of understanding and skills that enhance teachers' ability to work and communicate effectively with school personnel, including paraprofessionals and parents. The goal of collaboration is to support and determine together the instructional scenarios that best meet the needs of students. Specific competencies include problem solving, conflict resolution, data-collection/observation skills, conferencing, facilitating meetings and interacting with others while respecting diverse discourses and multicultural backgrounds. Prereq: concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 4300.

IPTE 5350-3. Modern Trends in Science Education. Recent developments in theory, curriculum, methods, politics and materials in

secondary science are examined for their contribution to the objectives of science education. Prereq: concurrent enrollment in an internship or permission of instructor is required. Cross-listed with IPTE 4350.

IPTE 5351-3. Inquiry Science Methods. Designed to provide an in-depth study of inquiry science methods and how inquiry science supports standards-based education. The course provides a review of research on the pedagogy that supports student understanding, problem solving and creativity through the use of inquiry science. Participants learn a variety of methods, techniques and resources for teaching inquiry science, understand the processes of "doing" science and develop lessons that actively engage students in science in their own classrooms. Prereq: concurrent enrollment in an internship or permission of instructor is required. Cross-listed with IPTE 4351.

IPTE 5401-3. Assessment in Math Education. Applied examination of traditional and alternative assessment techniques and practices in mathematics. A primary focus of the course is the questions teachers ask to probe mastery and understanding of standards-based mathematics and what to look for in student responses to those questions. Topics including the history of assessment of mathematical understanding, types of mathematical knowledge, performance, authentic assessment, traditional assessment techniques, interactive interviews, CSAP math tests, language and culture as factors in mathematics, recent research and the influence of technology on assessment. Prereq: concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 4401.

IPTE 5460-3. Thoughtful Inquiry in Teaching Social Studies: Culture, People and Change. Focuses on the themes of culture, people and change, this course equips secondary teachers with the skills and knowledge needed to plan and implement secondary social studies curriculum using integrated methodology. Additionally, this course increases teachers' understanding regarding the role of social studies education in the school curriculum and familiarizes teachers with problems, issues and trends associated with social studies curricula. Prereq: concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 4460.

IPTE 5465-3. Thoughtful Inquiry in Teaching Social Studies: Power, Technology and Society. Focuses on the themes of power, technology and society, this course equips secondary teachers with the knowledge and skills needed to plan and implement secondary social studies curriculum using integrated methodology. Additionally, this course increases teachers' understanding regarding the role of social studies education in the school curriculum and familiarizes teachers with problems, issues and trends associated with social studies curricula. Prereq: concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 4465.

IPTE 5690-3. Curriculum and Methods in Foreign Language. Methodology to teaching French, German and Spanish in an urban setting. Prereq: concurrent enrollment in an internship required.

IPTE 5691-3. Curriculum and Methods in Foreign Language II. Methodology to teaching French, German and Spanish in an urban setting. Prereq: concurrent enrollment in an internship required.

IPTE 5740-3. Adolescent Literature. Reading and evaluation of fiction and nonfiction appropriate for students in middle and senior high school. Emphasis is on modern literature written for students from a variety of ethnic backgrounds. Course is also appropriate for teachers working with adults to improve their reading. Prereq: concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 4740.

IPTE 5760-3. Theory and Methods of Teaching Secondary English. Focuses on teaching/learning theories and practical classroom strategies for teaching English Language Arts to adolescent learners in middle school, junior high school and high school classes. Prereq: concurrent enrollment in an internship or permission of instructor is required. Cross-listed with IPTE 4760.

IPTE 5840-1 to 4. Independent Study.

IPTE 5910-2. Internship and Site Seminar I. Teacher candidates engage in systematic observation of, participation in, design of and

reflection on curricular, instructional and management practices across the full range of educational programs within a school (e.g., general special education, bilingual education, Title I services, etc.). Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the School Internship Handbook. In partner schools, the partner school site coordinator and the site professor are responsible for coaching and supervising teacher candidates and for supporting the clinical teachers in their work with teacher candidates. Site coordinators and professor conduct site seminars focused on providing teacher candidates with information about the partner school context and support for success within that context. In internships outside of partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Cross-listed with IPTE 4910.

IPTE 5911-2. Internship and Site Seminar II. Teacher candidates engage in systematic observation of, participation in, design of and reflection on curricular, instructional and management practices across the full range of educational programs within a school (e.g., general and special education, bilingual education, Title I services, etc.). Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the School Internship Handbook. In partner schools, the partner school site coordinator and the site professor are responsible for coaching and supervising teacher candidates and for supporting the clinical teachers in their work with teacher candidates. Site coordinators and professor conduct site seminars focused on providing teacher candidates with information about the partner school context and support for success within that context. In internships outside of partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: IPTE 5910 with a B or better. Cross-listed with IPTE 4911.

IPTE 5912-3. Internship and Site Seminar III. Teacher candidates engage in systematic observation of, participation in, design of and reflection on curricular, instructional and management practices across the full range of educational programs within a school (e.g., general and special education, bilingual education, Title I services, etc.). Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the School Internship Handbook. In partner schools, the partner school site coordinator and the site professor are responsible for coaching and supervising teacher candidates and for supporting the clinical teachers in their work with teacher candidates. Site coordinators and professor conduct site seminars focused on providing teacher candidates with information about the partner school context and support for success within that context. In internships outside of partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: IPTE 5911 with a B or better. Cross-listed with IPTE 4912.

IPTE 5913-6. Internship and Site Seminar IV. Teacher candidates engage in systematic observation of, participation in, design of and reflection on curricular, instructional and management practices across the full range of educational programs within a school (e.g., general and special education, bilingual education, Title I services, etc.). Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the School Internship Handbook. In partner schools, the partner school site coordinator and the site professor are responsible for coaching and supervising teacher candidates and for supporting the clinical teachers in their work with teacher candidates. Site coordinators and professor conduct site seminars focused on providing teacher candidates with information about the partner school context and support

for success within that context. In internships outside of partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: IPTE 5912, with a B or better, passing score on the PLACE/PRAXIS content exam and satisfactory progress in the program. Cross-listed with IPTE 4913.

IPTE 5915-4. Internship and Seminar I. Teachers working in their own classrooms while earning an initial teaching license engage in assessment, instruction, management and collaborate with their colleagues across the full range of educational programs in their school (e.g., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or performance-based assessments. Prereq: continuing contract as a teacher, satisfactory completion of the preceding internship and concurrent enrollment in scheduled IPTE coursework.

IPTE 5916-4. Internship and Seminar II. Teachers working in their own classrooms while earning an initial teaching license engage in assessment, instruction and management and collaborate with their colleagues across the full range of educational programs in their school (e.g., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or on performance-based assessments. Prereq: IPTE 5915 and continuing contract as a teacher.

IPTE 5917-4. Internship and Seminar III. Teachers working in their own classrooms while earning an initial teaching license engage in assessment, instruction and management and collaborate with their colleagues across the full range of educational programs in their school (e.g., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or on performance-based assessments. Prereq: continuing contract as a teacher, satisfactory completion of the preceding internship and concurrent enrollment in scheduled IPTE coursework.

IPTE 5918-4. Internship and Seminar IV. Teachers working in their own classrooms while earning in initial teaching license engage in assessment, instruction and management and collaborate with their colleagues across the full range of educational programs in their school (i.e., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or on performance-base assessments. Prereq: a continuing teaching contract; satisfactory completion of the preceding internships and coursework and concurrent enrollment in scheduled coursework or permission of instructor.

IPTE 5919-4 to 12. Second Endorsement Internship or Guest Student Teaching. A specially arranged internship for those seeking a second endorsement in an area in which they are already teaching or wish to teach and/or for those from another state who wish to do their student teaching in Colorado and transfer credits back to their home institution. The number of credits and possible fee is arranged according to circumstances. Prereq: letter from employing district certifying employment in teaching field for which licensure is sought or a letter from home institution certifying readiness to student teach.

ISMG: Information Systems (Business)

ISMG 2050-3. Introduction to Business Problem Solving. Focuses on the technology and problem solving skills necessary for students to succeed both at school and in the business world. Focuses on business decision making using spreadsheets, database and Web tools. Students solve problems in statistics, accounting, finance, marketing, management and information systems. The objective is to provide problem solving methods necessary for students to succeed in the business community. This is a business core course therefore a grade of a 'C' or better must be earned to satisfy Business graduation and prerequisites for other business courses.

ISMG 2200-3. Introduction to Business Programming. Examines how business applications are developed. Emphasis is placed on developing complete and user-friendly programming solutions to business problems. Students are introduced to an object-oriented programming language for implementing event-driven business problem solutions. Prereq: ISMG 2000.

ISMG 3000-3. Principles of Information Systems Theory and Practice. *Fall, Spring, Summer.* Covers the role of information technology in business organizations. Addresses strategic, tactical and operational issues related to effective use and management of information technologies in contemporary organizations. Highlights the importance of IT in organizations, including the relationship between technology and competitiveness, the alignment of business and IT strategy, the development and management of an effective IT infrastructure and the use of IT-enabled organizational processes. In addition, discusses alternative methods for planning, acquisition and implementation of information systems including the evaluation of investments in technology as well as issues related as to IT project management. This course studies the ways in which the nature of IT management has evolved in an era where enterprise systems have revolutionized, the integration of business systems, new types of IT sourcing and contractual relationships development and how the Internet has enabled technology interactions between and within firms. Finally, addresses the critical, ethical and security issues associated with IT. Business core courses therefore a grade of a 'C' or better must be earned to satisfy graduation requirements. Prereq: ISMG 2050.

ISMG 3100-3. Information Technology Hardware and Software. Provides the hardware/software technology background to enable systems development personnel to understand tradeoffs in computer architecture for effective use in business environment. System architecture for single user, central and networked computing systems; single and multi-user operating systems. Prereq: ISMG 3000.

ISMG 3200-3. Programming, Data, File and Object Structures. Provides an understanding of algorithm development, programming, computer concepts and the design and application of data and file structures. Includes an understanding of the logical and physical structure of both programs and data. The "JAVA" programming language will be used as the vehicle for investigating a variety of data structure topics. Topics include: data structures and representation; characters, records, files and multimedia; precision of data; information representation, organization and storage; algorithm development; object representation compared to conventional data flow notation; programming control structures; program correctness, verification and validation; file structures and representation. Prereq: ISMG 2200.

ISMG 3939-1 to 3. Internship/Cooperative Education. Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: senior standing and 3.5 GPA.

ISMG 4500-3. Database Management and Applications. The success of today's business often hinges on the ability to turn mountains of data into critical information and to utilize the critical information to make the right decisions quickly and efficiently. This course introduces students to the basic principles of data management and utilization. Topics include data modeling, normalization and database design, query formulation using SQL and QBE and interface design. Actual database management

systems products (e.g. ORACLE and ACCESS) are utilized to demonstrate the design of database applications in management, marketing, finance, accounting and other business areas. Each student will also design a working database system as a project. Prereq: ISMG 3000.

ISMG 4600-3. System Analysis and Design. Provides an understanding of the system development and maintenance process. It enables students to evaluate and choose a system development methodology. Topics include: systems development life cycle phases, structured analysis and design, object-oriented analysis and design; prototyping, joint application development (JAD) and structured walk-through; communication, interviewing, interpersonal and presentation skills; risk and feasibility analysis, project management, systems operations and support. Prereq: ISMG 3000.

ISMG 4700-3. Networks and Telecommunication. Provides an in-depth knowledge of data communications and networking requirements including: networking and telecommunications technologies, hardware and software. Emphasis is upon the analysis and design of networking applications in organizations. Management of telecommunications networks, cost-benefit analysis and evaluation of connectivity options are also covered. Students learn to evaluate, select and implement different communication options within an organization. Topics include: telecommunication devices, media, systems; network hardware and software; network configuration; network applications; coding of data; cost/benefit analysis; distributed versus centralized systems; architectures, topologies and protocols; installation and operation of bridges, routers and gateways; network performance analysis; privacy, security, reliability; installation and configuration of LAN and WAN networks; monitoring of networks; management of telecommunications and communications standards. Intranet and Internet. Prereq: ISMG 3000.

ISMG 4750-3. Business Intelligence and Financial Modeling. Designed to provide students with exposure to excel modeling software including software (such as Crystal) for risk analysis and knowledge of Oracle Financial and Business Intelligence software widely used in corporate financial operations. Oracle financial Analyzer provides complete application for financial reporting, analysis, budgeting and planning allowing businesses to make, manage and measure decisions across the enterprise. Oracle Financial Intelligence provides a comprehensive overview of strategic financial information in a Web format for easier use providing financial information to users to allow them to make better decisions. Oracle Balance Scorecard links strategy to management action by providing key performance indicators and quantifiable targets to achieve that are aligned with an organization's strategy. The course objective is to provide students with exposure to excel modeling software and knowledge of Corporate Financial operations.

ISMG 4760-3. Customer Relationship Management. This marketing-theory driven course examines customer relationship management (CRM) as a key strategic process for organizations. Composed of people, technology and processes, effective CRM optimizes the selection or identification, acquisition, growth and retention of desired customers to maximize profit. Besides presenting an overview of the CRM process, its strategic role in the organization and its place in marketing, students have an opportunity to create simulated CRM database using popular software package that help to illustrate what CRM can do, its advantages and limitations. Prereq: MKTG 3000 and ISMG 3000. Cross-listed with MKTG 4760.

ISMG 4780-3. Accounting IS Processes and Control. The course is designed to develop knowledge and skills used to understand and evaluate corporate accounting processes and systems. It focuses on financial and information system internal controls and the flow of corporate information through accounting system. A financial system objective and risk assessment approach is used to present concepts and techniques for evaluating the adequacy of system processes and controls. Prereq: Completion of ACCT 2200 and 2220 with a grade of 'C' or better. Strictly enforced. Cross-listed with ACCT 4780.

ISMG 4800-3. eBusiness Systems Development. Students analyze business problems and develop data-driven eBusiness applications to solve them. Development skills include presenting and receiving

information through a Web site, validating entered information and storing entered information in text files or databases. Students develop an understanding of the principles of Web page and Web site design; standard object models, Hypertext Markup Language, client scripting and server programs for database and file access; testing, software quality assurance; and the process of publishing Web pages. Prereq: ISMG 3000.

ISMG 4840-1 to 8. Independent Study.

ISMG 4900-3. Project Management and Practice. Covers the factors necessary for successful management of system development or enhancement projects. Both technical and behavioral aspects of project management are discussed. The focus is on management of development for enterprise-level systems. Topics include: managing the system life cycle; requirements determination, logical design, physical design, testing, implementation; system and database integration issues; network and client-server management; metrics for project management and system performance evaluation; managing expectations: superiors, users, team members and others related to the project; determining skill requirements and staffing the project; cost-effectiveness analysis; reporting and presentation techniques; effective management of both behavioral and technical aspects of the project; change management. Prereq: ISMG 3000. Cross-listed with C SC 4900.

ISMG 4950-3. Special Topics. Seldom offered. This course varies from offering to offering. Typically, it is a research-oriented course exploring new developments in information systems. Prerequisites vary according to topic.

ISMG 5939-1 to 3. Internship/Cooperative Education. Supervised experiences involving the application of concepts and skills in an employment situation.

ISMG 6020-3. Object-Oriented Business Programming. *Fall, Spring, Summer.* Introduces the basic concepts of object-oriented programming useful to the development of business information systems. The C# programming language is emphasized. Students who are not familiar with C or JAVA are directed to take C programming course (ISMG 4950) before registering for this course. Prereq: JAVA programming language such as ISMG 3200 or C programming language such as ISMG 2200.

ISMG 6040-3. Business Process Management. Designing effective information systems for business requires an awareness of the organization(s) business processes and how to manage and streamline them. The objectives of the course are for students to understand the importance of business processes; the main types of business processes; and the evolution of business process management; business process outsourcing; business process re-engineering; business process redesign; technology enabled business processes; and automated workflow. An important activity is graphically mapping business processes, which are transformed into an application or set of applications. The organization needs to manage the electronic workflow to monitor that the work gets done and allow changes to the workflow. Case studies of organizations are studied for most topics to enhance understanding. The group projects let students apply their knowledge of the course to a specific organization. By the end of this course students should have an appreciation of the important process-centric issues in business systems design.

ISMG 6060-3. Analysis, Modeling and Design. *Fall, Spring.* Provides an understanding and application of systems analysis and design processes. Students are exposed to system development life cycle (SDLC), structured systems analysis and design methods, object-oriented analysis and design methods, prototyping and commercial off-the-shelf package software approaches and joint and rapid application development. Emphasizes the skills required for system analysts such as analytical, interpersonal, technical, fact-finding and project management skills. Topics include data, process and object modeling, input-output and user interface design and systems implementation and support. To provide an opportunity to develop these skills, an information system project is completed by a group of students. Students use a CASE tool for their group project.

ISMG 6080-3. Database Management Systems. *Fall, Spring.* The success of today's business often hinges on the ability to utilize critical

information to make the right decisions quickly and efficiently. Transforming mountains of data into critical information to improve decision making is a skill every business decision maker must possess. This focus course covers the database design topics with a focus on enabling business decision making. Detailed topics include collecting, capturing, querying and manipulating data (using SQL and QBE) for simple to medium complex business applications. Commercial database products (e.g. ORACLE and ACCESS) are utilized to demonstrate the design of database applications in management, marketing, finance, accounting and other business areas. Students will be able to design and implement simple to medium complex database applications after successful completion of this course.

ISMG 6120-3. IT Infrastructure. *Fall, Spring, Summer.* Telecommunications fundamentals including data, voice, image and video. The concepts models, architectures, protocols, standards and security for the design, implementation and management of digital networks. Essentials of local area networks (LAN), metropolitan area networks (MAN) and wide area networks (WAN). Transmission, switching efficiency, regulatory and technical environments. Topics include IT architecture, enterprise information architecture, servers & Web services, layered network architecture, convergence and network protocols, wireless technology, network security, enterprise network design.

ISMG 6140-3. Distributed Object Systems Development. Provides a thorough introduction to distributed object. Distributed systems concepts, models, architectures, protocols, standards and security for the design and implementation of intra-organization and inter-organization applications. Legacy integration, electronic commerce. Coverage includes the J2EE and Net distributed object architectures and standards. Prereq: ISMG 6020 and 6080.

ISMG 6180-3. Information Systems Management and Strategy. *Fall, Spring.* The effective use of information technology requires the alignment of competitive strategies, business processes and IT applications. In this course, we take a top management perspective to the development of policies and plans that maximize the contribution of IT to organizational goals. We begin by examining the systems that support the operational, administrative and strategic needs of organizations. We then investigate the approaches used to manage the IT function, taking into account legacy and emerging technologies. The vital role of the CIO and project champions are explored. Note: Students cannot receive credit for both ISMG 6180 and BUSN 6610. Cross-listed with BUSN 6610.

ISMG 6220-3. Business Intelligence Systems. *Spring, Summer.* Covers technical and managerial issues associated with the development and the use of decision support systems, expert systems, impacts and the future of MSS are discussed. The DSS component covers decision theory, model management and business intelligence with an emphasis on how decision-making can be supported using data warehouses, OLAP and data mining and visualization tools. The ES component focuses on knowledge acquisition, representation, reasoning and using advanced intelligent systems over the Web. In addition, collaboration, communication, enterprise decision support systems integration, impacts and the future of MSS are discussed.

ISMG 6240-3. Website Development Practice and Technologies. Presents a broad coverage of design principles and techniques to develop effective Web sites. The course emphasizes: (1) understanding the principles of Web page and Web site design and the process of publishing Web pages, (2) developing client-side scripts for use in Web sites, (3) using server-side programs or scripts to develop dynamic Web sites using databases and (4) understanding technologies for managing large Web sites including XML schemas, content management systems and Web services. Prereq: ISMG 6080.

ISMG 6260-3. Software Project Management. *Fall.* Managing processes related to initiating, planning, executing and controlling software coverage development projects. Provides an in-depth coverage of software project management methodologies, project integration, metrics and tools for software sizing, costs, quality control, risk management and capability maturity methodologies, CMM and existing metrics and tools for measurement program in order to collect

necessary data from ongoing projects, to validate and interpret the collected data and to maintain a corporate measurement database for projecting future software project's size, cost and schedule. Prereq: ISMG 6020 and 6060.

ISMG 6280-3. Service Oriented Architecture. *Fall, Spring.* Explores "Service Oriented Architecture" (SOA), which refers to a design pattern made up of components and interconnections that stress interoperability and location transparency. Covers the latest heterogeneous models for carrying out large scale distributed computing using Web services. The fundamentals of defining, designing, building, testing and rolling-out a SOA system are explored using tools from major Web service vendors. Also, looks at the impact of SOA on software quality, efficiency, performance and flexibility. Prereq: ISMG 6080 and 6120.

ISMG 6400-3. Global eBusiness. *Spring.* The objective of this course is to examine the evolution of e-business in a global context. Topics include Internet business models, the importance of e-business design, e-business architecture and infrastructure; online Customer Relationship Management (CRM); Supply Chain Management (SCM) Systems; e-Procurement, electronic marketplaces and exchanges; the role of Enterprise Resource Planning (ERP) systems as the e-business backbone; e-business strategy; Application Service Providers (ASPs); risks and issues that need to be addressed; and the prediction of future global e-business trends. Prereq: ISMG 6180 or BUSN 6610 (6810).

ISMG 6420-3. Global Enterprise Systems. Examines the evolution of global enterprise systems - from internally focused enterprise resource planning (ERP) client or server systems to externally focused e-business. Studies the types of issues managers need to consider in implementing cross-functional integrated enterprise systems. Examines the general nature of global enterprise computing, re-engineering principles and the technical foundations of client or server systems and enterprise information architectures. Students learn about the global enterprise systems marketplace. Topics include the tools and methodology, modules, processes and industry initiatives. Finally, the course looks into the future and predicts enterprise system trends. The objective of the course is to make students aware of the potential and limitations of global enterprise systems. The objective will be reached through case studies, lectures, guest speakers and a group project. Prereq: ISMG 6180 or BUSN 6610 (6810).

ISMG 6430-3. Information Systems Security and Privacy. *Spring.* Designed to develop knowledge and skills for security of information and information systems within organizations. Focuses on concepts and methods associated with planning, designing, implementing, managing and auditing security at all levels and on all systems platforms, including enterprise systems. This course presents techniques for assessing risk associated with accidental and intentional breaches of security as well as disaster recovery planning. Prereq: ISMG 6180 or BUSN 6610 (6810).

ISMG 6440-3. Knowledge Management. *Fall.* Knowledge management is a discipline that promotes an integrated approach to identifying, retrieving, sharing and evaluating an enterprise's information and knowledge assets. Topics include artificial intelligence, information distribution, knowledge creation, motivating a knowledge sharing culture and other advanced methods for managing and using knowledge. Prereq: BUSN 6610 (6810).

ISMG 6450-3. IT Project Management. Focuses on how firms successfully manage the adoption of IT. Projects and program management principles are the primary focus of this course. Topics covered include approaches to prioritizing projects, estimating cost and time-to-market, build vs. buy decision, planning, monitoring and controlling implementation, measurement, total cost of ownership, effective management of both behavioral and technical aspects of the project and change management. Prereq: ISMG 6180 or BUSN 6610 (6810).

ISMG 6460-3. Emerging Technologies. Provides an introduction to the expansive array of information technologies that form the infrastructure of a modern business enterprise. Emphasis is placed on learning conceptual technological foundations and understanding the business value of the various technologies. The purpose of the course is to develop the student's ability to discuss recent technological advancements with

other IT professionals and management. Technology assessment is emphasized. Prereq: ISMG 6180 or BUSN 6610 (6810).

ISMG 6480-3. Advanced Database Systems. Management of large, complex databases involves technical skills and background needed by information systems professionals as well as tactical and strategy issues faced by information technology managers. This course provides conceptual knowledge, practical skills and policy background for prospective information and systems professionals and information technology managers. The course covers conceptual and product material about database integrity, index structures, query optimization, transaction management, data warehouses, object databases and distributed databases. Assignments and projects involve Oracle skills for database administration and tactical or strategic issues faced by information technology management. Prereq: ISMG 6080.

ISMG 6510-3. Accounting and Information Systems Processes and Controls. Designed to develop knowledge and skills used to understand and evaluate corporate accounting processes and systems. Focuses on financial and information system internal controls and the flow of corporate information through an accounting system. A financial system objective and risk assessment approach is used to present concepts and techniques for evaluating the adequacy of system processes and controls. Cross-listed with ACCT 6510.

ISMG 6800-3. Special Topics. *Spring.* A variety of advanced topics are offered in this course. Past topics include the human-computer interface, software engineering, artificial intelligence, graphical user interface, project management and electronic commerce. Consult the current 'Schedule Planner' for semester offerings.

ISMG 6840-1 to 8. Independent Study. Instructor approval required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study.

ISMG 6950-1 to 8. Master's Thesis.

ISMG 7001-3. AI-Based Decision Making. Introduces decision making concepts. It covers a range of approaches, techniques and tools for decision aiding and describes how they can be used to support decision processes. The topics include human decision making, decision support systems, knowledge-based systems and AI methods that support decision making, like machine learning, Bayesian networks and association rules. Prereq: MS in C.S.E. or I.S. Cross-listed with C SC 7001.

ISMG 7002-3. Computer Security. A broad overview of computer security, roughly divided into three unequal components: a) the history of codes and ciphers; b) basic cryptographic techniques, for example, symmetric cryptography, authentication techniques and asymmetric cryptosystems and; c) applications to current and future computer-related technologies, for example, network security, wireless communication, quantum cryptography and more. Prereq: C SC 5451. Cross-listed with C SC 7002.

ISMG 7200-3. Advances in Management Information Systems. *Fall.* Provides an introduction to research methodologies engaged in Management Information System Research, including measurement, sampling, survey research, experiments, quasi-experiments and, some qualitative research methods. Prereq: admission into the CSIS PhD program and knowledge of basic statistics. Cross-listed with C SC 7200.

ISMG 7210-3. Topics in Analytical Research in Management Information Systems. Provides a detailed coverage of selected analytical research in information systems. Prereq: admission to the CSIS PhD program. Cross-listed with C SC 7210.

ISMG 7211-3. Topics in Behavioral and Organizational Research in Management Information Systems. Provides a detailed coverage of selected behavioral and organizational research in information systems. Prereq: admission to the CSIS PhD program. Cross-listed with C SC 7211.

ISMG 6220-3. Research methods: Design and Analysis. Research methods: Design and Analysis. Topics include: research design, approaches to gathering data; sampling methods; linear multivariate analysis methods emphasizing structural equations models; and a brief survey of other methods such as cluster analysis, multidimensional scaling, methods such as neural nets, CART and/or genetic algorithms. While much of the material is of general interest, the course emphasizes methods and

situations to prepare students in the CS/IS PhD program for research in their field(s). The course includes student projects involving the analysis of data using appropriate software, whose results are presented to the class. Prereq: BUSN 6530 (or equivalent) and either PhD student status or permission of instructor. Cross-listed with DSCI 6220.

ISMG 7654-3. Algorithms For Communication Networks.

Algorithmic and mathematical underpinnings of communication networks. A taxonomy of data-packet networks depending on modes of communication: Fixed-Interconnection networks, radio networks and multiple-access channel. Algorithms to implement packet routing, broadcasting and conflict resolution. Prereq: C SC 5451. Cross-listed with C SC 7654.

ISMG 7800-3. Special Topics. *Spring.* A variety of advanced topics are offered at the PhD level in this course. Consult the current 'Schedule Planner' for semester offering.

ISMG 7840-3. Independent Study: Pre-Dissertation Research.

Conduct pre-dissertation research under the supervision of a faculty member. Prereq: BUSN 6530.

ISMG 8990-1 to 15. Dissertation Development. Supports development of a dissertation in conjunction with a student's advisor. Prereq: completion of first year and second year papers (ISMG 7840).

IT: Instructional Technology (Education)

IT 5110-3. Instructional Development and Production. Systematic analysis, design, development, production and evaluation of instructional units and materials. Apply systems design model and instructional theories to the development of learning resources. Topics include needs assessment; learner, content, goal and environment analyses; instructional strategies; and formative evaluation.

IT 5120-3. Instructional Models, Strategies and Tactics. Instructional development principles and procedures for developing instructional sequences for facts, concepts, procedures and principles. Application of different instructional and development models.

IT 5130-3. Instructional Message Design. Principles and practices for designing, instructional messages based upon the cognitive sciences. Prereq: IT 5110 (or equivalent) or permission of instructor.

IT 5140-3. Performance Technology. Analysis to determine whether human performance problems are problems that can be solved by instruction or by other means, such as organizational redesign, incentives, or performance support systems.

IT 5160-3. Managing Information and Learning Technology Programs. Problems in the organization and administration of information learning and technology programs and projects. Topics include project management, personnel administration, budget development, management philosophies, copyright and intellectual freedom.

IT 5310-3. Producing Educational Materials. Design and production of materials such as videos, multimedia, presentations and Web sites to support learning goals.

IT 5370-3. Digital Video For Interactivity. Digital video design and production for online and multimedia instruction. Topics include needs assessment and media selection; scripting and design; shooting; lighting; sound; editing; formats and conversion; and multimedia integration.

IT 5410-3. Designing Text and Graphics for Instruction. Instructional, structural and typographic principles and techniques for designing text and illustration-based instructional materials, including programmed instruction, job aids, diagrams, documents, user manuals and online text.

IT 5510-3. Integrating Technology in The Curriculum. Principles and practices of technology integration in k12 classrooms and schools. Topics include : support for standards-based curriculum; evaluation and selection of resources; roles of technology in support of learning; teacher and learner roles; adapting to constraints; communications and information sharing; and social, ethical, legal and human issues such as equity, access, gender and culture.

IT 5520-3. Technologies for Learning and Productivity. Using a wide variety of technological tools, including word processing, database,

spreadsheet, graphics, presentation and communications software, facilitate learning and manage the instructional process.

IT 5600-3. Multimedia Authoring. Teaches the use of a multimedia authoring system to develop multimedia instruction or World Wide Web resources. Skills include: producing programs to meet educational needs; integrating digital content into operating systems and office applications and multimedia applications. Prereq: basic computer experience with word processing, database or spreadsheet programs.

IT 5610-3. Principles for Designing Multimedia. Theory and practice of designing effective instruction for World Wide Web and multimedia delivery. Prereq: IT 5600.

IT 5640-3. Technology of Student-Centered Learning Environments. Theory and principles behind complex learning environments aimed at developing student responsibility, collaborative learning and higher order thinking methods for technology support are examined.

IT 5650-3. Policies and Planning for eLearning Programs. Methods and strategies for planning, implementing and evaluating distance-learning programs. Review of trends and issues currently affecting distance- learning programs and delivery of online education.

IT 5660-6. Developing Educational Web sites. Focuses on the primary skills needed for designing and developing educational Web sites. Skills are targeted in a variety of areas specific to educational Web site design and development, including instructional design, HTML, HTML authoring tools, content development, interface, site, page design, graphical, elements and interaction strategies.

IT 5670-6. Strategies For Online Learning. Focuses on interaction strategies that are used to enhance the impact of educational Web sites. Strategies for facilitated sites focus on the development and uses of learner-content, learner-instructor and learner-learner interaction. Web authoring tools are used throughout this course. Prereq: IT 5660 or permission of instructor.

IT 5680-6. Media For Web-based Learning Environments. Covers the field of design and multimedia as it relates to the development of Web-based learning environments. It is designed to allow participants to study a variety of design topics and create products that are individualized to their needs, desires and aspirations. Prereq: IT 5660 and 5670 or permission of instructor.

IT 5690-4. Enhancing Web-based Learning Environments with JavaScript and PHP Programming. Using JavaScript and PHP, this course teaches the technologies behind Web design that turn static HTML pages into interactive Web applications. Issues to consider with each technology are explored so intelligent decisions can be made when adopting a particular technology for use in a Web site. Prereq: IT 5660, 5670 and 5680 or permission of instructor.

IT 5710-3. Telecommunications and Networking in Education. The primary purpose of this course is to explore the world of computer-mediated communications (CMC) and networking and applications to education. The class has two dimensions: (1) using CMC systems, including electronic mail, Web, digital libraries, online reference services and networks; and (2) analyzing and creating learning environments that use computer-mediated communications. Prereq: basic computer experience with word processing, database or spreadsheet programs.

IT 5830-2 to 4. Information and Learning Technologies Workshop. Specific titles vary depending upon the specific skill areas within information and learning technologies.

IT 5840-1 to 4. Independent Study.

IT 5990-1 to 6. Special Topics in Instructional Technology.

IT 5998-1 to 2. Professional Development Activities. Provides guidance for professional development through participation in appropriate state, regional, and national conferences for meeting leaders and colleagues while upgrading professional knowledge and skills in the field. Prereq: enrollment in a graduate IT program or a professional in a field related to the conference.

IT 6110-2. Managing Instructional Development. Organization, supervision and budgeting of instructional development projects in training and education.

IT 6120-2 to 6. Design Studio for Project Management and Collaboration. Collaborative management of instructional-design projects meeting demonstrated needs in real-life settings. Skills include: management of time, personnel and resources; meeting client needs and expectations; communication with team and client; information design; interaction design and project problem solving. Prereq: IT 5110 and 5120 or permission of instructor.

IT 6130-2. Formative Evaluation of Instructional Materials. Methods for evaluating and improving draft versions of print, media and computer-based instructional materials.

IT 6515-3. Leadership for Learning Technologies Integration. Leadership for integrating technology into a standards-based curriculum. Through mentoring, service, or training, model and assist teachers and administrators in adopting technologies and information resources to support learning and assessment activities.

IT 6530-3. Development Projects in Information and Learning Technologies. The creation and application of instructional systems combining unique instructional advantages of technologies to emphasize high levels of interactivity. Advanced projects must meet specific objectives to cover program design and development, hardware and software configurations, delivery systems and learners. Project topics vary. Prereq: IT 5110 and 5600.

IT 6720-3. Research in Information and Learning Technologies. Analysis, evaluation and production of published research in instructional technology. Develop recommendations for action based on research findings.

IT 6730-3. Comparative Models of Instructional Design. Advanced seminar in analyzing the theoretical foundations and the instructional implications of different models and theories of instructional design.

IT 6740-2 to 3. Learning Processes Applied to Instructional Technology. Principles of learning and instruction for technology-mediated learning materials. Topics include case-based and project-based teaching and other inquiry-learning strategies; tutorial and direct-instruction strategies for rule and procedure learning; schema-based learning for conceptual change; and self-directed learning. Prereq: IT 5110 or permission of instructor.

IT 6750-3. Current Trends and Issues in Instructional Technology. Seminar examining definitions, history and current trends and issues in the practice of instructional technology. (Topics vary.)

IT 6760-3. Advanced Seminar in Instructional Design and Development. Topical seminars to investigate issues, new models, or techniques in the field of instructional design and development.

IT 6840-1 to 4. Independent Study.

IT 6930-1 to 4. Internship in Information and Learning Technologies. Placement in a business, school or field setting where they function in a professional capacity to assess needs and design, develop and evaluate an instructional system.

IT 6950-4. Master's Thesis. A master's thesis is part of the degree track options for use in conjunction with, or in lieu of, comprehensive exams. Credit hours, topic and work load are determined by the student's advisor. Prereq: completion of all other course requirements and permission of advisor.

IT 6960-1 to 4. Master's Project. Credit hours, topic and work load are determined by the student's advisor. Prereq: completion of all other course requirements and permission of advisor.

IT 6999-3. Leadership and Practice in Information and Learning Technologies. Reflective examination of the adoption and use of information and learning technologies in applied settings. Topics include change strategies, system analysis, planning and evaluating technology use and roles of technology specialists. Prereq: EPSY 5240, IT 5110, 5160 and 6720. Course should be taken during the last semester, or next-to-last semester of course work.

ITE: Initial Teacher Education (Education)

ITE 4700-1. Instructional Teamwork Academy. The academy consists of four modules of varying length for a total of 15 clock hours of instructional time. The course consists of introductory material

regarding teamwork, delineation of roles and responsibilities, classroom instruction and behavior management.

ITE 4710-1. Student Supervision Academy. The focus of the 15 clock hour academy is the effective management of large groups of students on playgrounds, in lunchrooms, halls, locker rooms, parking lots where buses are loading, on buses and in other instructional settings.

ITE 4720-1. Interpersonal Skills Academy. The focus of this 15 hour academy is on developing effective interpersonal skills that are necessary for working as part of a team. Throughout this academy importance of issues of diversity based on culture, experience and gender in communication and conflict resolution processes is highlighted.

ITE 4730-1. Personal Growth and Development Academy. This 15 contact hour academy covers self-appraisals, participation in the evaluation process and plan for continued professional growth and development, stress- management strategies and using creativity in dealing with problematic situations.

ITE 4740-1. Behavior Management Academy. This 15 contact hour academy focuses on methods and techniques that paraeducators can use with students whose behaviors are challenging and on the role they play in assisting the professional members of their team with behavior challenges.

ITE 4750-1. Instructional Strategies Academy. This academy gives the paraeducator knowledge and skills in analyzing the teaching environment and individual student needs for the particular level of support, degree of adaptation or accommodation or modification and instructional method that would best facilitate learning.

ITE 4760-1. Instructional Technology Academy. This 15 contact hour academy is intended to provide paraeducators with skills in operating typical school- wide technologies. The focus is on examining the types of technology used daily, as well as those types that they may not currently have skills in using but which can broaden their repertoire of available skills.

ITE 4770-1. Vocabulary and Comprehension. Paraeducators are provided with the skills needed to assist classroom teachers in meeting literacy needs of students in the areas of vocabulary and comprehension. Skills applicable to assisting diverse populations such as special education, Title 1, ELA and General Education.

ITE 4780-1. Assisting with Phonemic Awareness and Phonics in the Classroom. This academy provides the paraeducator with skills and techniques needed to assist literacy needs of diverse populations of students with phonemic awareness and phonics as it relates to the early, emergent and fluent reader.

ITE 4790-1. Assisting with Reading Fluency in the Classroom. This academy provides the paraeducator with skills needed to assist literacy needs of diverse populations of students in the area of reading fluency. It covers important fluency concepts and terms and the use of a variety of research-based instructional techniques that improve fluency at the word, phrase, sentence and connected text levels.

ITE 4800-1. Grades K-4 Mathematics. This academy is designed to provide paraeducators with the skills and knowledge needed to assist students, grades K through four, with mathematics skills taught in the classroom. The course content is designed and adapted from standards recommended by the National Council of Teachers of Mathematics. It includes the specific skill building area of number sense, computational techniques, algebraic thinking, geometry, measurement, data and probability as they apply to grades K-4 learners.

ITE 4810-1. Number Theory and Rational Numbers. This academy provides paraeducators with the skills and knowledge needed to assist students with specific mathematics skills typically taught in grades five through eight. This academy solidifies the concepts learned in assisting with K-4 math and provides a base for assisting with high school mathematics. It includes the specific skill building areas of number sense; computational techniques for fractions, decimals and percents and their related applications as they apply to intermediate and middle school learners. The course content is designed and adapted. from the standards recommended by the National Council of Teachers of Mathematics.

ITE 4820-1. Algebraic Concepts and Spatial Reasoning. This academy provides paraeducators with the skills and knowledge needed to assist students, grades 5-8, with the mathematics skills taught in the classroom. The course content is designed and adapted from standards

recommended by the National Council of Teachers of Mathematics. It includes the specific skill building areas of real number building properties; graphical representations; algebraic concepts and problem solving; data and probability; and spatial reasoning skills as they apply to intermediate and middle school learners.

ITE 5022-3. Learning and Classroom Management Strategies for Secondary Schools. Provides knowledge to create and manage classrooms conducive to the well-being and learning of a diverse student population. Included are instructional strategies for addressing content standards, managing curriculum, instruction, assessments, classrooms and individual behaviors.

ITE 5023-3. Literacy Strategies for Secondary Schools. Provides knowledge and practice using specific literacy methods and assessment, to enhance content learning and meet reading and writing standards. Instructional strategies for special needs and language-minority students are also emphasized.

ITE 5025-3. Reading Instruction and Assessment K-5. Using and expanding upon background knowledge from prerequisites, participants learn about specific reading instruction and assessment routines and techniques. Through guided in-school placements, students link course readings, discussion and practice, focus on improving their instruction and the assessment or instruction cycle. Prereq: ITE 5000, 5010 and 5020.

ITE 5800 thru 5805-1 to 4. Special Topics in Education. Addresses a specific topic that is current and relevant to the needs of a specific group of educators and/or an educational context.

ITE 5840-1 to 4. Independent Study.

LA: Landscape Architecture (Architecture and Planning)

LA 5501-3. Landscape Architecture Design Studio 1. Introduction to basic strategies, methods and techniques of landscape architectural design with emphasis in theory, history, analysis and criticism. First in a four studio course sequence.

LA 5502-3. Landscape Architecture Design Studio 2. Introduction to basic strategies, methods and techniques of landscape architectural design with emphasis in theory, history, analysis and criticism. Second in a four studio course sequence. Prereq: LA 5501 or permission of department chair.

LA 5503-3. Landscape Architecture Design Studio 3. Strategies, methods and techniques of landscape architectural design with emphases in more complex issues, design processes and development and the application of theory and research. Third in a four studio course sequence. Prereq: LA 5501 and 5502 or permission of department chair.

LA 5504-3. Landscape Architecture Design Studio 4. Strategies, methods and techniques of landscape architectural design with emphases in more complex issues, design processes and development and the application of theory and research. Fourth in a four studio course sequence. Prereq: LA 5501, 5502 and 5503 or permission of department chair.

LA 5510-3. Graphic Media in Landscape Architecture. Introduces basic principles and methods associated with analog and digital drawing—plan, sections, perspectives, color, shading, composition and projection.

LA 5521-3. History of Landscape Architecture. Investigates architectural thought from antiquity to the present. Begins with a review of Greek ideals and proceeds—through an appreciation of landscape and nature as essential cultural constituents—with a survey of major themes such as Renaissance Humanism, Enlightenment, Rationalism, Romantic Historicism, Neo-Medievalism, the varieties of Modernism, Neo-Eclecticism and the most recent directions in landscape and garden design.

LA 5532-3. Landform Manipulation. Focuses on the fundamental technical aspects of landscape architectural design and implementation of related topography, grading and drainage design, landform manipulation, earthwork calculations and road alignment. Note: course is to be taken with LA 6641, Computer Applications in Landscape Architecture.

LA 5572-3. Landscape Ecology. Focuses on the study of physiography, cultural factors and aesthetic criteria in relation to landscape, spatial

organization and urban and regional structure. Emphasizes continuity and change in an ecology of both natural and man-made landscape.

LA 5573-3. Applied Advanced Landscape Ecology Workshop. Issues of sustainability and designing or planning at multiple and temporal scales (watershed, regional, site) provides basis for advanced studies in ecological-based design, planning and restoration to accomplish project goals with minimal ecological impact. Prereq: LA 5572. LA 6520-1 to 9. Landscape Architecture in Other Cultures. Various studies of landscape architecture and urbanism in foreign countries.

LA 6605-3. Landscape Architecture Design Studio 5. Problem-based studio covering the approaches, technologies and means for planning and designing sites to accommodate an intensive development program on a particular site within a regional context. Covers issue definition, site analysis, programming, development of design strategies, evaluation site planning, placemaking, regionalism and communication. First in a two studio course sequence. Prereq: LA 5501, 5502, 5503, 5504 or permission of department chair.

LA 6606-3. Landscape Architecture Design Studio 6. Problem-based studio covering the approaches, technologies and means for planning and designing sites to accommodate an intensive development program on a particular site within a regional context. Covers issue definition, site analysis, programming, development of design strategies, evaluation site planning, placemaking, regionalism and communication. Second in a two studio course sequence. Prereq: LA 5501, 5502, 5503, 5504, 6605 or permission of department chair.

LA 6607-3. Landscape Architecture Design Studio 7. Advanced design studio that reflects topical situations in landscape architectural practice and/or applied research interests of instructor. Part of the vertical studio. Prereq: LA 5501, 5502, 5503, 5504, 6605, 6606 or permission of department chair.

LA 6608-3. Landscape Architecture Design Studio 8. Advanced design studio that reflects topical situations in landscape architectural practice and/or applied research interests of instructor. Part of the vertical studio. Prereq: LA 5501, 5502, 5503, 5504, 6605, 6606, 6607 or permission of department chair.

LA 6609-3. Landscape Architecture Design Studio 9. Advanced landscape architecture design studio covering situations of urbanization and change of various scales and complexities. This is the first in a two studio course sequence. Prereq: LA 5501, 5502, 5503, 5504, 6605, 6606, 6607, 6608 or permission of department chair.

LA 6610-3. Landscape Architecture Design Studio 10. Advanced landscape architecture design studio covering situations of urbanization and change of various scales and complexities. This is the second in a two studio course sequence. Prereq: LA 5501, 5502, 5503, 5504, 6605, 6606, 6607, 6608, 6609 or permission of department chair.

LA 6611-3. Landscape Architecture Design Studio 11. Advanced design studio that reflects topical interests in landscape architectural practice and/or applied research interests of instructor. Part of the vertical studio. Prereq: LA 5501, 5502, 5503, 5504, 6605, 6606, 6607, 6608 or permission of department chair.

LA 6612-3. Landscape Architecture Design Studio 12. Advanced design studio that reflects topical interests in landscape architectural practice and/or applied research interests of instructor. Part of the vertical studio. Prereq: LA 5501, 5502, 5503, 5504, 6605, 6606, 6607, 6608 or permission of department chair.

LA 6620-3. Landscape Architecture Theory and Criticism. Focuses on exploring and assessing current state of theory in landscape architecture and related design disciplines and the ideas undergoing contemporary design approaches. Narrative and explanatory theories are the objects of study. Emphasis is placed on history and pedagogic theories and their theories and relationships to other disciplines such as art, ecology, geography, architecture and anthropology.

LA 6622-3. Visual Quality Analysis. Introduces a range of philosophies, methods and techniques in visual landscape analysis. Emphasis is placed on application of methods and techniques, urban and regional context and scale, as well as visual impact assessment and simulation.

LA 6624-3. The Built Environment in Other Cultures I: Research Design. Intends to broaden students' perspectives by asking them to examine design within another culture. Students prepare a proposal of study including a statement of the problem to be addressed, the type of field research to be undertaken and the nature of the report to be produced. Cross-listed with ARCH 6624.

LA 6625-3. Landscape Architecture Field Studies. Critical field evaluation of built works of landscape architecture including field measurement, mappings, sketches, photography, written evaluations and applied projects.

LA 6631-3. Landscape Construction Materials and Methods. Develops understanding of detailed design processes, construction materials and selection of construction methods and documents. Typically taken with LA 6605 and 6606 LA Design Studios 5 and 6.

LA 6632-3. Site Planning. Focuses on the site planning process, including research and data gathering, data analysis and synthesis, design analysis and its relationship to building program and concept and design synthesis of site and preparation of site plan. Design through grading, representation, manipulation and calculation of road work, utilities and other site features. Vertical and horizontal alignment, earthwork and cost computation and integration with existing and proposed features or systems are covered.

LA 6641-3. Computer Applications in Landscape Architecture. Introduces digital technologies and methods commonly used in Landscape Architecture including primarily CADD, visualization, simulation, graphic design, GIS and other emerging applications. Includes hands-on exercises.

LA 6642-3. Landscape Architecture Digital Design Workshop. Introduces surveys and provides hands-on experiences in the disciplines, principles, software and theories for engaging digital design in landscape architectural practice and research. Prereq: LA 6641.

LA 6670-3. Plants in Design. Focuses on the study of design methods used in landscape architecture. Formal design principles, spatial sequencing and plant functions are applied in design studies, based on botanical aesthetic traits and physical requirements of a wide variety of plant material.

LA 6671-3. Plant Material Identification. Students learn the names, characteristics and site requirements of plants including trees, shrubs, ground covers and perennials commonly used in built works in the Colorado region. Methods are transferable to other regions.

LA 6686-1 to 6. Special Topics in Landscape Architecture. Various topical concerns are offered in landscape architecture history, theory, elements, concepts, methods, implementation strategies and other related areas.

LA 6710-3. Landscape Representation. Focuses on developing understanding of various advanced analog and digital techniques for application in landscape analysis and design. Prereq: LA 5510.

LA 6711-3. Advanced Landscape Architectural Graphics Workshop. Focuses on developing expertise in various drawing, reprographics, digital and photographic techniques used in practice for enhanced effectiveness in graphic communication. Prereq: LA 5510.

LA 6720-3. Finding Common Ground. Focuses on principles and societal variables that influence the structure of urban neighborhood space through research application. Prereq: LA 6640.

LA 6721-3. Regionalism. Explores environmental and cultural factors that shape regionally responsive design. Prereq: LA 5521 and 6620 or permission of instructor.

LA 6750-3. Professional Practice. Focuses on studies in the professional practice of landscape architecture and related professions and case problems in initiating and managing a professional practice. Explores the essential elements of professional practice and equips students with the fundamental knowledge and skills requisite to an understanding of and participation in the conduct of practice in landscape architecture. Covers organization of the landscape office, professional services of landscape architects, fee structures and fee management, contracts, legal rights and responsibilities, management, marketing and delivery of professional services.

LA 6840-1 to 3. Independent Study. Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to landscape architecture or urban design. Prereq: permission of instructor.

LA 6910-3. Teaching Assistantship. Work with a faculty member in a course to assist with course preparation and delivery. Prereq: permission of program chair and instructor.

LA 6930-3. Landscape Architecture Internship. Designed to provide professional practice experience. The student is placed in a landscape architectural and/or design office by the College and receive credit instead of pay. Must complete the second-year level before taking this course.

LA 6949-3. Research Tools, Strategies and Methods. Introduces the thesis in landscape architecture and establishes the scholarly basis for the research and construction of a Master's Thesis project. This course will provide the student with the research practices and methodologies to develop the scholarship and products required to produce a Thesis Project Proposal. Completion of this course is a prerequisite for the student to submit the Thesis Proposal for departmental approval to continue with the remaining 9 credits of thesis to be undertaken in their final semester in the program.

LA 6950-3. Thesis Research. The student works closely with a landscape architecture faculty advisor and thesis committee to develop the thesis proposal through focused research. Research might entail both written and graphic inquiry leading to specific products with conclusive ideas that set the stage for the completion of the thesis in the following semester. Part of the Landscape Architecture Thesis sequence. Prereq: LA 6949 and permission of Department Chair.

LA 6951-6. Landscape Architecture Thesis. The Landscape Architecture thesis is expected to advance the field of landscape architecture by offering new insights into aspects of design, technology, history or professional principles. In this course, the student continues to work independently, but closely with a landscape architecture faculty advisor and thesis committee to complete the thesis. The thesis might take on different final forms (written volume, drawings, maps, digital images), depending on the subject inquiry. For further information on the Landscape Architecture Thesis Track consult the Landscape Architecture Thesis Guidelines. Prereq: LA 6949 and 6950.

Language, Literacy and Culture: LLC (Education)

LATN: Latin (Liberal Arts and Sciences)

LATN 1010-5. Elementary Latin I. Introduces grammar, syntax and vocabulary of Classical Latin, with an emphasis on preparing students to read Latin while improving English grammar and vocabulary skills. Two semesters of Latin may be used to fulfill the CLAS language competency requirement.

LATN 1020-5. Beginning Latin II. Completes the presentation of basic Latin grammar, syntax and vocabulary. Introduces students to Latin literature through readings in select authors adapted to meet the needs of beginning students. Prereq: LATN 1010 or equivalent.

LATN 1100-3. Building Vocabulary From Greek and Latin Words. Students learn to decipher unfamiliar words by breaking them down to their Latin or Greek roots. Prereq: none.

LATN 2010-3. Intermediate Latin I. Introduces advanced Latin grammar, vocabulary, syntax and stylistics of Latin prose via readings in Caesar, Cicero and Livy. Includes review of basic Latin grammar, plus introduction to Latin prose composition and Latin rhetoric. Emphasis on historical, cultural, social context of authors and works. Prereq: LATN 1020 or equivalent.

LATN 2020-3. Intermediate Latin II. (Continuation of LATN 2010.) Completes the presentation of advanced Latin grammar, vocabulary, syntax and stylistics of Latin prose. Continues the study of Latin prose composition and Latin rhetoric with emphasis on historical, cultural and social context of authors and works. Prereq: LATN 2010 or equivalent.

LATN 2840-1 to 3. Independent Study.

LLC: Language, Literacy and Culture (Education)

LLC 4810-1. Orientation to Bilingual Education. This academy provides a basic introduction to bilingual education programs. The content consists of introductory material regarding the legal and historical foundations of bilingual education, bilingual and ESL program model overviews, materials to address cultural issues in the classroom and introductory information regarding human growth and development.

LLC 4820-1. Language Development and Acquisition. This academy provides a basic introduction to bilingual and English as a second language education programs. The content consists of introductory material regarding second language acquisition theories and stages, factors that influence learning a second language in schools and informal assessment among other.

LLC 4830-1. Instructional Delivery Methods for Second Language Learners. This academy provides more in-depth information on different instructional methods and how to apply them in working with English language learners. It looks into practical strategies for modifying lessons using sheltered instruction in order to accommodate the students' linguistic and academic needs (dominance vs. proficiency).

LLC 4910-2. CO-TOP Practicum. The CO-TOP Paraeducator Certification requires 2 credit hours of field experience, each credit hour representing at least 90 hours in the field. Field experiences should balance out a person's previous experience to create a more marketable set of skills and a range of skills across ages, disabilities, grade levels and types of programs or philosophical bases. Each practicum participant is provided a practicum handbook. The handbook outlines all components of the practicum experience. The handbook is made available to each participant at the time of registration for the experience. Prereq: students need to have taken at least 10 CO-TOP academies before they are eligible to take the practicum course.

LLC 5020-3. Workshop in Literacy and Language Teaching. This course involves critical examination of reading process and instruction. Teachers develop an understanding of the principles of sociopsycholinguistic theory in learning and teaching. Organization options for reading instruction for native and nonnative speakers of English at all ages and ability levels will be examined. Teachers become familiar with materials and methods used for reading and reading instruction in schools, including multicultural materials, student' interaction with and response to materials; and techniques to assess and evaluate students reading.

LLC 5028-3. Adolescent Literacy, Part I. Focuses on supporting adolescents' developing literacy understandings across content areas in the upper elementary grades through high school. Importance is placed on putting new teaching practices in place. Attention is given to both reading and writing with emphasis on before and during strategies and supports.

LLC 5029-3. Adolescent Literacy, Part II. The second in a sequence of courses focusing on adolescents' developing literacy understandings across content areas in upper elementary grades through high school. Attention is given to comprehension and critical thinking including revision and editing strategies, assessment, unit planning, the research cycle, using technology and putting new teaching practices in place.

LLC 5030-3. Language and Literacy: Acquisition, Processes and Cognition, Part I. this course is designed to help teachers understand the relationship between language and literacy acquisition. The focus is on both first and second language acquisition and on the acquisition of literacy in young children. The course lays the foundation for an understanding of the nature of the relationship between cognition and language; language acquisition from the perspective of the individual within their respective linguistic communities and how literacy is acquired within increasingly broader sociolinguistic contexts.

LLC 5035-3. Language and Literacy: Acquisition, Processes and Cognition, Part II. This course is the second of a two-part sequence in language and literacy. Students examine research and develop practices relating to language and literacy acquisition, in particular by linguistically diverse learners in community and classroom contexts. Focuses on learners' development of academic literacy and participation in a second language and culture. Prereq: LLC 5030.

LLC 5040-3. Multicultural Education. Designed for veteran and novice teachers to gain an understanding of the broad fields of literacy and language education. Participants examine key educational philosophies based on the writings of important scholars in the field, on topics such as the politics of literacy, the nature of literacy and literacy/cultural identity. The course examines current thought concerning literacy and language learning and teaching from a variety of perspectives and contexts, including the classroom context.

LLC 5050-3. Linguistic and Cultural Issues in Linking Assessment and Instruction. This course provides general orientation to the assessment of linguistically and culturally diverse students. Focus is on using assessment to guide and instruction and includes examination of assessment of oral and written language, attitude and classroom arrangements. Includes analysis of assessment tools used to assess gifted and talented students and those used with students during the special education testing procedure.

LLC 5055-3. Linking Assessment and Instruction in Language and Literacy, Part I. This is the first of a two-part sequence on linking assessment to curriculum and instruction. Focus is on both monolingual speakers of English and second language learners. Assessments include both oral and written language (reading and writing) as well as attitudinal measures and classroom arrangements.

LLC 5060-3. Linking Assessment and Instruction in Language and Literacy, Part II. This is the second of a two-part sequence on linking assessment to curriculum development and instruction. The focus is on both monolingual speakers of English and second language learners. Prereq: LLC 5030, 5055 and 5140.

LLC 5070-3. Linguistic Analysis of English: Implications for Teaching. A descriptive linguistic approach to English grammar with a functionalist view of language and discourse processing. The course examines the historical evolution of English from its origins and the impact this has had on its grammar and syntax. Provides a framework for understanding, identifying and describing the major features of English (in particular) and language (in general). Students gain a working knowledge of English grammar, including grammatical terms, categories, patterns and rules - especially those forms and functions that are important and/or problematic for second language learners of English.

LLC 5080-3. Teachers as Readers and Writers. Teachers engage in experiences designed to expand and improve their own literacy interests, abilities and attitudes. Literacy experiences include readers' workshop, writers' workshop, literature studies and authors' circles. In addition, teachers reflect on their own and classmates' experiences as a basis for planning literacy experiences in school classrooms.

LLC 5100-3. Theories and Methods of Second Language Teaching. Provides an overview of approaches to second language teaching. Emphasis is on development of a personal philosophy of second language teaching. Topics covered include first and second language acquisition, contributions of psychology and linguistics and current practices and trends in language teaching.

LLC 5140-3. Multicultural Education. Develops an understanding of the pluralistic nature of U.S. society and the role of the school within this social context. Examines the legal and cultural history of language education in Colorado and the U.S. as well as the impact of changing demographics on schools. Participants study themselves and their students as cultural beings and develop an understanding of how their own cultural identity affects their teaching. This course fulfills the culture requirement for SEHD "core courses". It also fulfills the culture requirement for the Colorado LDE Endorsement and the LDE Master's Concentration. It may also serve as an elective in the LDE Master's concentration. Note: LLC 5140, LLC 5150, LLC 5160-Each of these three courses satisfies the requirements for the Colorado Endorsement in Linguistically Diverse Education and the BESL Master's concentration. The content of the course is related, but the focus of each course is sufficiently different that students in the Master's program may use a second or third course in the sequence as an elective.

LLC 5150-3. Culture of the Classroom. Provides a classroom-focused examination on linguistic and cultural diversity. The legal history of

language and literacy education in the U.S., Colorado and local school districts is studied with a focus on implications for instructional practice. Participants become familiar with research and theory on the roles of cultures in the classroom and gain skills that support differentiated instruction for diverse students. This course fulfills the culture requirement for the Colorado LDE Endorsement and the BESL Master's concentration. It may also serve as an elective in the BESL Master's concentration. Note: LLC 5140, LLC 5150, LLC 5160-Each of these three courses satisfies the requirements for the Colorado Endorsement in Linguistically Diverse Education and the BESL Master's concentration. The content of the course is related, but the focus of each course is sufficiently different that students in the Master's program may use a second or third course in the sequence as an elective.

LLC 5160-3. Historical and Legal Foundations of Bilingual Education. Comprehensive survey of education programs for language minority students. Includes an overview of U.S. and Colorado history and legislation related to bilingual education and second language education. Presents various models, philosophies and theoretical underpinnings of education for language minority students. Develops skills in critical comparison of approaches to second language education in relation to student populations. This course fulfills the culture requirement for the Colorado LDE Endorsement and the LDE Master's concentration. It may also serve as an elective in the LDE Master's concentration. Note: LLC 5140, LLC 5150, LLC 5160-Each of these three courses satisfies the requirements for the Colorado Endorsement in Linguistically Diverse Education and the BESL Master's concentration. The content of the course is related, but the focus of each course is sufficiently different that students in the Master's program may use a second or third course in the sequence as an elective.

LLC 5210-3. Literacy Development PreK-3rd Grade. Focuses on children's developing literacy understandings and proficiencies beginning in the preschool years. Attention is given to language development, assessment and instruction in pre-kindergarten through third grade, partnerships with community literacy institutions provide information on their use for literacy development.

LLC 5220-3. Literacy Routines and Assessment, PreK-3rd Grade. This course will focus on the routines and practices which allow for student specific instruction and assessment in the Early Literacy classroom. Participants will examine and critique current literacy routines and assessments needed to best meet the needs of culturally and linguistically diverse children. Prereq: LLC 5210.

LLC 5230-3. Early Literacy Instruction. Participants will examine PreK-3rd grade literacy instruction to understand how to meet the needs of young students. The course will analyze instructional practices for young gifted, special needs and English language learning students to best meet the needs of all learners.

LLC 5430-3. Gender as Culture. Examines ways some implicit conceptual and value systems regarding gender are manifested in schools, homes and work places. Provides students with knowledge and insight from interdisciplinary scholarship of gender in society.

LLC 5700-3. Language and Literacy Portfolios: Development, Reflection and Empowerment. In this course, teachers learn: (1) to compile and assess student portfolios to inform instruction and communicate progress and (2) to experience developing personal portfolios with particular focus on self-reflection and empowerment over the course of the master's degree program.

LLC 5710-3. Primary Literacy: Pre-3rd Grade. Provides teachers with a basic understanding of reading and writing development in preschool and early primary grades. Specific strategies are considered for using and teaching reading and writing in early primary grades.

LLC 5720-3. Writing: Process, Development and Teaching Grades 3-12. This course presents current theories of writing development as they relate to classroom practices. Participants in the course will use these theories to help analyze the writings of students in real classrooms. Understanding of the theories will also be increased through direct participation in personal writing, conferencing with other course members, revision of pieces and the sharing of final products.

LLC 5730-3. Language and Literacy Across the Curriculum.

Explores the value and use of reading and writing as tools for learning across the curriculum on a K-12 basis. Specific needs and strategies for assisting at-risk and second language learners are also discussed.

LLC 5740-3. Adolescent Literature. Reading and evaluating fiction and nonfiction appropriate for students in middle and senior high school. Emphasis is on modern literature written for students from a variety of ethnic backgrounds. This course is also appropriate for teachers working with adults learning English.

LLC 5750-3. Children's Literature in Spanish. Taught in Spanish, this course presents children's literature from Spanish speaking countries and Spanish speaking authors, along with teaching methodologies and avenues of further research in the field. Prereq: senior-level proficiency in Spanish.

LLC 5760-3. Theory and Methods of English Education. Focuses on teaching/learning theories and practical classroom strategies for teaching English Language Arts to adolescent learners in middle school, junior high school and high school classes.

LLC 5770-3. Effective Literacy Instruction for Second Language Learners. Students explore and critique various methods and strategies for teaching reading and writing to nonnative English speakers. Students acquire a foundation in written language acquisition for both first and second language learners.

LLC 5780-3. Connecting Cultures Through Literature. This course looks at the issue of multicultural literacy for K-8th grade and how children's and young adult literature can be used to create a high quality multicultural curriculum which enhances literacy development and covers all the content areas.

LLC 5790-3. Children's Literature Through the Ages. A basic children's literature course which looks at the historical development of children's literature. This course also looks at various genre in children's literature, how to critique and choose literature for instruction and children's literature awards.

LLC 5795-3. Current Children's Literature. The focus of this course is on children's literature from the past 10 years, including established and newer authors and illustrators. Various genres will be covered, as participants learn to critique children's literature and how to choose books for instruction.

LLC 5800-3. Sociolinguistics: Language Variation and its Implications for Teaching. Provides an introduction to the field of educational sociolinguistics and research of classroom discourse. Students are introduced to the collection and analysis of oral and written language in educational contexts. Basic concepts and key issues regarding the form-function relationships of language use in instructional settings are discussed.

LLC 5810-3. Workshop in Language Acquisition and Development. Provides students with an opportunity to examine current research on language acquisition and development and to apply their knowledge to the learners in their teaching situation. The course focuses on language development and use in educational settings and addresses learners with English as their first language, second-language learners of English, bi-dialectal speakers and bilingual speakers. Students collect and analyze language samples, evaluate teaching materials and examine teaching techniques in light of the material covered in the course.

LLC 5820-3. Techniques in Teaching English as a Second Language. Develops skills in using a variety of classroom techniques to teach English as a second language. The course is a practical presentation of ESL methods and techniques. Examples of classroom practices are taken from the full educational spectrum, from public schools to pre-university intensive courses on adult education.

LLC 5821-3. English Phonology for TESOL. Provides ESL teachers with a basic understanding of the English sound system and the implications for teaching. Designed for teachers with a limited background in phonetics and phonology. An understanding of some of the basic concepts in linguistics is advantageous, though not required. Students collect speech data from nonnative speakers and use their analysis to develop instructional materials and strategies.

LLC 5822-3. Internet for ESL Teachers. Provides teachers with the opportunity to explore Internet resources for instructional use and professional development. While learning how to access, navigate and write for the Internet, class participants examine and devise instructional uses of the Internet in English language teaching. Issues of equity of access and pedagogical value are discussed.

LLC 5825-3. Methods and Materials of Language Teaching.

Provides an in-depth study of curriculum options for the dual language classroom. Participants examine and apply strategies and materials for developing linguistic and academic capabilities of language learners. Class sessions are conducted in both English and Spanish.

LLC 5826-3. Language Teaching Laboratory. Provides participants with a classroom-based examination of language teaching based on theoretical tenets of language acquisition and language teaching methods. Students develop lessons around particular language points and work with the professor and peers to implement insights in their classrooms or the classrooms of collaborating language teachers. Language focus varies from phonology, morphology, syntax and discourse features.

LLC 5830-3. Workshop in Multicultural Education. Provides students with the experiences in multicultural methodology training. How to utilize community members, para-professionals and peers to facilitate learning in a multicultural environment.

LLC 5831-2. Reading Recovery: Observation Survey. A workshop class which introduces the participants to an understanding of literacy acquisition and prepares them to implement the Reading Recovery Program within their school or district. Prereq: reading and language arts methods. A minimum of three years primary teaching or reading teaching experience.

LLC 5835-.5 to 3. Special Topics in Literacy and Language. Specific topics vary but will include the exploration of literacy development and instruction in particular populations or with specific focuses.

LLC 5840-1 to 4. Independent Study.

LLC 5910-3. Foundations of Language, Literacy and Culture.

Designed for veteran and novice teachers to gain an understanding of the broad fields of literacy and language education. Participants examine key educational philosophies based on the writings of important scholars in the field, on topics such as the politics of literacy, the nature of literacy and literacy/cultural identity. The course examines current thought concerning literacy and language learning and teaching from a variety of perspectives and contexts, including classroom, school and community.

LLC 5911-3. Reading Recovery Practicum: Early Intervention (Theory, Procedures and Practice). A field experience which extends the participants' understanding of literacy acquisition and prepares them to implement the Reading Recovery Program within their school or district. Prereq: LLC 5831.

LLC 5920-3. Readings in Multicultural Education. Provides students with an opportunity to examine the current literature as it relates to trends in contemporary issues in the area of multicultural education.

LLC 5925-1 to 3. Selected Readings: Advanced Study in Literacy and Language. Prereq: written permission of instructor.

LLC 6090-3. Research Seminar. An advanced course which focuses on specific issues in language, language acquisition and language teaching.

LLC 6713-3. Introduction To Language Policy. The legal, ideological and historic foundations of language policies are examined. Also examined are connections with related topics such as language rights, language and power and issues from the sociology of language, such as language loyalty.

LLC 6840-1 to 4. Independent Study.

LLC 6910-3. Seminar and Practicum in Literacy and Language, K-6. Provides opportunities for advanced students in the M.A. program to apply concepts acquired in course work and other educational experiences to specific situations. Students will work in schools, classrooms, administrative offices, or community centers (according to their experiences, interests and current teaching positions; sites to be identified before course begins) to study the potential for change in schools and society and to reflect upon their roles as change agents in the field.

LLC 6911-3. Seminar and Practicum in Literacy and Language, 7-12+. Provides opportunities for advanced students in the M.A. program to apply

concepts acquired in course work and other educational experiences to specific situations. Students will work in schools, classrooms, administrative offices, or community centers (according to their experience, interests and current teaching positions; sites to be identified before course begins) to study the potential for change in schools and society and reflect upon their own roles as change agents in the field.

LLC 6912-3. Seminar and Practicum in Literacy and Language, ESL and Bilingual Education. Provides opportunities for advanced students in the M.A. program to apply concepts acquired in course work and other educational experiences to specific situations. Students will work in schools, classrooms, administrative offices, or community centers (according to experience, interests and current teaching positions; sites to be identified before course begins) to study the potential for change in schools and society and reflect upon their own roles as change agents in the field.

LLC 6913-4. Reading Recovery: Practicum. A practicum which refines the participants' understanding of literacy acquisition and finalizes preparation to implement the Reading Recovery Program within their school/district. Prereq: LLC 5831 and 5911. Reading and language arts methods. A minimum of three years primary teaching or reading teaching experience.

LLC 6950-4. Master's Thesis.

LLC 7410-3. Communication and Control in Systems Change. Examines educational settings—classrooms, schools, school districts, corporate and clinical settings, church basements and community centers—as systems, and explores strategies for change. Participants draw on interdisciplinary perspectives of individual and group behavior as they develop personal theories of change and apply these to their own situations. Prereq: EDLI 7100.

Management: MGMT (Business)

Marketing: MKTG (Business)

Master of Integrated Sciences: MINS (Liberal Arts and Sciences)

Master of Recording Arts: MRSA (Arts & Media)

MATH: Mathematics (Liberal Arts and Sciences)

MATH 1009-3. Computer-Based Algebraic Problem Solving.

A laboratory-based problem solving course focused on personal computing applications. Topics include general problem solving techniques, deductive reasoning, elementary probability, computer algebraic software, optimization, graphical analysis, systems of equations, spreadsheets, functions, descriptive statistics, linear programming and elementary programming logic. Prereq: basic high school algebra and some familiarity with Microsoft Windows.

MATH 1010-3. Mathematics for the Liberal Arts: GT-MA1 GT-MA1.

Designed to give liberal arts students the skills required to understand and interpret quantitative information that they encounter in the news and in their studies and to make quantitatively-based decisions in their lives. Topics include a survey of logic and analysis of arguments, identifying fallacies in reasoning, working with numbers and units, linear and exponential relations and essentials of probability and statistics. The emphasis is on applications with case studies in economics, finance, environmental sciences, health, music and science. Prereq: three years of high school mathematics.

MATH 1070-3. Algebra for Social Sciences and Business: GT-MA1.

Topics in algebra designed for students who intend to take business calculus. Functions, graphs, scatter plots, curve-fitting, solving systems of equations, polynomial and rational functions and selected other topics. NOTE: Graphics calculator required. No co-credit with MATH 1110 or MATH 1130. Prereq: intermediate algebra and satisfactory score on the placement exam.

MATH 1075-1. Linear Programming and Probability. Designed to fulfill College of Business requirements for students who have had college algebra but not MATH 1070. Emphasis is on applications of linear programming and probability. Prereq: MATH 1110. No co-credit with MATH 1070.

MATH 1080-3. Polynomial Calculus: GT-MA1. An one-semester course in single-variable calculus. Topics include limits, derivatives, differentiation rules, integration and integration rules. Emphasis is on applications to business and social sciences. Note: No knowledge of trigonometry is required. Those planning to take more than one semester of calculus should take MATH 1401 instead of MATH 1080. Prereq: MATH 1070 or 1110. No co-credit with MATH 1401.

MATH 1110-3. College Algebra: GT-MA1. Topics in algebra designed for students who intend to take the calculus sequence. Functions, domains, ranges, graphs, data scatter plots and curve fitting, solving equations and systems of equations, polynomial functions, rational functions and selected other topics. Graphic calculators and/or computer algebra systems are used extensively. Applications are emphasized. Note: No co-credit with either MATH 1070 or 1130. Prereq: intermediate algebra and satisfactory score on the placement exam.

MATH 1111-1 to 3. Freshman Seminar.

MATH 1120-3. College Trigonometry: GT-MA1. Topics in trigonometry, analytic geometry and elementary functions designed for students who intend to take the calculus sequence. Angles and trigonometry functions of acute angles, analytic trigonometry, fundamental trigonometric functions and identities including hyperbolic trigonometry, parametric equations and polar coordinate system. Graphic calculators and/or computer algebra systems are used extensively. Applications are emphasized. Prereq: MATH 1110 and placement test. No joint credit with MATH 1130.

MATH 1130-4. Precalculus Mathematics: GT-MA1. Condensed treatment of the topics in MATH 1110 and 1120. Prereq: satisfactory score on the placement exam. No co-credit with MATH 1070, 1110 or 1120.

MATH 1401-4. Calculus I: GT-MA1. First course of a three-semester sequence (MATH 1401, 2411, 2421) in calculus. Topics covered include limits, derivatives, applications of derivatives and the definite integral. Note: Students cannot receive credit for both MATH 1080 and 1401. Prereq: MATH 1120 or 1130 and satisfactory score on the placement exam.

MATH 2411-4. Calculus II: GT-MA1. The second of a three-semester sequence (MATH 1401, 2411, 2421) in calculus. Topics covered include exponential, logarithmic and trigonometric functions, techniques of integration, indeterminate forms, improper integrals and infinite series. Prereq: MATH 1401.

MATH 2421-4. Calculus III: GT-MA1. The third of a three-semester sequence in calculus (MATH 1401, 2411 and 2421). Topics include vectors, vector-valued functions, partial differentiation, differentiation, multiple integration and vector calculus. Prereq: MATH 2411.

MATH 2511-3. Discrete Structures. Covers the fundamentals of discrete mathematics, including: logic, sets, functions, growth of functions, algorithms, matrices, mathematical reasoning, proofs, induction, relations, graphs, trees and combinatorics. There is an emphasis on how discrete mathematics applies to computer science in general and algorithm analysis in particular. Prereq: C SC 2421. Cross-listed with C SC 2511.

MATH 2810-1 to 3. Topics. Topics in mathematics with various subtitles reflecting course content. Prereq: permission of instructor.

MATH 2830-3. Introductory Statistics: GT-MA1. Basic statistical concepts, summarizing data, probability concepts, distributions, confidence intervals, hypothesis testing. Prereq: intermediate algebra.

MATH 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

MATH 3000-3. Introduction to Abstract Mathematics. Students learn to prove and critique proofs of theorems by studying elementary topics in abstract mathematics, including logic, sets, functions, equivalence relations and elementary combinatorics. Prereq: MATH 1401.

MATH 3040-3. Mathematics for Elementary Teachers. Topics include intuitive and logical development of geometric ideas relevant to K-6 curriculum; measurement of length, area, volume, mass, angle, temperature, time and the metric system. Further study of the rational number system, probably and statistics, applications and problem solving. Note: carries credit only for elementary education majors. Prereq: three years of high school mathematics.

MATH 3140-3. Introduction to Modern Algebra. Studies the fundamental algebraic structures used in modern mathematics. Topics include groups, rings, fields and polynomials. Prereq: MATH 3000.

MATH 3191-3. Applied Linear Algebra. Topics include systems of equations, Gaussian elimination with partial pivoting, LU—decomposition of matrices, matrix algebra, determinants, vector spaces, linear transformations, eigenvalues and applications. Prereq: MATH 2411.

MATH 3195-4. Linear Algebra and Differential Equations. Presents the essential ideas and methods of linear algebra and differential equations, emphasizing the connections between and the applications of both subjects. The course is designed for students in the sciences and engineering. Prereq: MATH 2411.

MATH 3200-3. Elementary Differential Equations. First and second order differential equations, Laplace transforms, systems of equations, with an emphasis on modeling and applications. Prereq: MATH 2411; coreq is MATH 3191.

MATH 3210-3. Higher Geometry I. Studies the foundations of modern geometry by examining axiomatic systems for various geometries, with an emphasis on non-Euclidean hyperbolic geometry. Prereq: MATH 3000.

MATH 3250-3. Problem Solving Tools. *Fall.* Students learn and refine both problem solving techniques and computer programming skills. Examples, exercises and projects are taken from a wide range of mathematical topics including algebra, calculus, linear algebra and probability. Note: This course will not count toward a graduate degree in applied mathematics. Prereq: MATH 2421. Cross-listed with MATH 5250.

MATH 3301-3. Introduction to Operations Research I—Deterministic Systems. A mathematical approach to decision making based on optimization. Topics include linear programming, network flows and production models. Prereq: MATH 3191 or 3195.

MATH 3302-3. Operations Research II. Elementary stochastic processes and standard nondeterministic operations research models: Markov chains, Poisson processes, renewal processes, queuing theory, inventory models, Markov decision processes, simulation. Prereq: MATH 3800 and 3191.

MATH 3440-3. Introduction to Symbolic Logic. *Spring.* Covers truth functional and quantificational logic through polyadic first order predicate calculus and theory of identity. Attention is given to such problems in metatheory as proofs of the completeness and consistency of systems of logic. Prereq: MATH 3000. Cross-listed with PHIL 3440.

MATH 3511-4. Mathematics of Chemistry. *Fall.* Multivariate functions, probability and statistics for chemistry, matrices and vectors, mathematics of reaction kinetics and symmetry point groups. Course covers mathematics needed for CHEM 4511 and 4521. Can also be an elective for the mathematics minor. Prereq: MATH 2411, CHEM 2031, CHEM 2061.

MATH 3800-3. Probability and Statistics for Engineers. Basic probability theory, discrete and continuous random variables, point and interval estimation, test of hypotheses, one-way analysis of variance and simple linear regression. Note: no co-credit with MATH 4810. Prereq: MATH 2421; coreq: MATH 2411.

MATH 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: junior standing and 2.75 GPA.

MATH 4010-3. History of Mathematics. *Spring.* A history of the development of mathematical techniques and ideas from early civilization to the present, including the inter-relationships of mathematics and sciences. Prereq: MATH 1401. Cross-listed with MATH 5010.

MATH 4027-3. Topics in Mathematics. Special topics in mathematics will be covered; consult 'Schedule Planner' for current topics and prerequisites.

MATH 4101-3. Applied Statistics Using SAS and SPSS I. Teaches the practical statistical tools social scientists use to analyze real-world problems. Course split into four modules, each taught by a different instructor. The first module introduces SAS and SPSS; modules 2-4 are problem-based and cover topics such as ANOVA, multivariate regression and cluster analysis. Prereq: any statistics course.

MATH 4102-3. Applied Statistics Using SAS and SPSS II. *Spring.* (Continuation of MATH 4101.) Students use the skills they learned in the previous semester to analyze a social issue of their choosing and present their findings. In addition to lectures, weekly one-on-one meetings between faculty and student are required. Prereq: MATH 4101.

MATH 4110-3. Theory of Numbers. Every other year. Topics include divisibility, prime numbers, congruencies, number theoretic functions, quadratic reciprocity and special diophantine equations, with applications in engineering. Prereq: MATH 3000. Cross-listed with MATH 5110.

MATH 4201-3. Topology. *Spring.* Metric spaces and topological spaces, compactness, separation properties and connectedness. Prereq: MATH 3000. Cross-listed with MATH 5201.

MATH 4220-3. Higher Geometry II. Studies affine and projective geometries. Coordinates are introduced in this framework. Planes and higher dimensional spaces are examined. Prereq: MATH 3191.

MATH 4310-4. Introduction to Real Analysis I. *Fall.* Calculus of one variable, the real number system, continuity, differentiation, integration theory, sequence and series. Prereq: MATH 2421 and 3000.

MATH 4320-4. Introduction to Real Analysis II. *Spring.* Convergence, uniform convergence; Taylor's theorem; calculus of several variables including continuity, differentiation and integration; Picard's theorem in ordinary differential equations and Fourier series. Prereq: MATH 4310.

MATH 4387-3. Regression Analysis, Modeling and Time Series.

Fall. Topics include linear and multiple regression, basic experimental designs, one-way analysis of variance. Emphasis is on practical aspects and applications of linear models to the analysis of data in business engineering, behavioral, biological and physical sciences. Prereq: MATH 3191 and 3800/4820. Cross-listed with MATH 5387.

MATH 4390-3. Game Theory. *Annual.* Begins with an introduction to the mathematical theory of games and the definition of a solution, including extensive and normal forms of representation. The fundamental minimax theorem is presented first as the foundation for two-person matrix games, then extended with fixed point theory to other games. Principles of dominance and solution methods are presented, plus applications to economics, political science, engineering and other fields. An introduction to n -person game theory is included, with basic terms and concepts. Prereq: MATH 2421, 3191 and 3800/4810. Cross-listed with MATH 5390.

MATH 4394-3. Experimental Designs. Infrequent. Completely randomized block designs factorial and fractional factorial experiments, balanced incomplete block designs, responses surface methods. Prereq: MATH 4387. Cross-listed with MATH 5394.

MATH 4408-3. Applied Graph Theory. Introduces discrete structures and applications of graph theory to computer science, engineering, operations research, social science and biology. Topics include connectivity, coloring, trees, Euler and Hamiltonian paths and circuits, matching and covering problems, shortest route and network flows. Prereq: C SC/MATH 2511 or MATH 3000. Cross-listed with C SC 4408.

MATH 4409-3. Applied Combinatorics. Every other year. Major emphasis is on applied combinatorics and combinatorial algorithms, with applications in computer science and operations. Topics include general counting methods, generating functions, recurrence relations, inclusion-exclusion and block designs. Prereq: MATH 4408 and 3140.

MATH 4410-3. Mathematics of Coding Theory. Error correcting codes are used to recapture information that has been distorted in some transmission process. Various coding schemes use block codes obtained from algebraic, geometric and combinatorial structures. Topics include: fundamentals of coding theory, linear, Reed-Muller, Golay, cyclic and BCH codes. Prereq: MATH 3191.

MATH 4450-3. Complex Variables. Infrequent. Topics include complex algebra, Cauchy-Riemann equations, Laurent expansions, theory of residues, complex integration and introduction to conformal mapping. Prereq: MATH 2421 and MATH 3000.

MATH 4576-3. Mathematical Foundations of Artificial Intelligence I.

Infrequent. Fundamentals course that complements other approaches, such as in engineering, psychology and business administration. Here, the emphasis is on the mathematical foundations. Topics include logical inference, problem solving, heuristic search, neural search, neural nets, analogical reasoning and learning. Models and paradigms also consider different measures of uncertainty. Prereq: C SC 2511, MATH 2511/3000 and 3191. Cross-listed with MATH 5576.

MATH 4650-3. Numerical Analysis I. *Fall.* Computer arithmetic, solution of nonlinear equations, systems of linear equations, matrix eigenvalue problems and approximation theory. Prereq: MATH 3191 or MATH 3195 and programming experience. Cross-listed with MATH 5660 and C SC 4650.

MATH 4660-3. Numerical Analysis II. *Spring.* Numerical differentiation and integration, numerical solution of ordinary differential equations, the Galerkin method for the Poisson equation. Prereq: MATH 3195 or both 3191 and 3200; MATH or C SC 4650 or 5660; or programming experience. Cross-listed with MATH 5661, C SC 4660 and 5661.

MATH 4674-3. Parallel Computing and Architectures. Infrequent. Examines a range of topics involved in using parallel operations to improve computational performance. Parallel architectures, parallel algorithms, parallel programming languages, interconnection networks and their relation to specific computer architectures. Prereq: MATH 4650. Cross-listed with MATH 5674.

MATH 4733-3. Partial Differential Equations. Infrequent. Initial/Boundary value problems for first-order, wave, heat and Laplace Equations; maximum principles; Fourier Series and applications. Prereq: MATH 2421 and 3200. Cross-listed with MATH 5733.

MATH 4779-3. Math Clinic. The clinic is intended to illustrate the applicability and utility of mathematical concepts. Research problems investigated originate from a variety of sources—industry, government agencies, educational institutions, or nonprofit organizations. Prereq: consult Schedule Planner or instructor. Cross-listed with MATH 5779.

MATH 4791-3. Continuous Modeling. Every other year. Surveys mathematical problems that arise in natural sciences and engineering. Topics may include population models, epidemic models, mechanics, heat transfer and diffusion, tomography, pharmaco-kinetics, traffic flow, fractal models, wave phenomena and natural resource management. Most models discussed are based on differential and integral equations.

Emphasis is formulation and validation of models as well as methods of solution. Prereq: MATH 3191 and 3200. Cross-listed with MATH 5791.

MATH 4792-3. Probabilistic Modeling. Every other year. Markov chains; Poisson processes, continuous time Markov chains, elementary topics in queuing theory and some mathematical aspects of Monte Carlo simulation, including random variate generation, variance reduction and output analysis. Prereq: MATH 4810, 5310 and some programming experience. Cross-listed with MATH 5792.

MATH 4793-3. Discrete Math Modeling. Every other year. Focuses on the use of graph theory and combinatorics to solve problems in a wide variety of disciplines. Applications are selected from computer science, communication networks, economics, operations research and the social, biological and environmental sciences. Prereq: MATH 3191 and 4408. Cross-listed with MATH 5793.

MATH 4794-3. Optimization Modeling. Every other year. Principles of model formulation and analysis are developed by presenting a wide variety of applications, both for natural phenomena and social systems. Examples of optimization models to represent natural phenomena include principles of least time and energy. Examples in social systems include resource allocation, environmental control and land management. Specific applications vary, but are chosen to cover a wide scope that considers dichotomies, such as discrete vs. continuous, static vs. dynamic and deterministic vs. stochastic. Some computer modeling language (like GAMS) is taught. Prereq: MATH 2421 and 3191. Cross-listed with MATH 5794.

MATH 4810-3. Probability. Examines elementary theory of probability, including independence, conditional probability and Bayes' theorem; random variables, expectations and probability distributions; joint and conditional distributions; functions of random variables; limit theorems, including the central limit theorem. Prereq: MATH 2421 and 3191. Cross-listed with MATH 5310.

MATH 4820-3. Statistics. *Spring.* Point and confidence interval estimation, principles of maximum likelihood, sufficiency and completeness, tests of simple and composite hypothesis, linear models and multiple regression, analysis of variance. Prereq: MATH 3800. MATH 4810 highly recommended, but not required. Cross-listed with MATH 5320.

MATH 4830-3. Applied Statistics. *Spring.* Review of estimation, confidence intervals and hypothesis testing; ANOVA; categorical data analysis; nonparametric tests; linear and logistic regression. Prereq: an introductory course in statistics such as MATH 2830 or permission of instructor. Cross-listed with MATH 5830.

MATH 4840-1 to 3. Independent Study. Variable credit depending on the student's needs. Offered for the advanced student who desires to pursue a specific topic in considerable depth. Note: Supervision by a full-time faculty member is necessary and the dean's office must concur. Students may register for this course more than once with departmental approval.

MATH 5000-4. Algebraic Patterns and Functions I. Systematic study of the core elements of algebra: linear, quadratic, exponential, logarithmic functions and their graphs. Includes modeling using graphing calculators and real world applications. Concepts are linked to other scientific, mathematical and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: permission of project director.

MATH 5002-4. Algebraic Patterns and Functions II. This course is a continuation of the material covered in Math 5000. Topics that will be covered include logarithmic, exponential and trigonometric functions and applications, parametric equations, systems of equations and inequalities, matrices and linear programming. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: permission of instructor.

MATH 5004-4. RM-MSMSP: Statistics and Probability. Studies the collection, presentation and analysis of data; and elements and applications of counting discrete probability. Includes real world applications and technology. Concepts are linked to other scientific, mathematical and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: permission of project director.

MATH 5005-4. RM-MSMSP: Geometry. Systematic study of advanced geometric concepts: history of geometry and measurement, patterns among shapes, 2- and 3-dimensional shapes, constructions, symmetry or transformational geometry. Includes applications and activity-oriented instruction. Concepts are linked to other scientific, mathematical and pedagogical domains. This course is not applicable toward any degree in the College of Liberal and Sciences. Prereq: permission of project director.

MATH 5006-4. RM-MSMSP: Mathematics of Change. Systematic study of the application of calculus to the analysis of changing systems in real world applications. Emphasizes the connections that exist between calculus and aspects of middle school curricula. Concepts are linked to other scientific, mathematical and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: MATH 5000 (or equivalent) or permission of project director.

MATH 5007-4. RM-MSMSP: Discrete Math—Counting the Possibilities. Systematic study of basic techniques in discrete mathematics and their various applications: permutations and combinations, inclusion or exclusion, pigeonhole principle, graph theory and recursive pattern solving. Applications to topics such as network analysis and voting theory are stressed. Concepts are linked to other scientific, mathematical, pedagogical domains. This course is not applicable toward any degree

in the College of Liberal Arts and Sciences. Prereq: MATH 5000 (or equivalent) or permission of project director.

MATH 5008-4. RM-MSMSP: Discovery and Use of the History of Math. Systematic study of the people, events, ideas and issues from the history of mathematics, focusing on historical topics that are central to the discipline and teaching of mathematics and emphasizing Web research of historical topics of interest. Concepts are linked to other scientific, mathematical and pedagogical domains. Note: This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: permission of the project director.

MATH 5009-4. RM-MSMSP: Math Modeling—Using and Applying Math. Systematic study of math modeling using algebra, geometry, discrete mathematics, rates of change and statistics to solve real-world problems in areas such as finance, biology, economics and physics. Concepts are linked to other scientific, mathematical, societal and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: MATH 5006 (or equivalent) or permission of instructor.

MATH 5010-3. History of Mathematics. *Spring.* A history of the development of mathematical techniques and ideas from early civilization to the present, including the inter-relationships of mathematics and sciences. Prereq: MATH 1401. Not open to students who have had MATH 4010. No credit for applied math graduate students. Cross-listed with MATH 4010.

MATH 5017-1 to 3. Topics in Mathematics for Teachers. Topics vary from semester to semester. Designed for professional mathematics teachers. Note: This course will not count toward a degree in applied mathematics. Prereq: permission of instructor.

MATH 5027-3. Topics in Applied Mathematics. Selected topics in mathematical problems arising from various applied fields such as mechanics, electromagnetic theory, economics and biological sciences. Prereq: permission of instructor.

MATH 5060-3. Exploratory Data Analysis. *Fall.* Philosophy and techniques associated with exploratory (vs. confirmatory) data analysis, both as originally presented (John Tukey) and current computer-based implementations. Graphical displays, robust-resistant methods (lines, two-way fits), diagnostic plots, standardization. Prereq: previous statistics course or permission of instructor.

MATH 5070-3. Applied Analysis. *Spring.* Designed to serve as an introduction to real analysis. Topics include: fundamentals of logic and theorem proving, infimum and supremum, real numbers, point-set topology in metric spaces, properties of functions, sequences and series of functions, fixed point theorems, Riemann integral, power series. Prereq: MATH 4320.

MATH 5110-3. Theory of Numbers. Every other year. Topics include divisibility, prime numbers, congruences, number theoretic functions, quadratic reciprocity and special diophantine equations, with applications in engineering. Prereq: MATH 3000. Cross-listed with MATH 4110.

MATH 5113-3. Modern Algebra I. Every other year. Groups, rings, ideals, fields, polynomials and Galois theory. Prereq: MATH 3140.

MATH 5135-3. Functions of a Complex Variable. Infrequent. The complex plane, infinite series and products, elementary special functions, Cauchy-Riemann equations, conformal mapping, complex integration, Cauchy integral theory and residue theory. Prereq: MATH 4320; MATH 5070 recommended.

MATH 5198-3. Mathematics for Bioscientists. *Fall.* Develops mathematical reasoning; introduces linear algebra, discrete structures, graph theory, probability and differential equations, using applications to molecular biology. Note: No credit for mathematics or engineering students. Prereq: MATH 2411.

MATH 5201-3. Topology. *Spring.* Topological spaces, metric spaces, compactness, separation properties and connectedness. Prereq: MATH 4320. Cross-listed with MATH 4201.

MATH 5250-3. Problem Solving Tools. *Fall.* Students learn and refine both problem solving techniques and computer programming skills. Examples, exercises and projects are taken from a wide range of mathematical topics including algebra, calculus, linear algebra and probability.

Note: This course will not count toward a graduate degree in applied mathematics. Coreq: MATH 2421. Cross-listed with MATH 3250.

MATH 5310-3. Probability. Examines elementary theory of probability, including independence, conditional probability and Bayes' theorem; random variables, expectations and probability distributions; joint and conditional distributions; functions of random variables; limit theorems, including the central limit theorem. Prereq: Math 2421 and 3191. Cross-listed with MATH 4810.

MATH 5320-3. Statistics. *Spring.* Point and confidence interval estimation, principles of maximum likelihood, sufficiency and completeness, tests of simple and composite hypothesis, linear models and multiple regression, analysis of variance. Prereq: MATH 3800. MATH 4810 highly recommended, but not required. Cross-listed with MATH 4820.

MATH 5330-3. Workshop in Statistical Consulting. Annual. Students participate as consultants in a drop-in consulting service operated by the department. Seminars provide students with supervised experience in short term statistical consulting. Prereq: MATH 5387. Since problems vary each semester, students may register for this course more than once.

MATH 5387-3. Regression Analysis, Modeling and Time Series. *Fall.* Topics include linear and multiple regression, basic experimental designs, one-way analysis of variance. Emphasis is on practical aspects and applications of linear models to the analysis of data in business engineering and behavioral, biological and physical sciences. Prereq: MATH 3191 and 3800/4820. Cross-listed with MATH 4387.

MATH 5390-3. Game Theory. Infrequent. Begins with an introduction to the mathematical theory of games and the definition of a solution, including extensive and normal forms of representation. The fundamental minimax theorem is presented first, as the foundation for two-person matrix games, then extended with fixed point theory to other games. Principles of dominance and solution methods are presented, plus applications to economics, political science, engineering and other fields. An introduction to n-person game theory is included, with basic terms and concepts. Prereq: MATH 2421, 3191 and 3800/4810. Cross-listed with MATH 4390.

MATH 5394-3. Experimental Designs. Infrequent. Completely randomized block designs, factorial and fractional factorial experiments, balanced incomplete block designs, response surface methods. Prereq: MATH 4387 and 5387. Cross-listed with MATH 4394.

MATH 5396-3. Introduction to Bayesian Statistics. Annual. Prior and posterior distributions, conjugate models, single and multiparameter models, hierarchical models, mixture models, numerical methods for evaluating posteriors, Monte Carlo methods and Markov chain Monte Carlo. Prereq: MATH 3800 or both MATH 4810 and 4820 (or equivalent). Some computer programming experience.

MATH 5405-3. Applied Graph Theory. Emphasis is on applied graph theory and graph algorithms. Topics may be selected from trees, digraphs and networks, intersection graphs, coloring, clique coverings and planarity. Many topics are motivated by applications in computer science, operations research, engineering, biology and environmental and social science. Prereq: graduate standing.

MATH 5410-3. Modern Cryptology. Every other year. Deals with the mathematics that underlies modern cryptology. Topics include: classical cryptology, public and private key cryptosystems, secret sharing schemes, authentication schemes, linear feedback shift registers, discrete logarithm and elliptic curve-based schemes. Prereq: MATH 3191.

MATH 5432-3. Computational Graph Theory. Infrequent. Algorithmic techniques in graph theory and other discrete mathematics areas. Typical topics include: branch-bound algorithms, matching, colorings, domination, min-plus algebra, simulated annealing and related heuristics, NP-completeness theory. Prereq: a course in graph theory and some programming experience.

MATH 5446-3. Theory of Automata. Infrequent. Studies the relationships between classes of formal languages (regular, context-free, context-sensitive, phrase-structure) and classes of automata (finite-state, pushdown, Turing machines). Additional topics include decidability

and computability issues. Prereq: MATH 3000 and 3140. Cross-listed with C SC 5446.

MATH 5490-3. Network Flows. Infrequent. Begins with the classical min-cost flow problem, defined on an ordinary network. Other problems, such as shortest path, are also shown in this class. Both theory and algorithms are presented. Extensions include generalized networks, nonlinear costs, fixed charges, multi-commodity flows and additional applications, such as in communications networks. Prereq: graduate standing in math or computer science.

MATH 5576-3. Mathematical Foundations of Artificial Intelligence I. Infrequent. A fundamentals course that complements other approaches, such as in engineering, psychology and business administration. Here the emphasis is on the mathematical foundations. Topics include logical inference, problem solving, heuristic search, neural nets, analogical reasoning and learning. Models and paradigms also consider different measures of uncertainty. Prereq: C SC 2511, MATH 2511/3000 and 3191. Cross-listed with MATH 4576.

MATH 5593-3. Linear Programming. *Fall.* A linear program is an optimization problem that seeks to minimize or maximize a linear function subject to a system of linear inequalities and equations. This course begins with examples of linear programs and variations in their representations. Basic theoretical foundations covered include polyhedra, convexity, linear inequalities and duality. Two classes of solution algorithms are given: simplex methods and interior point methods. The primary emphasis of this course is on mathematical foundations and applications are used to illustrate the main results. Prereq: MATH 3191.

MATH 5595-3. Computational Methods in Nonlinear Programming. Every other year. Unconstrained methods include Cauchy's steepest descent, Newton's method, variable metrics, conjugate directions and quasi-Newton methods. Convergence analysis is based on the eigenvalue structure of the hessian. Constrained methods include feasible directions, projection, penalty functions and cutting planes. Additional topics may include complementarity algorithms, Lagrangian methods and quadratic programming. A variety of applications are given to illustrate the methods. Prereq: MATH 4320 and 5718. Cross-listed with C SC 5595.

MATH 5610-3. Computational Biology. *Spring.* Basic introduction and mathematical foundations. Topics include comparative genomics; proteomics; phylogeny; dynamic programming and sequence alignment; gene expression arrays and clustering; Bayesian networks; structure prediction and hidden Markov models. Prereq: C SC 1410 or equivalent programming experience and MATH 3191 or 3195.

MATH 5660 - 3. Numerical Analysis I. *Fall.* Computer arithmetic, solution of nonlinear equations, systems of linear equations, matrix eigenvalue problems and approximation theory. Prereq: MATH 3191 or MATH 3195 and programming experience. Cross-listed with MATH 4650 and C SC 5660.

MATH 5661-3. Numerical Analysis II. *Spring.* Numerical differentiation and integration, numerical solution of ordinary differential equations, the Galerkin method for the Poisson equation. Prereq: MATH 3195 or both 3191 and 3200; MATH or C SC 4650 or 5660; or programming experience. Cross-listed with MATH 4660, C SC 4660 and 5661.

MATH 5663-3. Introduction to Finite Element Methods. Every other year. The Finite Element Method (FEM) is introduced as a general tool for the approximation of partial differential equations that model engineering and physics problems of interest. Elliptic, hyperbolic and parabolic equations are solved with FEM. Prereq: MATH 3191 and 3200.

MATH 5674-3. Parallel Computing and Architectures. Infrequent. Examines a range of topics involved in using parallel operations to improve computational performance. Parallel architectures, parallel algorithms, parallel programming languages, interconnection networks and their relation to specific computer architectures. Prereq: MATH 4650. Cross-listed with MATH 4674.

MATH 5718-3. Applied Linear Algebra. *Fall.* Topics include: vector spaces, practical solution of systems of equations, projections, eigenvalues and eigenvectors, unitary transformations, Schur QR, singular value decompositions, similarity transformations, Jordan forms and positive definite matrices. Prereq: MATH 3191.

MATH 5733-3. Partial Differential Equations. Infrequent. Initial/Boundary value problems for first-order, wave, heat and Laplace Equations; maximum principles; Fourier Series and applications. Prereq: MATH 2421 and 3200; graduate standing. Cross-listed with MATH 4733.

MATH 5779-3. Math Clinic. The clinic is intended to illustrate the applicability and utility of mathematical concepts. Research problems investigated originate from a variety of sources—industry, government agencies, educational institutions, or nonprofit organizations. Prereq: consult Schedule Planner or instructor. Cross-listed with MATH 4779.

MATH 5780-3. Stochastic Processes. Every other year. Markov processes in discrete and continuous time, renewal theory, martingales, Brownian motion, branching processes and stationary processes. Applications include queuing theory, performance evaluation of computer and communication systems and finance. Prereq: MATH 3191, 3200 and 4810/5310.

MATH 5791-3. Continuous Modeling. Every other year. Surveys mathematical problems that arise in natural sciences and engineering. Topics may include population models, epidemic models, mechanics, heat transfer and diffusion, tomography, pharmaco-kinetics, traffic flow, fractal models, wave phenomena and natural resource management. Most models discussed are based on differential and integral equations. Emphasis is formulation and validation of models as well as methods of solution. Prereq: MATH 3191 and 3200. Cross-listed with MATH 4791.

MATH 5792-3. Probabilistic Modeling. Every other year. Markov chains; Poisson processes, continuous time Markov chains, elementary topics in queuing theory and some mathematical aspects of Monte Carlo simulation, including random variate generation, variance reduction and output analysis. Prereq: MATH 4810, 5310 and some programming experience. Cross-listed with MATH 4792.

MATH 5793-3. Discrete Math Modeling. Every other year. Focuses on the use of graph theory and combinatorics to solve problems in a wide variety of disciplines. Applications are selected from computer science, communication networks, economics, operations research and the social, biological and environmental sciences. Prereq: MATH 3191 and 4408. Cross-listed with MATH 4793.

MATH 5794-3. Optimization Modeling. Every other year. Principles of model formulation and analysis are developed by presenting a wide variety of applications, both for natural phenomena and social systems. Examples of optimization models to represent natural phenomena include principles of least time and energy. Examples in social systems include resource allocation, environmental control and land management. Specific applications vary, but are chosen to cover a wide scope that considers dichotomies, such as discrete vs. continuous, static vs. dynamic and deterministic vs. stochastic. Some computer modeling language (like GAMS) is taught. Prereq: MATH 2421 and 3191. Cross-listed with MATH 4794.

MATH 5830-3. Applied Statistics. *Spring.* Review of estimation, confidence intervals and hypothesis testing; ANOVA; categorical data analysis; nonparametric tests; linear and logistic regression. Prereq: an introductory course in statistics such as MATH 2830 or permission of instructor. Cross-listed with MATH 4830.

MATH 5840-1 to 3. Independent Study. Available only with approval of graduate advisor. Subjects arranged.

MATH 5939-1 to 6. Internship/Cooperative Education.

MATH 5950-1 to 8. Master's Thesis.

MATH 5960-1 to 8. Master's Project. Note: This course will not count toward a graduate degree in Applied Mathematics.

MATH 6023-3. Topics in Discrete Math. Topics may include graph theory, combinatorics, matroid theory, combinatorial matrix theory, finite geometry, design theory and discrete algorithms. Note: Since topic varies by semester, students may register for this course more than once. Prereq: permission of the instructor.

MATH 6024-3. Topics in Computational Mathematics. Topics include methods for differential equations, numerical optimization, approximation theory, inverse problems and Fourier analysis. Note:

Since topics vary each semester, students may register for this course more than once. Prereq: permission of instructor.

MATH 6026-3. Topics in Probability and Statistics. Topics may include generalized linear models, information theory, robust methods, spatial statistics, sequential analysis, Monte Carlo methods, queuing theory. Note: Since topics vary each semester, students may register for this course more than once. Prereq: permission of instructor.

MATH 6027-3. Topics in Applied Mathematics. Topics include problems in differential equations, optimization, mathematical modeling, Fourier analysis and approximation theory. Note: Since topics vary each semester, students may register for this course more than once.

MATH 6114-3. Modern Algebra II. Every other year. Groups, rings and ideals, fields, polynomials, Galois theory. Prereq: MATH 5113.

MATH 6118-3. Topics in Linear Algebra. Infrequent. Topics may include canonical forms, bilinear and quadratic forms and combinatorial matrix theory. Note: Since topics vary each semester, students may register for this course more than once. Prereq: MATH 5718.

MATH 6131-3. Real Analysis. Every other year. Lebesgue measure and integration, general measure and integration theory, Radon-Nikodym Theorem, Fubini Theorem. Prereq: MATH 4320 or 5070.

MATH 6221-3. Projective Geometry. Every other year. Synthetic and algebraic development of projective spaces. Collineation groups, representation theorems, quadratic sets and applications. Emphasis is on finite projective spaces. Prereq: MATH 3191.

MATH 6222-3. Topics in Projective Geometry. Infrequent. Advanced topics in projective geometry. Topics may include finite projective planes, free projective planes, derivation, collineation groups, higher dimensional projective spaces, ovals and ovoids. Prereq: MATH 6221.

MATH 6376-3. Statistical Computing. Computationally-intensive methods in statistics, including random number generation and Monte Carlo methods, data partitioning and re-sampling, numerical and graphical methods, nonparametric function estimation, statistical models and data mining methodology, analysis of large data sets. Prereq: MATH 4820/4830 and 4387. Cross-listed with MATH 7376.

MATH 6381-3. Mathematical Statistics I. Every other year. Mathematical theory of statistics. Parametric inference: discrete and continuous distributions, methods of parameter estimation, confidence intervals. Prereq: MATH 3191 and 4820/5320.

MATH 6382-3. Mathematical Statistics II. Offered every other year. (Continuation of MATH 6381.) Hypothesis testing, robust estimation, tolerance intervals, nonparametric inference, sequential methods. Prereq: MATH 6381.

MATH 6383-3. Mathematical Probability. Every other year. Measurable spaces, probability measures, random variables, conditional expectations and martingales. Convergence in probability, almost sure convergence, convergence in distribution, limit theorems (law of large numbers, central limit theorem, law of iterated logarithm).

MATH 6384-Analysis of Dependent Data. Infrequent. Statistical methods for the analysis of data with temporal and/or spatial dependence. Longitudinal data, stationary and nonstationary time series models, geostatistical and lattice spatial models, point processes, hierarchical models. Prereq: MATH 4820 or 4830 and MATH 4387.

MATH 6388-3. Advanced Statistical Methods for Research. Infrequent. The second in a two-semester course in applied statistics. Topics include multifactor analysis of variance and covariance, categorical data, general linear models, bootstrapping and other computationally intensive statistical methods. Prereq: MATH 5387.

MATH 6391-3. Stochastic Differential Equations. Infrequent. Ito integral, Ito formula, weak and strong solutions, martingale representation formula, filtering, stochastic optimal control, diffusions, boundary value problems. Prereq: MATH 6383.

MATH 6395-3. Multivariate Methods. Every other year. Multivariate distributions, hypothesis testing and estimation. Multivariate analysis of variance, discriminant analysis, multidimensional scaling, factor analysis, principal components. Prereq: MATH 5387.

MATH 6398-3. Calculus of Variations and Optimal Control.

Infrequent. Standard variational problems (geodesic, time-of-transit, isoperimetric, surface, area), Euler-Lagrange equations, variational principles in mechanics, optimal control problems, necessary conditions for optimality, Pontryagin principle. Prereq: MATH 4320.

MATH 6406-3. Combinatorial Structures. Every other year. Finite combinatorial structures; existence, construction and applications. Topics include Latin squares, Hadamard matrices, block and finite geometries. Prereq: MATH 3140 and 4409.

MATH 6409-3. Applied Combinatorics. Infrequent. Emphasis is on enumerative combinatorics important in applications. Topics include multinomial coefficients and other special numbers such as Stirling numbers of the first and second kind, systems of distinct representatives, Polya's enumeration theory, generating functions, Mobius inversion on finite posets. Cross-listed with C SC 5144.

MATH 6663-3. Finite Difference Methods For Partial Differential Equations. Every other year. Consistency, stability and convergence for difference schemes. Derivations based on Taylor series and finite volumes. Methods for parabolic and hyperbolic initial-value problems and initial-boundary-value problems, elliptic boundary-value problems, some nonlinear problems.

MATH 6664-3. Numerical Linear Algebra. Every other year. Solution of linear equations, eigenvector and eigenvalue calculation, matrix error analysis, orthogonal transformation, iterative methods. Prereq: MATH 5660 and 5718. Cross-listed with C SC 6664.

MATH 6667-3. Introduction to Approximation Theory. Infrequent. Normed linear spaces, convexity, existence and uniqueness of best approximations, Tchebychev approximation by polynomials and other related families, least square approximation and splines. Prereq: MATH 5070. Cross-listed with C SC 5667.

MATH 6735-3. Continuum Mechanics. Every other year. Indicial notation. Eulerian and Lagrangian coordinates. Deformation, strain, strain rate, stress. Conservation of mass, momentum and energy. Exploitation of entropy production inequality to obtain constitutive equations for elastic, viscous, visco elastic, plastic, or porous materials. Prereq: MATH 3191 and 3200 or graduate standing.

MATH 6840-1 to 3. Independent Study.

MATH 7023-3. Topics in Discrete Mathematics. Advanced topics in discrete mathematics; will change from semester to semester. Prereq: MATH 5113, 5405 and 6409 or permission of instructor.

MATH 7025-3. Topics in Optimization. This is a PhD level course that goes deeper into optimization. Some topics are extensions of those introduced in MATH 5595, while other topics are new. Examples of topics are: duality, stability, sensitivity, consistency, redundancy, principles of optimality, control theory, calculus of variations, global (nonconvex) optimization and model reformulation. Since the topics vary, students may register for this more than once. Prereq: permission of the instructor.

MATH 7132-3. Functional Analysis. Every other year. Linear metric and topological spaces, duality, weak topology, spaces of functions, linear operators, compact operators, elements of spectral theory and operator calculus. Prereq: MATH 6131.

MATH 7376-3. Statistical Computing. Computationally-intensive methods in statistics, including random number generation and Monte Carlo methods, data partitioning and re-sampling, numerical and graphical methods, nonparametric function estimation, statistical models and data mining methodology, analysis of large data sets. Prereq: MATH 4820/4830 and 4387. Cross-listed with MATH 6376.

MATH 7385-3. Stochastic Differential Equations. Brownian motion, Ito integral, Ito formula, Dynkin's formula, stochastic optimal control, boundary value problems, Girsanov theorem, mathematical finance, optimal stopping. Prereq: MATH 6383.

MATH 7397-3. Nonparametric Statistics. Every three years. Statistical inference without strong model assumptions. Hypothesis testing and estimation using permutations and ranks, analysis of variance and non-parametric model fitting. Prereq: applied mathematics—statistics (PhD.)

MATH 7593-3. Advanced Linear Programming. Every three years. A PhD level course that goes deeper into linear programming, starting from where a graduate-level course (5593) ends. Topics include advanced sensitivity analysis, sparse matrix techniques and special structures. Additional topics, which vary, include deeper analysis of algorithms, principles of model formulation and solution analysis. Prereq: MATH 5593.

MATH 7594-3. Integer Programming. Every three years. A PhD level course that uses linear programming (5593), especially polyhedral theory, to introduce concepts of valid inequalities and superadditivity. Early group-theoretic methods by Gomory and Chvatal's rounding function are put into modern context, including their role in algorithm design and analysis. Duality theory and relaxation methods are presented for general foundation and analyzed for particular problem classes. Among the special problems considered are knapsack, covering, partitioning, packing, fix-charge, traveling salesman, generalized assignment matchings. Matroids are introduced and some greedy algorithms are analyzed. Additional topics, which vary, include representability theory, heuristic search and complexity analysis. Prereq: MATH 5593.

MATH 7595-3. Advanced Nonlinear Programming. Every three years. Focuses primarily on the fundamental theory of nonlinear programming. Topics include convex analysis, optimality criteria, Lagrangian and conjugate duality, stability and sensitivity analysis. Other topics vary depending on the research interests of the instructor. Prereq: MATH 5595.

MATH 7664-3. Iterative Methods in Numerical Linear Algebra.

Every other year. Preconditioned iterative methods for linear systems and eigenproblems, conjugate gradients, multigrid and domain decomposition. Prereq: MATH 5660 and 6664.

MATH 7760-3. Mathematical Foundations of Finite Element Methods. Infrequent. Theoretical foundations of finite element methods for elliptic boundary value problems, Sobolev spaces, interpolation of Sobolev spaces, variational formulation of elliptic boundary-value problems, basic error estimates, applications to elasticity, practical aspects of the finite element method. Prereq: MATH 5663 (or equivalent programming experience) and MATH 6131/7132.

MATH 7840-1 to 3. Independent Study. Available only to PhD students.

MATH 7921 to 7927-1. Readings in Mathematics. Annual. Seven readings courses are offered regularly primarily for PhD students at the research level in the designated fields. The seminar format requires significant student participation. Prereq: permission of instructor.

MATH 8990-1 to 10. Doctoral Dissertation. Only for students working on their PhD research.

ME: Mechanical Engineering (Engineering)

ME 1208-12X8-1 to 3. Special Topics. Subject matter to be selected from topics of current technological interest. Credit to be arranged. Prereq: permission of instructor.

ME 2023-3. Statics. A vector treatment of force systems and their resultants; equilibrium of trusses, beams, frames and machines, including internal forces and three-dimensional configurations, static friction, properties of areas, distributed loads and hydrostatics. Prereq: PHYS 2311. Cross-listed with C E 2121.

ME 2030-3. Analysis Techniques in Mechanical Engineering. Introduces experimental methods and mathematical analysis used in engineering. Spreadsheets are used to analyze engineering data and prepare tables and graphs. Introduction to computer programming using MATLAB. Prereq: MATH 1401 and ENGR 1025.

ME 2033-3. Dynamics. A vector treatment of dynamics of particles and rigid bodies, including rectilinear translation, central-force and general motion of particles, kinematics of rigid bodies, the inertia tensor, plane motion of rigid bodies, energy and momentum methods for particles, systems of particles and rigid bodies. Prereq: ME 2023/ C E 2121. Cross-listed with C E 3111.

M E 2208-22X8-1 to 3. Special Topics. Subject matter to be selected from topics of current technological interest. Credit to be arranged.

Prereq: permission of instructor.

M E 3010-3. Elementary Numerical Methods and Programming.

A development of basic numerical methods used to solve engineering problems. Introduction to MATLAB to implement numerical simulations. Coreq: MATH 3195/3191 and 3200.

M E 3021-3. Introduction to Fluid Mechanics. Applies exact and approximate theories to engineering problems in fluids. Examples include potential flow theory, Euler's equations for inviscid fluids, Bernoulli's equations, Navier-Stokes equations and pipe flow. Prereq: M E 2033/C E 3111 and MATH 2421.

M E 3022-3. Thermodynamics II. Generalized thermodynamic cycles; general thermodynamic cycle considerations, compressor, expander, heat exchanger processes, refrigeration cycles, mixtures and combustion. Prereq: ENGR 3012 and MATH 2421.

M E 3023-3. System Dynamics I: Vibrations. Modeling of Dynamical Systems. Analysis of single and multiple degree of freedom systems. Introduction to continuous systems. Prereq: M E 2033/C E 3111, MATH 3195/3191 and 3200; Coreq: M E 3043/C E 3121.

M E 3024-3. Introduction to Materials Science. The development of the physical principles relating the structural features of materials to their observed properties. Prereq: PHYS 2311.

M E 3027-3. Measurements. Principles of digital and analog measurements; systems for sensing, transporting, modifying and outputting information; systematic and random error analysis. The laboratory includes a variety of instruments and components illustrating fundamental experimental measurement techniques and methods. Prereq: MATH 3195/3191 and 3200; coreq: M E 3028.

M E 3028-1. Laboratory of Mechanical Measurements. Modern techniques for Mechanical measurements. Laboratory includes techniques for the calibration of transducers and analysis of Statistical uncertainty. Data Acquisition Systems used for Signal acquisition and measurement of common mechanical quantities, such as displacement, velocity, acceleration and force. Design and characterization of a second order measurement system based on strain gages. Coreq: M E 3027.

M E 3030-3. Electric Circuits and Systems. Basic electrical engineering concepts for non-majors. Basic study of circuit analysis (RLC and Op-amps), transformers and motor equations and simple electronic circuits (diodes and transistors). Prereq: MATH 2421 and PHYS 2331. Cross-listed with E E 3030.

M E 3031-1. Fluids/Thermal Laboratory. Laboratory exercise in compressible and incompressible fluid flow; steady state and transient heat transfer. Prereq: ENGR 3012; coreq: M E 3021.

M E 3032-1. Electric Circuits and Systems Laboratory. Basic electrical engineering laboratory for ME majors. Coreq: M E 3030 or E E 3030.

M E 3034-1. Properties of Engineering Materials. Experiments to determine material properties and the effect of processing on properties important in mechanical design. Materials include metal, polymers and composites. Loadings include tension, compression and bending under static, dynamic impact and creep states. Coreq: M E 3024/3043/C E 3121.

M E 3035-3. Design of Mechanical Elements. Review of mechanics of materials and stress analysis; detailed design of various machine elements such as fasteners, springs, brakes and gears. Includes design project. Prereq: M E 3043/C E 3121; coreq: M E 3024.

M E 3042-3. Heat Transfer. Basic laws of heat transfer by conduction, convection and radiation with engineering design applications. Includes design project. Prereq: ENGR 3012 and MATH 2421.

M E 3043-3. Strength of Materials. Application of exact and approximate theories of stress and displacement to engineering problems in solids. Examples include torsion of rods and bending of beams. Combined stresses, principal stresses and energy methods are examined. Prereq: M E 2023/C E 2121. Cross-listed with C E 3121.

M E 3065-3. Intermediate Dynamics. An in-depth study of Newtonian dynamics with constraints. Mechanism synthesis using graphical and analytic techniques. Prereq: M E 2033/C E 3111 and M E 3010.

M E 3145-3. Manufacturing Processes Design. Basic manufacturing background will be provided to engineering students in order to: (1)

apply manufacturing specifications to the design of mechanical devices and (2) communicate with technical personnel in a production environment. Topic cover metalcasting, bulk and sheet metal forming, material removal and joining and fastening processes.

M E 3147-3. Bioengineering. Explores engineering principles that have application in biology and principles discovered in biology which may have application in engineering. Some topics covered are: cell biology, molecular biology, viscoelasticity, physical theory of plant cell growth aerodynamics, fluid mechanics, biofluid dynamics and animal flight. Prereq: junior standing in engineering.

M E 3208-32X8-1 to 3. Special Topics. Subject matter to be selected from topics of current technological interest. Credit to be arranged. Prereq: permission of instructor.

M E 3840-1 to 3. Independent Study. This category is intended for upper-division level special topics which students may wish to pursue on their own initiative, with guidance from a professor who agrees to limited consultation on the work and to award credit when the project is completed.

M E 4023-3. System Dynamics II: Controls. Introduces the Laplace Transformation. Control system analysis using root locus and frequency response methods. Basic compensation techniques are covered. Prereq: M E 3023.

M E 4024-3. Mechanical Behavior of Materials. Studies the response of materials to applied stresses. Emphasis is on the understanding of the relationships between structure and properties. Fracture mechanics and fatigue are introduced. Prereq: M E 3024.

M E 4035-3. Senior Design I. Group and individual projects to design engineering components and systems. Design methodology, product specs, creativity, design reviews, communication, presentations and report writing are emphasized. M E 4035 and M E 4045 form a one year sequence and must be taken consecutively. Prereq: M E 3035.

M E 4045-3. Senior Design II. Student teams manufacture and construct and/or redesign mechanical parts or assemblies that they designed in previous course (M E 4035). A proposal, oral progress reports and a final written report and demonstration are required. M E 4035 and M E 4045 form a one year sequence and must be taken consecutively. Prereq: M E 4035.

M E 4110-3. Numerical Methods for Engineers. Introduces numerical analysis. Solution of linear and nonlinear equation systems. Numerical methods for ordinary and partial differential equations. Engineering applications. Prereq: MATH 3195/3191, 3200 and some programming experience. Cross-listed with M E 4110.

M E 4112-3. Internal Combustion Engines. Students obtain a sufficient understanding of internal combustion engines that will allow them to perform analysis of combustion thermodynamics and actual cycles, including heat addition, heat loss, air/fuel flow and engine design and performance. Prereq: ENGR 3012.

M E 4114-3. Designing with Composites. Analysis and design of polymers and polymer-based composites. Failure criteria include static strength, stiffness, creep, fatigue, impact and fracture toughness. Design criteria include strength-to-weight ratio and cost-to-strength ratio. Prereq: M E 3043/C E 3121. Cross-listed with M E 5114.

M E 4115-3. Applied Plasticity and Creep. Plastic deformation of materials applied to bulk and sheet metal manufacturing processes such as extrusion, rolling and sheet metal. Linear and non linear viscoelastic creep with applications to plates and shells. Prereq: M E 3043. Cross-listed with M E 5115.

M E 4116-3. Robotics. Introduces kinematics, dynamics and control of robot manipulators. Emphasis is placed on computer use in control of actual robots and in computer simulation of mathematical models of robots. Students must turn in a project report based on the computer simulation. Prereq: M E 3065.

M E 4120-3. Methods of Engineering Analysis. Selected topics from real analyses with applications to engineering analyses. Topics include vector calculus, ordinary differential equations, partial differential equations and calculus of variations. Prereq: MATH 3195/3191 and 3200. Cross-listed with M E 5120.

M E 4132-3. Power Plant Systems Design. Detailed engineering analysis and design of a thermal power plant, including heat balance, selection of equipment (boiler, turbines, heat exchangers, pumps, cooling tower), performance evaluation, economic evaluation and feasibility studies. Prereq: M E 3022

M E 4135-3. Mechanical Systems Design. Detailed engineering design of mechanical systems. Students work in teams on a project selected for entire class. Projects are similar to typical ones from industry. Course stresses creativity, synthesis, design judgment and analysis of real-world problems. Oral and written presentations are required. Prereq: M E 3035.

M E 4136-3. Control Systems Design. Detailed engineering design of control systems. Students work in teams on a project selected for entire class. Projects are similar to typical ones from industry. Course stresses creativity, synthesis, design judgment and analysis of real-world problems. Oral and written presentations are required. Prereq: M E 4023.

M E 4141-3. Fluid Mechanics. Viscous incompressible fluid flows. Topics include derivation of equations governing viscous compressible fluid motion; specializations to simple flows; boundary-layer theory; similarity solutions; introduction to turbulence and Reynolds stresses. Prereq: M E 3021. Cross-listed with M E 5141.

M E 4142-3. Thermal Systems Design. Detailed engineering design of thermal/fluids systems. Students work in teams on a project selected for entire class. Projects are similar to typical ones from industry. Course stresses creativity, synthesis, design judgment and analysis of real-world problems. Oral and written presentations are required. Prereq: ENGR 3012 and M E 3021.

M E 4147-3. Engineering Economy. Applies economic and financial principles to evaluation of engineering alternatives. Calculation of annual costs, present worth and prospective rates of return on investment. Review of systems analysis techniques, including simulation, linear programming and project scheduling. Prereq: junior standing in engineering. Cross-listed with C E 4077.

M E 4155-3. Air Conditioning Design. Basic principles of heating and ventilating systems. Determination of heating and cooling loads. Design and layout of heating, ventilating and air conditioning systems. Includes design project. Prereq: M E 3022 and 3042.

M E 4160-3. Introduction to Operations Research. Introduces operations research, including mathematical programming models, models for decision alternatives, for procurement and inventory and for queuing operations. Prereq: MATH 3195/3191 and 3200.

M E 4163-3. Rigid-body Dynamics. Review of Newtonian dynamics, Lagrange's equations for particles, systems and rigid bodies. Conservative and nonconservative systems, moments of inertia, principal axes, angular momentum and Euler equations. Illustrations from spinning bodies, including tops, gyro-compass and rotating machinery. Prereq: M E 2033/ C E 3111, MATH 3195/3191 and 3200. Cross-listed with M E 5163.

M E 4166-3. Computerized Numerical Control (CNC) Manufacturing. Modern manufacturing engineering concepts using computerized numerical control (CNC). The students learn state-of-the-art CNC methodologies, including digitizing, drawing, generating codes and manufacturing, using modern CNC machines. Prereq: junior standing in engineering. Cross-listed with M E 5166.

M E 4175-3. Finite Element Analysis in Machine Design. Students learn basic theory of finite element analysis (FEA) as it applies to stress analysis and design of mechanical components. Commercial package will be used giving students practical experience in the use of FEA. Prereq: M E 3035. Cross-listed with M E 5175.

M E 4195-3. Solid Modeling. This is a basic course in solid modeling using Solid Works computer software. Topics include feature-based modeling, parametric part design, parent/child relationships, use of datums, patterning, relations, sweeps, blends, assembly, tolerancing, rapid prototyping, CNC manufacturing, CMM inspection and STEP standards. Prereq: junior standing in engineering.

M E 4208-42X8-1 to 3. Special Topics. Subject matter to be selected from topics of current technological interest. Credit to be arranged. Prereq: senior standing and permission of instructor.

M E 4840-1 to 3. Independent Study. This category is intended for upper division level special topics which students may wish to pursue on their own initiative, with guidance from a professor who agrees to limited consultation on the work and to award credit when the project is completed.

M E 5110-3. Numerical Methods for Engineers. Introduces numerical analysis. Solution of linear and nonlinear equation systems. Numerical methods for ordinary and partial differential equations. Engineering applications. Prereq: graduate standing or permission of instructor. Cross-listed with M E 4110.

M E 5114-3. Designing with Composites. Analysis and design of polymers and polymer-based composites. Failure criteria include static strength, stiffness, creep, fatigue, impact and fracture toughness. Design criteria include strength-to-weight ratio and cost-to-strength ratio. Prereq: graduate standing or permission of instructor. Cross-listed with M E 4114.

M E 5115-3. Applied Plasticity and Creep. Plastic deformation of materials applied to bulk and sheet metal manufacturing processes such as extrusion, rolling and sheet metal. Linear and non linear viscoelastic creep with applications to plates and shells. Prereq: graduate standing or permission of instructor. Cross-listed with M E 4115.

M E 5120-3. Methods of Engineering Analysis. Selected topics from real analyses with applications to engineering analyses. Topics include vector calculus, ordinary differential equations, partial differential equations and calculus of variations. Prereq: graduate standing or permission of instructor. Cross-listed with M E 4120.

M E 5121-3. Introduction to Fluid Dynamics. Physical properties of gases and liquids; kinematics of flow fields; equations describing viscous, heat-conducting Newtonian fluids. Exact solutions and rational approximations for low- and high-speed dissipative flows, surface and internal waves, acoustics, stability and potential flows. Prereq: graduate standing or permission of instructor.

M E 5122-3. Macroscopic Thermodynamics. Axiomatic presentation of fundamentals of classical thermodynamics (first law); energy, work and heat. Equilibrium, reversible and irreversible processes; entropy production and the second law. Applications to stability and phase equilibrium. Irreversible thermodynamics and the Onsager reciprocal relations. Prereq: graduate standing or permission of instructor.

M E 5123-3. Introduction to Continuum Mechanics. Cartesian tensor notation. Deformation, strain, strain rate and compatibility. Definition of stress vector and tensor. Fundamental balance laws of mass, momentum and energy; entropy production inequality. Constitutive equations for elastic, viscoelastic and plastic materials; ideal, compressible and viscous fluids. Beltrami-Mitchell and Navier-Stokes equations. Prereq: graduate standing or permission of instructor.

M E 5124-3. Yield-Limited Behavior of Materials. Analysis of material behavior within the "elastic range," with emphasis on the phenomenon of yield and factors that influence it. Examination of the theory of dislocations; study of strengthening mechanisms in solids. Consideration of various time-dependent but reversible (inelastic) deformation phenomena. Presentation of appropriate engineering case studies to augment various topics. Prereq: M E 5143.

M E 5133-3. Theory of Inelastic Materials. Mathematical theory of linear viscoelasticity. Finite elements models. Solution of boundary-value problems in linear viscoelasticity. Non-Newtonian flow. Selected topics in nonlinear material behavior. Prereq: M E 5143 or permission of instructor.

M E 5141-3. Viscous Flow. Viscous incompressible fluid flows. Topics include derivation of equations governing viscous compressible fluid motion; specializations to simple flows; boundary-layer theory; similarity solutions; introduction to turbulence and Reynolds stresses. Prereq: graduate standing or permission of instructor. Cross-listed with M E 4141.

M E 5142-3. Statistical Thermodynamics. Introduces the molecular interpretation and calculation of thermodynamic properties of matter, thermodynamic probability, distribution functions, Schrodinger wave equations and solutions and ensemble theory. Applications to ideal and real gases, solids, liquids, radiation, conduction electrons and chemical equilibrium. Prereq: graduate standing or permission of instructor.

ME 5143-3. Theory of Elasticity. Review of the basic equations of linear theory of elasticity. St. Venant torsion and flexure. Plane strain, plane stress and generalized plane stress. Application of conformal mapping and Fourier transform techniques. Prereq: graduate standing or permission of instructor.

ME 5144-3. Plasticity and Creep. Inelastic deformation of materials such as metals, alloys, glasses, composites and polymers from the phenomenological and structural point of view. Case studies of plastic and creep deformations in engineering materials. Prereq: ME 5143.

ME 5161-3. Compressible Flow. Energy, continuity and momentum principles applied to compressible flow; one-, two- and three-dimensional subsonic, supersonic and hypersonic flows. Normal and oblique shocks and method of characteristics. Prereq: ME 5141 or permission of instructor.

ME 5162-3. Heat Transfer I. Review of equations governing transport of heat by conduction and radiation. Analytical and numerical solution of boundary value problems representative of heat conduction in solids. Radiation properties of solids, liquids and gases; transport of heat by radiation. Prereq: graduate standing or permission of instructor.

ME 5163-3. Dynamics. Review of Newtonian dynamics, Lagrange's equation for particles, systems and rigid bodies. Conservative and non-conservative systems, moments of inertia, principal axes, angular momentum and Euler equations. Illustrations from spinning bodies, including tops, gyro-compass and rotating machinery. Prereq: graduate standing or permission of instructor. Cross-listed with ME 4163.

ME 5166-3. Computerized Numerical Control (CNC) Manufacturing. Modern manufacturing engineering concepts using computerized numerical control (CNC). The students learn state-of-the-art CNC methodologies, including digitizing, drawing, generating codes and manufacturing using modern CNC machines. Prereq: graduate standing or permission of instructor. Cross-listed with ME 4166.

ME 5172-3. Heat Transfer II. Review of equations governing transport of heat in fluids in motion. Description of heat transfer in free and forced convection, including laminar and turbulent flow. Dimensional analysis and heat transfer correlations, numerical methods and combined heat transfer mechanisms. Prereq: ME 5141 or permission of instructor.

ME 5175-3. Finite Element Stress Analysis. Students learn basic theory of finite element analysis (FEA) as it applies to stress analysis and design of mechanical components. Commercial package will be used giving students practical experience in the use of FEA. Prereq: ME 5143 or permission of instructor. Cross-listed with ME 4175.

ME 5208-52X8-1 to 3. Special Topics. Subject matter to be selected from topics of current technological interest. Credit to be arranged. Prereq: graduate standing or permission of instructor.

ME 5840-1 to 3. Independent Study. Available only through approval of the graduate advisor. Subjects arranged to fit needs of the particular student. Prereq: graduate standing.

ME 5950-1 to 8. Master's Thesis.

ME 5960-3. Master's Report. Master of Science in Engineering report. Students seeking the Master of Science in Engineering and who do not choose to do a thesis, must complete an individual project of an investigative and creative nature under the supervision of a member of the graduate faculty. Prereq: completion of 21 hours toward the M. S. degree.

ME 5970-3. Graduate Problem Course. The graduate problem course is for the solution of specific problems in ME specialty areas. Each student is assigned a set of problems of some difficulty requiring the use of the literature of the various areas covered. Prereq: 15 hours of graduate level courses in ME.

MGMT: Management (Business)

MGMT 1000-3. Introduction to Business. *Fall, Spring, Summer.* This course will introduce students to the nature and role of business in our society. Problems confronting business are surveyed from a management, financial, economic and marketing viewpoint. Career opportunities in business are also considered. Students are advised to take this course during their freshman year and may not take it in the junior or senior

years. Prereq: Open to freshman and sophomores, nondegree students and music majors at all levels.

MGMT 1111-3. Business Freshman Seminar. *Fall, Spring.* This course will introduce students to the nature and role of business in society. Problems confronting business are surveyed from a management, financial, economic and marketing viewpoint. Career opportunities in business are also considered. This course is designed to assist 1st year UCDHSC student's transition to life on campus. The course content is integrated with various activities to familiarize 1st year students with school resources, develop critical thinking and writing skills and build relationships critical to ongoing academic success. Students are advised to take this course during their freshman year. Note: Credit will not be given for both MGMT 1111 and MGMT 1000. Prereq: Open only to new Freshman.

MGMT 3000-3. Managing Individuals and Teams. Focuses on helping students understand how to manage individuals and groups effectively. Students are encouraged to know themselves better and how their behavior affects how they deal with organizational situations; they also learn how individuals differ and how to design, manage and work in a team. This is a business core course therefore a grade of a 'C' or better must be earned to satisfy graduation requirements. Prereq: junior standing.

MGMT 3310-3. Managing People for Competitive Advantage. Provides an overview of the management of human resources in organizations. Areas of study include recruitment, selection, training, career development, performance appraisal, compensation and employee or labor relations. Prereq: MGMT 3000.

MGMT 3939-1 to 3. Internship/Cooperative Education. Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: senior standing and 3.5 GPA.

MGMT 4100-3. Managing Cultural Diversity. *Fall, Spring.* Practical and policy issues that arise from living and working in a multicultural world in order to promote informed, effective management. Particular emphasis is given to the development of innovative approaches to managing the challenges posed by a work force that differs in characteristics, such as race, gender, ethnicity, age, lifestyle and disability. Prereq: MGMT 3000.

MGMT 4350-3. Conflict and Change in Organizations. *Fall, Spring.* Designed to help students understand common types of conflict within organizations and the strategies useful for resolving conflict. Techniques for managing change are also stressed. Prereq: MGMT 3000.

MGMT 4370-3. Organization Design. Examines how to structure organizations to perform effectively. Addresses the effects of computer-based information technologies (e.g. intranets, extranets and the Internet) on firm structure, strategy and culture. Emphasis is placed on the role of the task, technology and the environment as constraints on organizational design. Prereq: MGMT 3000.

MGMT 4400-3. Introduction to International Business. *Fall, Spring.* An overview of the international business environment, the impact of environmental factors on international business operations and the identification and analysis of complex managerial issues facing international business firms. Prereq: MGMT 3000 and junior standing or permission of instructor. Cross-listed with INTB 4400.

MGMT 4420-3. Human Resources Management: Staffing. Methods, theories, research findings and issues in staffing. Topics include performance-based framework for selecting employees, establishing performance expectations, planning the recruitment process and finding valid and useful tools to select the best candidate. Prereq: MGMT 3310 (may be taken concurrently).

MGMT 4430-3. Human Resources Management: Training. Methods, theories, research findings and issues in training. Topics include how to design, deliver and evaluate training programs. Prereq: MGMT 3310 (may be taken concurrently).

MGMT 4440-3. Human Resource Management: Performance Management. Focuses on the design and implementation of human resource management systems to assess and enhance employee performance. Areas of study include performance definition and measurement, goal setting, feedback, employee development, rater training and pay for performance. Prereq: MGMT 3310 (may be taken concurrently).

MGMT 4450-3. Human Resources Management: Compensation.

Develop and administer pay systems considering economic and social pressures, traditional approaches and strategic choices in managing compensation. Current theory research and practice. Students design a compensation strategy and a system that translates that strategy into reality. Prereq: MGMT 3310 (may be taken concurrently).

MGMT 4500-3. Business Policy and Strategic Management.

Fall, Spring, Summer. Emphasis is on integrating the economic, market, social or political, technological and components of the external environment with the internal characteristics of the firm; and deriving through analysis the appropriate interaction between the firm and its environment to facilitate accomplishment of the firm's objectives. Open only to business students in their graduation semester. This is a business core course therefore a grade of 'C' or better must be earned to satisfy Business graduation requirements. Prereq: graduation term, senior standing and completion of all business core courses with a grade of a 'C' or better.

MGMT 4770-3. Human Resource Information Systems. Focuses on the management of human resource information systems. It addresses how modern information systems tools can provide better human resource intelligence to users in today's enterprises, allowing them to make better decisions. It examines how information about workforce and human resource management processes can be collected and used to set targets to meet strategic objectives, monitor performance, receive notifications when performance is below expectations and respond immediately by taking corrective actions. Prereq: MGMT 3000.

MGMT 4780-3. Small Business Management. Teaches future new and small business owners the practical aspects of small business management, to develop a comprehensive business plan and to develop the skills necessary to improve the odds of success. The course will consider strategies to leverage limited resources for maximum effect. Also covers small organization and group behavior, performance, leadership and motivation in small business settings, and focuses on the owner/manager as the principle success factor in the context of small organization. Prereq: MGMT 3000, MKTG 3000 and BLAW 3000 strongly recommended.

MGMT 4840-1 to 8. Independent Study.

MGMT 4950-3. Special Topics in Management. A number of different topics in management are offered under this course number. Consult the 'Schedule Planner' for current course offerings. Prerequisites vary depending on the topic and instructor requirements. Cross-listed with MGMT 5800.

MGMT 5800-3. Special Topics in Management. A number of different topics in management are offered under this course number. Consult the Schedule Planner for current course offerings. Prerequisites vary depending on the topic and instructor requirements. Cross-listed with MGMT 4950.

MGMT 5939-1 to 3. Internship or Cooperative Education.

Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: 21 semester hours and 3.5 GPA.

MGMT 6020-3. Leadership in Difficult Times. The test of a leader often in their ability to lead their organizations through difficult times and crises. Such situations could be downsizing, product defects, ethical violations, a terrorist attack or a natural disaster. Successful management of these situations can strengthen and renew the organization. Inability to manage these situations can tarnish the organizations reputation and threaten its survival. This course examines leadership under stress and provides frameworks for categorizing and analyzing these difficult situations. The course also addresses strategies that leaders can use to enable their organizations to manage, recover and learn from these difficult experiences.

MGMT 6040-3. International Human Resources Management.

This course has two objectives: (1) to understand the impact of cultural differences in the management of people in multinational firms; and (2) to compare and contrast critical human resource issues in the contexts of domestic and international operations. Topics include recruitment, staffing, training, performance appraisal, compensation and labor and

management relations in markets around the world. (This course qualifies as an international elective for the MS in International Business program.) Prereq: MGMT 6380 or BUSN 6520 (or equivalent). Cross-listed with INTB 6040.

MGMT 6320-3. Organizational Development. Instruction in the analysis, diagnosis and resolution of problems in organizing people at work. Models of organizational change are examined. Group experiences, analysis of cases and readings are stressed. Prereq: BUSN 6520.

MGMT 6360-3. Designing Effective Organizations. Examines how to design organizations within the context of environmental, technological and task constraints. The emphasis is on learning how to recognize and correct structural problems through the analysis of existing organizations in which the students are involved. Prereq: BUSN 6520 or equivalent.

MGMT 6380-3. Managing People for Competitive Advantage.

Focuses on the management of human resources in organizations. Oriented toward the practical application of human resources management principles in areas such as: equal employment opportunity, affirmative action, human resources planning, recruitment, staffing, benefits and compensation, labor relations, training, career management, performance management and occupational health and safety. Prereq: BUSN 6520.

MGMT 6710-3. Human Resources Management: Staffing. Focuses on the design and implementation of human resources management systems to recruit and select employees. Areas of study include planning, job analysis, external and internal recruitment and selection and decision making. Prereq: MGMT 6380 and BUSN 6530.

MGMT 6720-3. Human Resources Management: Training. Focuses on the design and implementation of human resources management systems to assess training needs, deliver training and evaluate training effectiveness. Areas of study include assessment of individual and organizational needs, instructional approaches and training evaluation. Prereq: MGMT 6380.

MGMT 6730-3. Human Resources Management: Performance Management. Focuses on the design and implementation of human resources management systems to assess and enhance employee performance. Areas of study include performance measurement, rater training, goal setting and feedback. Prereq: MGMT 6380.

MGMT 6740-3. Human Resources Management: Compensation Administration. Study of planning and administration of compensation systems, including government, union and labor market influences on pay, development of pay systems and employee benefits for nonmanagerial, managerial and overseas employees. Prereq: MGMT 6380 and BUSN 6530.

MGMT 6780-3. Small Business Management. The primary objective of this course is to teach future small business owners the practical aspects of small business management and to develop the skills necessary to improve the odds of success. The course will consider strategies to leverage limited resources for maximum effect in managing the small business enterprise. Also, this course covers small organization and group behavior, performance, leadership and motivation in small business settings and focuses on the owner/manager as the principal success factor in the context of a small organization.

MGMT 6800-3. Special Topics in Management. Current topics in management will be occasionally offered. Consult the 'Schedule Planner' for specific offerings or contact an advisor for information.

MGMT 6801-3. Career Strategies. The downsizing, restructuring and re-engineering so prevalent in U.S. industries and companies have strongly affected the job and career market. Every individual must sharpen his/her competencies and skills in order to compete effectively in the changing job market. This course is designed to assist students in understanding and operating in this difficult job market. Using many of the concepts that organizations use in their strategy formulation process and coupled with individual techniques and skills proven effective in job searches and career planning, this course prepares students to deal with the issues involved in finding a job and pursuing a career.

MGMT 6803-3. Visionary Leadership. Examines the challenges faced by visionary leaders and the approaches used by these individuals (creation, articulation and implementation of vision) to transform organizations.

Participants utilize these approaches employed by effective leaders to develop plans for their own organizational success. Group experiences, applied readings and videos are used to clarify the opportunities available. Prereq: BUSN 6520 or equivalent.

MGMT 6804-3. Bargaining and Negotiation. Designed as a seminar in bargaining, negotiation and interpersonal conflict management. Through simulations, role plays and personal experience, students practice and develop their negotiation skills and see how negotiations differ depending on the type of situation encountered. Specific topics covered include: the nature of negotiation, the role of the negotiation context, interdependence and power, strategies and tactics of distributive bargaining, negotiation ethics and interpersonal conflict resolution. Prereq: BUSN 6520 or equivalent.

MGMT 6805-3. Entrepreneurship and Venture Capital. Combines analytical tools for evaluating and organizing new business ventures with detailed information for preparing business plans, structuring the business and raising capital for new ventures. The course includes analysis of current start-up companies and class presentations by managers of start-up and venture capital firms. Prereq: BUSN 6520 or equivalent.

MGMT 6806-3. Corporate Entrepreneurship. Competitive performance in a global economy requires continuous innovation and new business growth. The creation and development of new ventures is a primary strategy for internally-generated growth. Managing innovation and new ventures requires attitudes, knowledge and practices different from those usually required for the management of mature business units. This course provides the perspective, knowledge and specific skills required for successful entrepreneurial management.

MGMT 6809-3. Highly Effective Managers. Utilizes the writings of Stephen Covey (The Seven Habits of Highly Effective People, People-Centered Leadership, First Things First) and application of Covey's ideas to significantly increase performance and achieve personal and professional goals.

MGMT 6820-3. Management Field Studies. The objective of this course is to provide an opportunity for the in-depth examination of a actual management problem in a local organization. Much like an independent study conducted under faculty guidance, each student will execute a unique project suited to his or her interests. Priority is given to MGMT students.

MGMT 6821-3. Managing for Sustainability. This course will consider how companies are using social responsibility as a competitive advantage. The so-called green revolution is calling for organizations to take on increasing responsibility for environmental conservation, employee well being and community development. This course will consider how organizations can work with various stakeholders (employees, customers, communities, society-at-large) to develop and promote mutually beneficial products and solutions to key social needs and concerns.

MGMT 6840-1 to 8. Independent Study. Instructor approval required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study.

MGMT 6950-1 to 8. Master's Thesis.

MINS: Master of Integrated Sciences (Liberal Arts and Sciences)

MINS 5000-3 to 4. Topics. With prior approval by a candidate's advisor, an MIS candidate may enroll in an upper division course in science, computer science, mathematics and complete additional work for graduate credit. Prereq: MIS candidate with 12 hours of upper division work completed.

MINS 5840-1 to 3. Independent Study.

MINS 5939-1 to 3. Internship/Cooperative Education.

MINS 5950-1 to 4. Master's Thesis. Prereq: advisor approval.

MINS 5960-1 to 4. Master's Project. Prereq: advisor approval.

MKTG: Marketing (Business)

MKTG 1000-3. Introduction to Marketing. Provides an introduction and overview of marketing. Discusses market and buyer analysis. Includes product planning, pricing, promotion and distribution of goods and services. For nonbusiness majors only. Does not satisfy the MKTG 3000 business requirement.

MKTG 2939-1. Internship/Cooperative Education. Introductory supervised experiences involving the applications, concepts and skills in an employment situation. Prereq: sophomore standing

MKTG 3000-3. Principles of Marketing. *Fall, Spring, Summer.* Focuses on the basic marketing concepts of Buyer Behavior, Marketing Research, Marketing Planning and Implementation and the marketing process of product, price, distribution and promotion. This is a business core course therefore a grade of a 'C' or better must be earned to satisfy graduation requirements. Note: offered fall, spring and summer. Prereq: junior standing.

MKTG 3050-3. Applied Marketing Management. *Fall, Spring, Summer.* Offered as the second course in a sequence, following the principles of marketing course (MKTG 3000). The course is designed to enhance the student's ability to formulate and implement a marketing plan and to better understand the relationship of marketing to other business functions. Emphasized application of marketing concepts through the use of cases, simulations or projects. Prereq: MKTG 3000.

MKTG 3100-3. Marketing Research. Provides practical experience in research methodologies, planning an investigation, designing a questionnaire, selecting a sample, interpreting results and making a report. Techniques focus on attitude surveys, behavioral experiments and qualitative research. Prereq: MKTG 3000 and DSCI 2010.

MKTG 3200-3. Buyer Behavior. Focuses on improving the student's understanding of consumer and organizational buying behavior as a basis for better formulation and implementation of marketing strategy. Blends concepts from the behavioral sciences with empirical evidence and introduces buyer research techniques. Prereq: MKTG 3000.

MKTG 3939-1 to 3. Internship/Cooperative Education. Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: senior standing and 3.5 GPA.

MKTG 4000-3. Advertising. Analyzes principles and practices in advertising from a managerial viewpoint. Considers the reasons to advertise, product and market analysis as the planning phase of the advertising program, media selection, creation and production of advertisements, copy testing and development of advertising budgets. Prereq: MKTG 3000.

MKTG 4200-3. International Marketing. *Fall, Spring.* Studies managerial marketing policies and practices of firms marketing their products in foreign countries. Analytical survey of institutions, functions, policies and practices in international marketing. Relates marketing activities to market structure and environment. Prereq: MKTG 3000.

MKTG 4580-3. International Transportation. *Fall, Spring.* Analysis of international transportation (primarily sea and air) in world economy. Detailed study of cargo documentation and freight rate patterns. Included are liability patterns, logistics, economics and national policies of transportation. Prereq: MKTG 3000.

MKTG 4700-3. Personal Selling and Sales Management. Introduces the student to principles of personal selling and issues in managing the field sales force. Focuses on models of personal selling, recruiting, selection, training, compensation, supervision and motivation, as well as organizing the field sales force, sales analysis, forecasting and budgeting. Prereq: MKTG 3000.

MKTG 4720-3. Internet Marketing. Distinctly influences the way marketers conduct marketing activities. The Internet media promises to establish marketing theories, identifies obsolete situations, explores how marketing functions have irreversibly changed as a result of the Internet and outlines basic marketing strategies for successful online marketing.

MKTG 4760-3. Customer Relationship Management. This marketing-theory driven course examines customer relationship management (CRM)

as a key strategic process for organizations. Composed of people, technology and processes, effective CRM optimizes the selection or identification, acquisition, growth and retention of desired customers to maximize profit. Besides presenting an overview of the CRM process, its strategic role in the organization and its place in marketing, students have an opportunity to create simulated CRM database using popular software package that help to illustrate what CRM can do, its advantages and limitations. Prereq: MKTG 3000. Cross-listed with ISMG 4760.

MKTG 4800-3. Marketing Seminar. Offered to provide consideration of a wide variety of topical issues in marketing, such as, services marketing, pricing, product development or creative marketing strategies. Prereq: MKTG 3000.

MKTG 4840-1 to 8. Independent Study.

MKTG 4950-3. Special Topics. Courses offered on an irregular basis for the purpose of presenting new subject matter in marketing. Prerequisites vary depending upon the particular topic and instructor requirements.

MKTG 5939-1 to 3. Internship/Cooperative Education. Supervised experiences involving the applications of concepts and skills in an employment situation. Prereq: 21 semester hours and 3.5 GPA.

MKTG 6010-3. Marketing Strategy, Evaluation and Development.

Fall, Spring. Focuses on marketing strategy and marketing planning. Addresses the formulation and implementation of marketing plans within the context of the overall strategies and objectives of both profit and not-for-profit organizations. There is heavy emphasis on group projects and presentations. Prereq: BUSN 6560.

MKTG 6020-3. International Marketing. *Fall, Spring.* Explores problems, practices and strategies involved in marketing goods and services internationally. Emphasized analysis of uncontrollable environmental forces, including cultures, governments, legal systems and economic conditions, as they affect international marketing planning. Prereq: BUSN 6560. Note: students cannot receive credit for both MKTG 6020 and INTB 6026. Cross-listed with INTB 6026.

MKTG 6030-3. Sales and Sales Force Management. *Spring.* Focuses on issues in personal selling and managing the field sales force. Deals with organization sales analysis, forecasting, budgeting and operating, with particular emphasis on the selling task, recruiting, selection, training, compensation, supervision and motivation. Prereq: BUSN 6560.

MKTG 6040-3. Services Marketing. *Fall, Spring.* Informs students of basic modifications to marketing concepts as the U.S. economy changes in emphasis from physical products to services. It also distinguishes between function, organization and structure in product-oriented versus service firms. Lastly, it concentrates on identifying difficulties in developing marketing plans and strategies in the service environment. Cases and projects with businesses are used to demonstrate these concepts.

MKTG 6050-3. Marketing Research. *Fall, Spring.* The objectives relate to effective marketing information management. Objectives include: (1) developing an understanding of the techniques and procedures that can be used to generate timely and relevant marketing information; (2) gaining experience in developing and analyzing information that is decision oriented; and (3) gaining experience in making recommendations and decisions based on relevant and timely information. Computer analysis and projects are employed. Prereq/coreq: BUSN 6530. Strictly enforced.

MKTG 6060-3. Buyer Behavior. *Spring.* Explores theory and application of consumer and industrial buying behavior. Internal decision making processes are examined, including perception, motivation, information processing and attitude, information and change. External influences on buyers' decisions such as culture, family, intra- and inter-organizational influences and marketing efforts are also investigated.

MKTG 6070-3. Advertising and Promotion Management. *Fall.* Treats tactical planning and management of mass marketing communications, including advertising and sales promotion. The course focuses on advertising and promotion objectives, legal considerations, segmentation and target marketing, creative and media selection and scheduling strategies, agency relations, advertising and promotion research, testing and evaluation, budgeting and trial and purchase stimulation through sales promotion tactics. The focus is on the managerial aspects of marketing communications as opposed to the creative functions. Prereq: BUSN 6560.

MKTG 6080-3. Marketing in Emerging Markets. Explores problems, practices and strategies involved in marketing goods and services in emerging markets. Emphasizes analysis of uncontrollable environmental forces, including cultures, government, legal, systems and economic conditions as they affect marketing planning. Prereq: BUSN 6560. Note: students cannot receive credit for both MKTG 6080 and INTB 6082. Cross-listed with INTB 6082.

MKTG 6090-3. Customer Relationship Management. Involves the management of customer relationships to maximize customer service and its associated benefits at minimal cost. Includes services marketing concepts and techniques, IT applications and software. Designed to acquaint students with practices and issues in state-of-the-art customer relationship management systems in an array of different types of organizations. The course initially focuses on the nature of customer relationship management (CRM) the interaction between strategic management planning, corporate culture and CRM. Other topics examined include successful models of CRM, managing the the employee or CRM interface, marketing research and CRM and customer trust, loyalty, CRM customer service levels, customer service levels, customer profitability or metrics, selecting and integrating CRM software, CRM integration and timing of CRM roll-out. Prereq: BUSN 6560.

MKTG 6091-3. Strategic Product Marketing. Familiarizes students with key theories and practices regarding products. Successful development of a new product, or extending the life cycle of an existing product. Outlines and necessitates the understanding of product development, key concepts related to successful product management over the course of its life cycle including the way the product function adds synergy to other marketing activities and, in turn, benefits from them.

MKTG 6092-3. Internet Marketing. Explores how the marketing function has irreversibly changed as a result of the Internet and to lay out basic marketing strategies for successful online marketing.

MKTG 6800-3. Topics in Marketing. Courses offered irregularly for the purpose of presenting new subject matter in marketing. Consult the current 'Schedule Planner' for semester offerings. Prereq: BUSN 6560.

MKTG 6840-1 to 8. Independent Study. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study. Prereq: permission of instructor.

MKTG 6950-1 to 8. Master's Thesis.

MLNG: Modern Languages (Liberal Arts and Sciences)

MLNG 1111-1 to 3. Freshman Seminar.

MLNG 2939-1 to 3. Cooperative Education.

MLNG 3276-3. Second Language Acquisition: Theory and Practice. Introduces major theoretical issues and their pedagogical implications in teaching and acquiring a second language from interdisciplinary perspectives of linguistics, psychology and education. Students are expected to develop a comprehensive and integrated understanding and construct a personalized rationale of teaching and acquiring English.

MLNG 4690-3. Methods of Teaching Modern Languages.

Methodology of teaching foreign language in an urban setting. Note: Requirement for language majors in the teacher certification program, School of Education, CU-Denver. Cross-listed with MLNG 5690.

MLNG 5690-3. Methods of Teaching Modern Languages.

Methodology of teaching foreign language in an urban setting. Requirement for language majors in the teacher certification program, School of Education, CU-Denver. Cross-listed with MLNG 4690.

MSRA: Master of Recording Arts (Arts & Media)

MSRA 5000-3. Introduction to Graduate Studies. Surveys existing literature and research in science, technology and pedagogy of recording arts. Extensive use of available resources in library, electronic and print, trade and scientific publications are explored. Use of computer applications to research and publication are developed. Prereq: admission to the MSRA degree program.

MSRA 5500-1 to 3. Topics in Professional Audio. Selected topical subjects to include live or studio sound recording, sound reinforcement, new technologies or practices in the audio industry. Cross-listed with MUS 4500.

MSRA 5505-4. Audio Sweetening. Reviews all aspects of audio synchronized with picture, including music, sound effects, narration and dialog replacement. Topics studied with respect to film, video and multi-media. Cross-listed with MUS 4505.

MSRA 5550-4. Audio Production III. Advanced studies in sound recording and reinforcement, aesthetics and techniques of multi-track digital recording and stereo imaging. Team laboratory recording projects. Prereq: MUS 2650 or permission of instructor. Cross-listed with MUS 4550.

MSRA 5575-4. Surround Sound. This lecture-laboratory course deals with surround sound in film, digital T.V. DVDs, theme parks and games. Topics include monitoring, micing, recording, mixing, mastering, delivery formats and psychoacoustics. Students work on two laboratory projects in the semester. Prereq: MUS 4505 or permission of instructor. Cross-listed with MUS 4575.

MSRA 5580-3. Audio Production Seminar. Faculty and majors of the music engineering program assemble to discuss and demonstrate issues of artistic and technical applications of recording technology. Student projects, faculty and guest lectures provide topical focus. Prereq: MUS 2560 or permission of instructor.

MSRA 5590-4. Graduate Audio Studies. Deals with advanced audio skills for music recording, including technical and artistic considerations. This is a required course for the MSRA degree. Prereq: acceptance into MSRA Degree Program.

MSRA 5600-1 to 3. Topics in Music. Various topics relating to the study of music performance, music technology and music business. Cross-listed with MUS 4600.

MSRA 6510-4. Audio Studies Pedagogy. Surveys available resources for audio education. Interdisciplinary materials in physics, acoustics, engineering, music, broadcast, medicine, psychology, multi-media, theater and film or video are reviewed. Emphasis on design and development of new methods and materials are pursued. (MSRA graduate students only.) Prereq: MUS 5000.

MSRA 6530-3. Audio Forensics. Deals with audio for the legal profession. Topics covered include tape authentication, audio enhancement, voice prints and analysis, consultation and expert witness testimony. The laboratories work with practice and real-life situations and prepare students for further research in this area. Prereq: MSRA graduate students only or permission of instructor.

MSRA 6550-4. Sound Design. Deals with designing sound for live theater, film, video, television, theme parks, games and soundscapes. Focuses on using technology to achieve specific esthetic aspects of audio production. This is accomplished through lectures, listening assignments, research and laboratory practice. (For graduate students only.) Prereq: MUS 5000 and 5590 or permission of instructor.

MSRA 6950-4. Thesis in Professional Audio. With the guidance of a thesis advisor, each candidate for the degree MSRA select an approved topics for scholarly review, research and publication. The approved materials are evaluated for written and oral defense. Prereq: MUS 5000, 5590, 6510, 6580 and 6530.

MSRA 6951-4. Professional Audio Portfolio Thesis. With the guidance of a portfolio advisor, each candidate for the MSRA degree produce specified documentation and audio materials that reflect the career intentions of the candidate. A completed "show kit" or professional "demo" of the candidate's specialty are produced. The approved materials are evaluated for written, audio and oral defense. Prereq:

MUS: Music (Arts & Media)

MUS 5000, 5590, 6510 and 6530.

MUS 1540-3. Introduction to Music Recording. Designed to be an overview of the technologies used to make, record, edit, format or manufacture, mix and reproduce music.

MUS 1550-3. Introduction to Guitar Effects and Electronic Theory. Introduction to guitar effects, electronic theory and construction of electronic signal processing for electric and electronic musical instruments. **MUS 2220-3. Commercial Electronic Music Composition.** An investigation, analysis and application of contemporary electronic music compositional and production techniques in relation to commercial music and historical context. Prereq: MUS 2300 and PMUS 1200.

MUS 2300-3. Introduction to Songwriting. Studies the craft of songwriting. Emphasis is on the creation of original melodies and lyrics. A variety of nonclassical contemporary musical styles are considered.

MUS 2450-3. Introduction To Performing Arts and Events Management. Introduces stage management of events in the performing arts. Development of leadership and organizational skills as well as a general understanding of the profession. Cross-listed with THTR 2450.

MUS 2470-3. Music Applications on the Computer. Introduces the use of computers in the music industry. Topics include basic computer operation, computer hardware, desktop publishing for music business, music notation, MIDI sequencing and digital audio. Students individually create several computer laboratory projects.

MUS 2500-3. Performance Art and Experimental Music. Introduces the history, philosophies and techniques of the European and American Avant-Garde theatrical performance and music. A study of music's various roles provides students with opportunities for creative application.

MUS 2540-3. Audio Production I. Operating principles and performance characteristics of microphones, amplifiers, speaker systems, equalizers, mixers and multi-track recorders; acoustics of music, auditoriums and recording studios.

MUS 2550-1 to 3. Topics in Music Recording. Specialized topics in music recording. Prereq: varies according to topic offered.

MUS 2560-4. Audio Production II. Studies aesthetics and technology of electronic music, voltage controlled and MIDI sound synthesis, and multi-track analog recording and signal processing. Team laboratory recording projects. Prereq: MUS 2540 or permission of instructor.

MUS 2700-3. The Music Business I. Introduces music as a business and profession, emphasizing music publishing, recording, broadcasting, copyright, music management and career options.

MUS 2710-3. The Music Business II. Introduces music as a business and profession, emphasizing music publishing, recording, broadcasting, copyright, music management and career options. Prereq: MUS 2700 or permission of instructor.

MUS 3310-3. Songwriting II. Presents concepts of songwriting that build upon those presented in MUS 2300. Students are expected to understand and discuss musical concepts and lyric structure and use these concepts in the creation of songs. Prereq: MUS 2300, PMUS 1200, 1210 and 1023.

MUS 3530-4. Live Sound Reinforcement. This course focuses on the basic elements of sound reinforcement: acoustics, equalization, equipment and mixing techniques. The major emphasis is the production of the final sonic product. Prereq: MUS 2540 and 2560. Must be accepted into the Recording Arts or MIS focus.

MUS 3540-3. Recording Studio Maintenance and Calibration. A basic course in calibration, alignment and minor repair necessary for functional operation of the recording studio. Prereq: MUS 2560.

MUS 3710-1. Music and the Media. Summer. One-week modules consisting of various music business topics.

MUS 3720-3. Law and the Music Industry. *Fall.* An overview of the body of law which governs the music industry. Emphasis on industry contractual issues. Prereq: MUS 2700 and MUS 2710.

MUS 3745-3. CAM Records Label Operations. Provides students with the opportunity to participate in the administrative and business practices of operating a record label. Prereq: 3000 level: MUS 2710 and a 2.75 GPA; 4000 level: MUS 3745 (CAM Records Label Operations), 2.75 GPA and permission of instructor. Cross-listed with MUS 4745.

MUS 3755-3. Music Publishing. An in-depth look at the function and responsibilities of music publishers and the operation of music

publishing companies. Key issues related to music publishing activities are studied and analyzed. Prereq: MUS 2700 and MUS 2710.

MUS 3760-3. Music Intermediaries: Agents, Managers, Producers and Others. Describes the professionals who guide a musician's career and who work with the artist. The roles of agents, managers, producers, attorneys, merchandisers and distributors are discussed from the perspectives of both the artist and intermediary. The course is designed to assist the individual who wants to work as an intermediary in the music business and to assist artists in working with those professionals. Prereq: MUS 2700 and 2710.

MUS 3780-3. Current Issues in Music Business. Class discusses and analyzes cutting-edge business and legal developments in the music industry, focusing particularly on the developments' impact on historical traditions, career paths and creative applications in the field. Prereq: MUS 2700 and MUS 2710.

MUS 3790-4. Video Production in the Arts: Music. Introduces the development of the contemporary music video with an emphasis on stylistic and technical analysis. Combines a lecture demonstration format with hands-on videography. Open to music, theatre, fine arts majors and students who have successfully completed at least one College of Arts and Media course.

MUS 3820-3. Digital Music Techniques. Studies the general principles and applications of digital music technology, emphasizing the function and operation of specific computer software. Topics include digital audio workstations, MIDI sequencers, digital signal processing programs and distribution on optical discs and computer-based mediums. Prereq: MUS 2470 and 2560 or permission of instructor.

MUS 3939-1 to 3. Internship/Cooperative Education.

MUS 4060-2. Analysis I. Schenkerian analysis of selected works through the 20th century. Prereq: PMUS 2100.

MUS 4500-1 to 3. Topics in Professional Audio. Selected topical subjects to include live or studio sound recording, sound reinforcement, new technologies or practices in the audio industry. Cross-listed with MSRA 5500.

MUS 4501-3. Music Business Senior Seminar. Faculty and majors of the music industry studies program meet to discuss senior capstone projects. Also may include directed team projects and participation in guest speaker workshops and presentations. Prereq: senior-level student who is completing or has completed an internship. Cross-listed with MUS 5501.

MUS 4505-4. Audio Sweetening. Reviews all aspects of audio synchronized with picture, including music, sound effects, narration and dialog replacement. Topics studied with respect to film, video and multi-media. Prereq: MUS 2560. Cross-listed with MSRA 5505.

MUS 4550-4. Audio Production III. Advanced studies in sound recording and reinforcement, aesthetics and techniques of multi-track digital recording and stereo imaging. Team laboratory recording projects. Prereq: MUS 2650 or permission of instructor. Cross-listed with MSRA 5550.

MUS 4570-4. Audio Production IV. Advanced studies in sound recording and reinforcement, aesthetics and techniques of multi-track digital recording, digital signal processing, automated mixing and synchronization. Emphasis on project design, execution and evaluation. Team laboratory recording projects. Prereq: MUS 4550 or 5550 (or permission of instructor). Cross-listed with MUS 5570.

MUS 4575-4. Surround Sound. This lecture-laboratory course deals with surround sound in film, digital TV, DVDs, theme parks and games. Topics include monitoring, micing, recording, mixing, mastering, delivery formats and psychoacoustics. Students work on two laboratory projects in the semester. Prereq: MUS 4505 or permission of instructor. Cross-listed with MSRA 5575.

MUS 4580-3. Audio Production Seminar. Faculty and majors of the music engineering program assemble to discuss and demonstrate issues of artistic and technical applications of recording technology. Student projects, faculty and guest lectures provide topical focus. (Music facility fee applies.) Prereq: MUS 2560 or permission of instructor. Cross-listed with MUS 5580.

MUS 4600-1 to 3. Topics in Music. Various topics relating to the study of music performance, music technology and music business. Cross-listed with MSRA 5600.

MUS 4700-1 to 4. Research Project: Music Management. Senior project or individualized study by arrangement with instructor. 1-3 credit hours can be satisfied by an internship (cooperative education placement).

MUS 4710-2. Research Project: Performance. Scholarly inquiry into an aspect of musical performance. Assigned in consultation with primary instructor. Prereq: permission of instructor.

MUS 4720-3. Music Management. The theory and practice of contemporary business management as it relates to music marketing and artist management in the recording, broadcasting and telecommunications industries. Prereq for MUS 4720: MUS 2710. Cross-listed with MUS 5720.

MUS 4730-3. Music Production. Studies business and administrative issues encountered in the management of a music production company and/or record label, including legal, organizational and financial applications. Prereq: MUS 4720. Cross-listed with MUS 5730.

MUS 4740-3. Music Business Analysis. An analysis of specific managerial situations unique to the music and entertainment industries. Aspects of finance, marketing, taxation and management science are explored. Prereq: MUS 2710.

MUS 4745-3. CAM Records Label Operations. Provides students with the opportunity to participate in the administrative and business practices of operating a record label. Prereq: 3000 level: MUS 2710 and a 2.75 GPA; 4000 level: MUS 3745 (CAM Records Label Operations), 2.75 GPA and permission of instructor. Cross-listed with MUS 3745.

MUS 4840-1 to 3. Independent Study.

MUS 5501-3. Music Industry Seminar. Faculty and majors of the music industry studies program meet to discuss senior capstone projects. Also may include directed team projects and participation in guest speaker workshops and presentations. Prereq: senior-level student who is completing or has completed an internship. Cross-listed with MUS 4501.

MUS 5570-4. Audio Production IV. Advanced studies in sound recording and reinforcement, aesthetics and techniques of multi-track digital recording, digital signal processing, automated mixing and synchronization. Emphasis on project design, execution and evaluation. Team laboratory recording projects. Prereq: MUS 5550 or 4550 (or permission of instructor). Cross-listed with MUS 4570.

MUS 5720-3. Music Management. The theory and practice of contemporary business management as it relates to music marketing and artist management in the recording, broadcasting and telecommunications industries. Prereq for MUS 4720: MUS 2710. Cross-listed with MUS 4720.

MUS 5730-3. Music Production. Studies business and administrative issues encountered in the management of a music production company and/or record label, including legal, organizational and financial applications. Prereq for MUS 5730: MUS 4720 or 5720. Cross-listed with MUS 4730.

MUS 5840-1 to 3. Independent Study.

MUS 5939-1 to 6. Cooperative Education.

P AD: Public Administration (Public Affairs)

P AD 5000-1 to 6. M.P.A. Preparatory Workshop. Introduces and reviews basic subjects in preparation for common core courses required for the M.P.A. degree. The course is divided into six independently taught modules. Modules may be taken separately or concurrently; if both statistics workshops are required, P AD 5000-B should be taken before P AD 5000-F. Every module is a prerequisite for the M.P.A. degree. Any or all modules may be waived by the M.P.A. admissions subcommittee, advisor or M.P.A. director. Following are the titles and descriptions of each of the six modules:

A. U.S. Political Institutions. An overview of governmental structures and functions, including branches and levels of government and basic legislative and policy processes.

B. Introductory Descriptive Statistics-vs-Statistics. Basic gathering and recording of data, construction and use of tables, graphic methods, scalar and other variables, percentiles, mean and standard deviation, frequency distributions and use of computerized spreadsheets.

C. Introductory Principles of Microeconomic Theory. Supply and demand analysis, elasticity, marginal analysis, costs (average, fixed and variable), perfect competition, monopoly and other forms of market power.

D. Introductory Principles of Macroeconomic Theory. Macroeconomic measures, aggregate demand and supply, and effects of fiscal and monetary policy on unemployment and inflation.

E. Professional Writing Workshop. Introduces principles of professional and technical writing, style manuals, abbreviations, numbers, punctuation, capitalization, spelling, quotations,

P AD 5001-3. Introduction to Public Administration and Public Service. Examines the fundamental theories, structures and processes of governance in the United States. Explores the constitutional foundations and functions of legislative, administrative and legal institutions. Covers topics such as federalism, public-private relations and comparative public administration.

P AD 5002-3. Organizational Management and Change. Examines contemporary theory and practice of managing organizations and the processes of organizational change and development. Considers issues of effective leadership, human resource management, organizational theory and behavior and personal and interpersonal skills.

P AD 5003-3. Research and Analytic Methods. Examines research methods used to answer questions and test hypotheses in public and nonprofit settings. Methods covered include identifying and reviewing scholarly literature; formulating research questions; selecting appropriate design, data collection and sampling strategies; and analyzing data. Topics include causal and descriptive designs, interview and surveys and statistics such as t-test, chi square, regression and the Statistical Packages for Social Sciences (SPSS). Prereq: P AD 5000-1B and 5000-1F or the equivalent.

P AD 5004-3. Economics and Public Finance. Uses economics to explore public and private sector roles and the allocation of resources in the public sector. Introduces the concepts of public goods, market failure and externalities. The effects of taxation and subsidies on consumer and firm behavior are analyzed. Also covers cost benefit analysis and national, state and local budgeting methods.

P AD 5005-3. The Policy Process and Democracy. Offers a theoretical approach to understanding the public policy process in the context of a democratic system. The course presents a model of the policy process for understanding contemporary theory and issues in public affairs.

P AD 5006-3. Leadership and Professional Ethics. Examines theories and skills of effective public leadership. Emphasizes critical thinking, normative decision making, the role of values in public policy and management. Ethical theories and principles commonly used in public administration and policy are emphasized.

P AD 5007-3. Qualitative Research Methods. Focuses on qualitative research methods that incorporate field work techniques such as observation, interviews and content analysis. The main objective is to discover practicalities and limitations of ethnographic methods with a comparative methodology perspective. Students are required to conduct a research project. Cross-listed with P AD 7007.

P AD 5110-3. Seminar in Nonprofit Management. Provides students with an overview of the principles and concepts that are unique to nonprofit management. Topics include funding diversity, human resource management, program planning and evaluation, marketing, volunteer management and ethics. Students are also given an introduction to the history and the importance of the nonprofit sector. Cross-listed with P AD 7110.

P AD 5120-3. Nonprofits and Public Policy. Examines the intersection of public policy and the nonprofit world and the ways in which each affects the other. The course examines current policy issues that relate to the nonprofit sector such as conversion of nonprofit to for-profit status, regulation of the nonprofit sector, issues of financial management, the

role of nonprofits in devolution and privatization of government services, tax exemptions, "charitable choice," donor control, governance and the future of the future of the sector. The course examines the ways nonprofits have affected the policy process and public policies, by exploring the factors that shape social movements, nonprofit advocacy, strategies of influence and the role of nonprofits in social movements such as Civil Rights and the environment. Cross-listed with P AD 7120.

P AD 5130-3. Collaboration Across Sectors. The blurring of the three economic sectors continues to increase as more organizations partner with each other and/or contract out for the delivery of services. This course focuses on collaboration and partnerships involving public, nonprofit and for-profit organizations as they strive to achieve public goals. Particular variables in administration and regulatory policies for each sector and how they affect procurement, contracting, grants administration and expectations of accountability, efficiency and effectiveness are examined. Cross-listed with P AD 7130.

P AD 5140-3. Nonprofit Financial Management. Financial management is one of the core competencies of effective nonprofit managers. Every nonprofit organization needs money to sustain or advance its mission. This course provides a grounding in financial management for the "non-accountant" by focusing on an array of knowledge and management skill areas necessary for allocating and controlling resources, and for analyzing, reporting and protecting the fiscal health of the organization. Topics include key accounting principles, understanding and using financial statements, the budget development process, cash flow analysis, banking relationships, using the audit report, maximizing investment policy and strategy and understanding the boundaries of tax exemption. Cross-listed with P AD 7140.

P AD 5150-3. Understanding and Achieving Funding Diversity. Designed to provide a comprehensive overview of the range of funding sources available to nonprofit organizations (e.g., foundation and governmental grants, individual and corporate donations, entrepreneurial sources of revenue and events.), as well as detailed information on how to secure support of the various sources presented. Additionally, students are expected to gain both theoretical and practical knowledge relevant to fundraising and why it is important to diversify an organization's revenue streams. Cross-listed with P AD 7150.

P AD 5160-3. Nonprofit Boards and Executive Leadership. The important roles and responsibilities of a voluntary board of directors and the process of governing are often misunderstood. This course explores the special powers of a nonprofit board of directors as framed by and responsive to public policy. From the perspective of organizational behavior and theory, the course examines the leadership role and interplay between board members and the executive director. The examination includes a comparative analysis of different governing models, and explores fundamental questions of board composition, the role of advisor boards, achieving effective board meetings, the realm of liability, using committees and the board's role in fundraising, among other special subject matter. Cross-listed with P AD 7160.

P AD 5170-3. Strategic Management for Nonprofit and Public Managers. Designed to train public and nonprofit managers in the effective use of strategic management tools and techniques traditionally used by corporations. Strategic management tools and skills, although traditionally used by business, should not be seen as the exclusive domain of corporations. The course teaches students how to adapt traditional strategic management capabilities to the particular conditions of public and nonprofit organizations. Cross-listed with P AD 7170.

P AD 5180-3. Social Entrepreneurship. Designed to introduce students to the concept of social entrepreneurship. Using nonprofit (and public) organizational examples, students gain an understanding of what it means to be an innovative manager. Students study techniques designed to advance an organization's mission and increase organizational effectiveness, accountability and efficiency. Cross-listed with P AD 7180.

P AD 5220-3. Managing People in Public and Nonprofit Organizations. The study and practice of human resource management to build effective organizations. This course reviews the process of staffing an

organization, motivating and managing employees from the initial steps of describing a position and determining compensation to recruiting qualified and diverse applicants, screening and selecting good employees, hiring, training, motivating, developing and providing feedback to employees; and layoffs and promotions. Contemporary issues concerning managerial flexibility and merit pay will be reviewed. Prereq: P AD 5002/7002. Cross-listed with P AD 7220.

P AD 5250-3. Intergovernmental Management. Surveys the basic literature of intergovernmental management and examines the interactive role of managers at federal, state and local levels of government. Emphasis is placed on current intergovernmental issues. Cross-listed with P AD 7250.

P AD 5260-3. Managing in a Multicultural Society. Using a systems approach, diversity within organizations is examined through the construction and review of theories in private, public and nonprofit organizations. Existing models of managing diversity are examined and analyzed. Cross-listed with P AD 7260.

P AD 5262-3. Leadership Workshop. This skill building workshop focuses on issues of effective leadership in the organizational setting and enables participants to examine their own leadership style(s) and how those styles influence others. Models of effective leadership are examined and applied to the specific work settings of those participating, with distinctions between leadership and management being developed. Cross-listed with P AD 7262.

P AD 5265-3. Group Dynamics. Explores small group processes and the theories that strive to explain them, with particular attention focused on workplace teams. Provides an introduction to theories, studies and empirical findings pertaining to groups and teams, with an emphasis on managerial and organizational implications and applications. Topics include stages of group development, team, processes, conflict, power and influence in groups, decision making, leadership, diversity, problem solving, virtual teams and the impact of organizational culture. Cross-listed with P AD 7265.

P AD 5271-3. Managing Conflict and Change. Explores the process of change in organizations, communities, society and conflicts that arise. Through the use of relevant case studies and role playing exercises, students are provided a practical framework for looking at change and managing conflict associated with change. Cross-listed with P AD 7271.

P AD 5310-3. Public Policy Formulation and Implementation. Introduces students to the public policy process, with specific emphasis on models of policy formulation and implementation. Examines program development and execution in the context of political, economic and institutional environments. Using case studies, the course identifies criteria that can be used to determine the efficiency and effectiveness of public policies and programs. Prereq: P AD 5005 or 7005. Cross-listed with P AD 7310.

P AD 5320-3. Public Policy Analysis. Provides training in the systematic analysis of policy and program initiatives using an economics orientation and employing a case method. The course covers benefit-cost analysis, cost-effectiveness analysis, present values and the treatment of multiple criteria in public sector program analysis. Prereq: P AD 5003/7003, 5004/7004 and 5005/7005. Cross-listed with P AD 7320.

P AD 5330-3. Intermediate Statistical Analysis. Follows P AD 5003/7003 and is focused on more advanced statistical techniques to be used in research. These techniques include the use of regression in time series analysis; binary response; nonlinear, logistic and profit models; and factor and path analysis. Evaluating potential problems with model specification and the remedies are included. Students are required to test hypotheses using these models with a data set. Prereq: P AD 5003 or 7003. Cross-listed with P AD 7330.

P AD 5350-3. Program Evaluation. Describes the theory and methodology for the design of social research and demonstration projects and the application of analytic and statistical methods for evaluating public programs. Focus is on the application of evaluation methods and techniques of data interpretation. Report preparation is emphasized. Prereq: P AD 5003/7003 and 5005/7005. Cross-listed with P AD 7350.

P AD 5361-3. Advanced Seminar in Public Policy and Management.

In this seminar, students demonstrate their mastery of the knowledge and skills acquired in core courses, as applied to either their chosen program concentration or individualized program, through the conduct of a Program Integration Project. The PIP may be either an independent research project or client-oriented project. Students also make a juried oral presentation of the professional paper which reports project findings. This is the cumulative opportunity for students to apply concepts and theory to professional practice and thus should be taken at or near the end of a student's program of study. (Successful completion of this course is an M.P.A. degree program requirement.) Cross-listed with P AD 7361.

P AD 5370-3. Media and Public Policy.

Explores the conventions and practices of the print and electronic media in the United States. The course enables students to better understand the place of the media in society, the way the media look at themselves and how journalists confront conflicting values in the performance of their roles. Cross-listed with P AD 7370.

P AD 5380-3. Citizen Participation: Theory and Practice.

Tackles the issues of citizen participation and community involvement in theory and practice. Students work in class on understanding the theoretical foundations that are relevant to citizen participation. Students engage in significant out-of-class projects to ground them in the practice of public involvement. Cross-listed with P AD 7380.

P AD 5410-3. Administrative Law.

Examines legal aspects of policy implementation. Particularly the relationship between courts and administrative agencies. Covers standards of judicial review and agency action; administrative procedure and due process; selected special topics such as rights, liabilities and immunities of public employees; and administrative discretion and scientific uncertainty. Cross-listed with P AD 7410.

P AD 5420-3. Law and Public Policy.

Examines the relationship between courts and legislative assemblies. Explores how legislators use the policy process to shape and influence the exercise of judicial authority and how the courts affect the policy process in reviewing the constitutionality of state and federal legislation. Cross-listed with P AD 7420.

P AD 5430-3. Seminar in Legal Research Methods and Public Law Scholarship.

Provides law library-based training in locating and analyzing primary and secondary sources of law. Individualized guidance in understanding and using the content of legal materials in the conduct of public law scholarship and law-based writing. Satisfies the PhD qualitative research methods requirement. Cross-listed with P AD 7430.

P AD 5440-3. Negotiation and Conflict Resolution.

Focuses on concepts and skills necessary to negotiate policy and management decisions and manage internal and external conflicts. Designed to help students understand the dynamics that affect negotiations and to apply the principles and strategies of negotiation in a variety of decision making and dispute resolution contexts. Cross-listed with P AD 7440.

P AD 5460-3. Political Advocacy.

Designed to address advocacy and lobbying issues for graduate students, in the general area of public policy issues and government problems. Special attention is given to how the advocacy process works in the public sector and policymaking bodies and how lobbying techniques and processes can be understood. The general focus of the class is on practical applications at all levels of government with primary attention to state and local government. It is anticipated that guest speakers are invited to attend some of the classes. The guest speaker will have the opportunity to utilize their own academic and professional background and experiences. Cross-listed with P AD 7460.

P AD 5501-3. Contemporary Issues in Revenue and Tax Administration and Policy.

Theory, politics and practice of the methods used to raise revenues for use by the public sector are featured in this course. Special attention is given to the Tax Reform Act of 1986 and Amendment 1 (1992, Colorado). These sources of legislation provide wonderful case studies to be used as learning instruments for tax policy issues.

P AD 5502-3. Public Financial Management and Policy.

Includes topics on investment and spending policy, public borrowing and advancing credit to the public sector; specialties of budgeting and

anticipated revenues and costs, accounting for the receipt and disbursement of funds once the budget is enacted and purchased goods and services; investing idle funds; issuing short-term and long-term debt. Prereq: P AD 5501 or 7501. Cross-listed with P AD 7502.

P AD 5503-3. Governmental Budgeting. Focuses on theory and practices of government budgeting, including cycles, formats, political considerations, costing and analytical tasks. Covers both operating and capital budgeting, plus fiscal management issues. Cross-listed with P AD 7503.

P AD 5540-3. Organization Development. Studies the dynamics involved in managing and facilitating change in organizations by application of behavioral science knowledge. Emphasis is placed on both cognitive and experiential learning. A background in organization theory and administrative behavior is required. Prereq: P AD 5210 or 7210. Cross-listed with P AD 7540.

P AD 5615-3. Health Policy. Draws upon existing policy models and evaluates the status of health policy formulation and implementation. Health policy topics include Medicaid and Medicare, managed care, health care reform proposals, telemedicine, the nonprofit and for-profit role in health. Cross-listed with P AD 7615.

P AD 5617-3. Health Economics. Extends students' understanding of basic economic principles to consumer, physician, insurer and health provider behavior. Current policy topics are analyzed from an economic perspective using published research. Students are required to write a research paper focused on analyzing a health care topic with the application of economic concepts. Prereq: P AD 5004/7004 or equivalent economic course. Cross-listed with P AD 7617.

P AD 5618-3. Cost-Benefit Analysis. An intermediate-level course on the theory, methods and application of economic evaluation in the health context. "Economic evaluation" includes cost analysis, cost-benefit analysis (CBA), cost-effectiveness analysis (CEA) and cost-utility analysis. Students are required to conduct an economic evaluation by collecting data and information related to a health area of interest. Prereq: P AD 5003/7003, 5330/7330 and 5617/7617. Cross-listed with P AD 7618.

P AD 5625-3. Local Government Management. Relates the systems, processes and principles of public management to the local government environment. Public management concepts such as strategic planning, bureaucracy, formal and informal organizational structures, human resource planning, management control, systems theory and administrative behavior are explored within the context of local government. Cross-listed with P AD 7625.

P AD 5626-3. Local Government Politics and Policy. Examines local government from the perspective of politics and public policy making. The course focuses on local government political structures, policy analysis and formulation, political forces in administrative decision making and the relationships between professional administrators and elected officials. Cross-listed with P AD 7626.

P AD 5628-3. Urban Social Problems. Examines local government from the perspective of sociology and group dynamics. Course could include some or all of the following subjects: neighborhoods and community groups, class and race relations, community crime, social service issues, immigration, the underclass in American society and related urban social problems. Cross-listed with P AD 7628.

P AD 5631-3. Seminar in Environmental Politics and Policy. Examines the fundamental principles of politics and policy that shape strategies of environmental protection. Focuses on the role of institutional processes, government organizations and nongovernmental organizations in environmental politics and policy. Cross-listed with P AD 7631.

P AD 5632-3. Seminar in Environmental Management. Examines the practical challenges facing environmental managers today, using a series of case studies. Focuses on the role of institutional processes, government organizations and nongovernmental organizations in the practice of environmental management. Cross-listed with P AD 7632.

P AD 5633-3. Seminar in Natural Resource and Environmental Health Law. Administrative law aspects of environmental policy

implementation and enforcement, the role of courts in both stimulating and limiting statutory reform and regulatory innovation. Focus on the legal aspects of both natural resource allocation and management and environmental protection. Alternatives to traditional processes for environmental dispute resolution. Cross-listed with P AD 7633.

P AD 5650-3. Disaster and Emergency Management Policies. Examines policies for the management of hazards, emergencies and disasters. Focuses on a series of case studies concerning major disasters and on management principles drawn from those cases. Examines the role of institutional processes, government organizations and nongovernmental organizations in emergency management. Cross-listed with P AD 7650.

P AD 5710-3. Public Sector Technology. Technology is an integral piece of public administration today. Taking a historical/topical approach, this course examines the relationship between technology and culture; technology's role in economic growth; how technologically-driven prosperity impacts the balance between governments and markets; and the impact of information technologies on e-Government and e-Democracy. Cross-listed with P AD 7710.

P AD 5910-3. Women and Violence: A Sociological Perspective. This course is a sociological, feminist analysis of violence against women and girls, that addresses the intersection of sexism and other forms of oppression such as racism, classism and heterosexism within historical, cultural, social and institutional contexts. Topics covered focus on overt and covert forms of sexual coercion, harassment and assault, battering and stalking. Cross-listed with P AD 7910, C J 5910 and 7910.

P AD 5920-3. Psychology of Violence Against Women. This class addresses the contributions and the limitations of current empirical and clinical psychological literatures about domestic violence. Topics covered include: distinguishing among mental health professionals regarding work with DV clients; the psychological impacts of domestic violence; services useful for responding to the needs of women and children; and an introduction to the psychology and treatment of batterers. Cross-listed with P AD 7920, C J 5920 and 7920.

P AD 5930-3. Battered Women and the Legal System. This course provides a practical understanding of how the following relate to battered women and their children: (a) major developments in federal, state, tribal, administrative, statutory and case law; (b) the role and responses of law enforcement, judges, attorneys, victim assistance providers and other legal system agents; and (c) the role and process of victim advocacy. Cross-listed with P AD 5930, C J 5930 and 7930

P AD 5940-3. Domestic Violence Social Change and Advocacy. This course provides students information on the theories and strategies behind contemporary social change movements and the skills necessary to organize and implement actions to influence public awareness and policy. The values of American society are complex and require advocates/activists to develop a heightened sense of self, community and an ethical framework while confronting sexism, racism and other forms of oppression. Cross-listed with P AD 7940, C J 5940 and 7940.

P AD 6600-1 to 4. Special Topics in Public Administration. Studies special topics relevant to public administration, such as public/private sector partnerships, community participation, conflict management, regionalism, managing economic options for Colorado and nonprofit management and marketing. Each semester various topics are studied. Cross-listed with P AD 7600.

P AD 6840-1 to 6. Independent Study. Affords students the opportunity to do independent, creative work. Prereq: permission of instructor.

P AD 6910-3. Field Study in Public Administration. For students who have not had government experience. Studies and reports are made while students have full- or part-time administrative traineeships, internships, or similar positions in government agencies or government-related organizations. Prereq: completion of the common core courses. It is recommended that at least three of the track courses also be completed.

P AD 6950-3 to 6. Master's Thesis.

P AD 7007-3. Qualitative Research Methods. Focuses on qualitative research methods that incorporate field work techniques such as observation, interviews and content analysis. The main objective is to

discover practicalities and limitations of ethnographic methods with a comparative methodology perspective. Students are required to conduct a research project. Cross-listed with P AD 5007.

P AD 7110-3. Seminar in Nonprofit Management. Provides students with an overview of the principles and concepts that are unique to nonprofit management. Topics include funding diversity, human resource management, program planning and evaluation, marketing, volunteer management and ethics. Students are also given an introduction to the history and the importance of the nonprofit sector. Cross-listed with P AD 5110.

P AD 7120-3. Nonprofits and Public Policy. Examines the intersection of public policy and the nonprofit world and the ways in which each affects the other. The course examines current policy issues that relate to the nonprofit sector such as conversion of nonprofit to for-profit status, regulation of the nonprofit sector, issues of financial management, the role of nonprofits in devolution and privatization of government services, tax exemptions, "charitable choice," donor control, governance and the future of the sector. The course also examines the ways nonprofits have affected the policy process and public policies, by exploring the factors that shape social movements, nonprofit advocacy, strategies of influence and the role of nonprofits in social of nonprofits in social movements such as Civil Rights and the environment. Cross-listed with P AD 5120.

P AD 7130-3. Collaboration Across Sectors. The blurring of the three economic sectors continues to increase as more organizations partner with each other and/or contract out for the delivery of services. This course focuses on collaboration and partnerships involving public, nonprofit and for-profit organizations as they strive to achieve public goals. Particular variables in administration and regulatory policies for each sector and how they affect procurement, contracting, grants administration and expectations of accountability, efficiency and effectiveness are examined. Cross-listed with P AD 5130.

P AD 7140-3. Nonprofit Financial Management. Financial management is one of the core competencies of effective nonprofit managers. Every nonprofit organization needs money to sustain or advance its mission. This course provides a grounding in financial management for the "non-accountant" by focusing on an array of knowledge and management skill areas necessary for allocating and controlling resources, and for analyzing, reporting and protecting the fiscal health of the organization. Topics include key accounting principles, understanding and using financial statements, the budget development process, cash flow analysis, banking relationships, using the audit report, maximizing investment policy and strategy and understanding the boundaries of tax exemption. Cross-listed with P AD 5140.

P AD 7150-3. Understanding and Achieving Funding Diversity. Designed to provide a comprehensive overview of the range of funding sources available to nonprofit organizations (e.g., foundation and governmental grants, individual and corporate donations, entrepreneurial sources of revenue and events.), as well as detailed information on how to secure support of the various sources presented. Additionally, students are expected to gain both theoretical and practical knowledge relevant to fundraising and why it is important to diversify an organization's revenue streams. Cross-listed with P AD 5150.

P AD 7160-3. Nonprofit Boards and Executive Leadership. The important roles and responsibilities of a voluntary board of directors and the process of governing are often misunderstood. This course explores the special powers of a nonprofit board of directors as framed by and responsive to public policy. From the perspective of organizational behavior and theory, the course examines the leadership role and interplay between board members and the executive director. The examination includes a comparative analysis of different governing models, and explores fundamental questions of board composition, the role of advisory boards, achieving effective board meetings, the realm of liability, using committees and the board's role in fundraising, among other special subject matter. Cross-listed with P AD 5160.

P AD 7170-3. Strategic Management for Nonprofit and Public Managers. Designed to train public and nonprofit managers in the effective use of strategic management tools and techniques traditionally

used by corporations. Strategic management tools and skills, although traditionally used by business, should not be seen as the exclusive domain of corporations. The course teaches students how to adapt traditional strategic management capabilities to the particular conditions of public and nonprofit organizations. Cross-listed with P AD 5170.

P AD 7180-3. Social Entrepreneurship. Designed to introduce students to the concept of social entrepreneurship. Using nonprofit (and public) organizational examples, students gain an understanding of what it means to be an innovative manager. Students study techniques designed to advance an organization's mission and increase organizational effectiveness, accountability and efficiency. Cross-listed with P AD 5180.

P AD 7220-3. Managing People in Public and Nonprofit Organizations. The study and practice of human resource management to build effective organizations. This course reviews the process of staffing an organization, motivating and managing employees from the initial steps of describing a position and determining compensation to recruiting qualified and diverse applicants, screening and selecting good employees, hiring, training, motivating, developing and providing feedback to employees; and layoffs and promotions. Contemporary issues concerning managerial flexibility and merit pay will be reviewed. Prereq: P AD 7002/5002. Cross-listed with P AD 5220.

P AD 7250-3. Intergovernmental Management. Surveys the basic literature of intergovernmental management and examines the interactive role of managers at federal, state, regional and local levels of government. Emphasis is placed on current intergovernmental issues. Cross-listed with P AD 5250.

P AD 7260-3. Managing in a Multicultural Society. Using a systems approach, diversity within organizations is examined through the construction and review of theories in private, public and nonprofit organizations. Existing models of managing diversity are examined and analyzed. Cross-listed with P AD 5260.

P AD 7262-3. Leadership Workshop. This skill building workshop focuses on issues of effective leadership in the organizational setting and enables participants to examine their own leadership style(s) and how those styles influence others. Models of effective leadership are examined and applied to the specific work settings of those participating, with distinctions between leadership and management being developed. Cross-listed with P AD 5262.

P AD 7265-3. Group Dynamics. Explores small group processes and the theories that strive to explain them, with particular attention focused on workplace teams. Provides an introduction to theories, studies and empirical findings pertaining to groups and teams, with an emphasis on managerial and organizational implications and applications. Topics include stages of group development, team, processes, conflict, power and influence in groups, decision making, leadership, diversity, problem solving, virtual teams and the impact of organizational culture. Cross-listed with P AD 5265.

P AD 7271-3. Managing Conflict and Change. Explores the process of change in organizations, communities and society and conflicts that arise. Through the use of relevant case studies and role playing exercises, students are provided a practical framework for looking at change and managing conflict associated with change. Cross-listed with P AD 5271.

P AD 7310-3. Public Policy Formulation and Implementation. Introduces students to the public policy process, with specific emphasis on models of policy formulation and implementation. Examines program development and execution in the context of political, economic and institutional environments. Using case studies, the course identifies criteria that can be used to determine the efficiency and effectiveness of public policies and programs. Prereq: P AD 7005 or 5005. Cross-listed with P AD 5310.

P AD 7320-3. Public Policy Analysis. Provides training in the systematic analysis of policy and program initiatives using an economics orientation and employing a case method. The course covers benefit-cost analysis, cost-effectiveness analysis, present values and the treatment of multiple criteria in public sector program analysis. Prereq: P AD 7003/5003, 7004/5004 and 7005/5005. Cross-listed with P AD 5320.

P AD 7330-3. Intermediate Statistics. Follows P AD 5003/7003 and is focused on more advanced statistical techniques to be used in research. These techniques include the use of regression in time series analysis; binary response; nonlinear, logistic and profit models; and factor and path analysis. Evaluating potential problems with model specification and the remedies are included. Students are required to test hypotheses using these models with a data set. Prereq: P AD 7003 or 5003. Cross-listed with P AD 5330.

P AD 7350-3. Program Evaluation. Describes the theory and methodology for the design of social research and demonstration projects and the application of analytic and statistical methods for evaluating public programs. Focus is on the application of evaluation methods and techniques of data interpretation. Report preparation is emphasized. Prereq: P AD 7003/5003 and 7005/5005. Cross-listed with P AD 5350.

P AD 7361-3. Advanced Seminar in Public Policy and Management. In this seminar, students demonstrate their mastery of the knowledge and skills acquired in core courses, as applied to either their chosen program concentration or individualized program, through the conduct of a Program Integration Project. The PIP may be either an independent research project or client-oriented project. Students also make a juried oral presentation of the professional paper which reports project findings. This is the cumulative opportunity for students to apply concepts and theory to professional practice and thus should be taken at or near the end of a student's program of study. (Successful completion of this course is an M.P.A. degree program requirement.) Cross-listed with P AD 5361.

P AD 7370-3. Media and Public Policy. Explores the conventions and practices of the print and electronic media in the United States. The course enables students to better understand the place of the media in society, the way the media look at themselves and how journalists confront conflicting values in the performance of their roles. Cross-listed with P AD 5370.

P AD 7380-3. Citizen Participation: Theory and Practice. Tackles the issues of citizen participation and community involvement in theory and practice. Students work in class on understanding the theoretical foundations that are relevant to citizen participation. Students engage in significant out-of-class projects to ground them in the practice of public involvement. Cross-listed with P AD 5380.

P AD 7410-3. Administrative Law. Examines legal aspects of policy implementation. Particularly the relationship between courts and administrative agencies. Covers standards of judicial review and agency action; administrative procedure and due process; selected special topics such as rights, liabilities and immunities of public employees; and administrative discretion and scientific uncertainty. Cross-listed with P AD 5410.

P AD 7420-3. Law and Public Policy. Examines the relationship between courts and legislative assemblies. Explores how legislators use the policy process to shape and influence the exercise of judicial authority and how the courts affect the policy process in reviewing the constitutionality of state and federal legislation. Cross-listed with P AD 5420.

P AD 7430-3. Seminar in Legal Research Methods and Public Law Scholarship. Provides law library-based training in locating and analyzing primary and secondary sources of law. Individualized guidance in understanding and using the content of legal materials in the conduct of public law scholarship and law-based writing. Satisfies the PhD qualitative research methods requirement. Cross-listed with P AD 5430.

P AD 7440-3. Negotiation and Conflict Resolution. Focuses on concepts and skills necessary to negotiate policy and management decisions and manage internal and external conflicts. Designed to help students understand the dynamics that affect negotiations and to apply the principles and strategies of negotiation in a variety of decision making and dispute resolution contexts. Cross-listed with P AD 5440.

P AD 7460-3. Political Advocacy. Designed to address advocacy and lobbying issues for graduate students, in the general area of public policy issues and government problems. Special attention is given to how the advocacy process works in the public sector and policymaking

bodies and how lobbying techniques and processes can be understood. The general focus of the class is on practical applications at all levels of government with primary attention to state and local government. It is anticipated that guest speakers are invited to attend some of the classes. The guest speaker will have the opportunity to utilize their own academic and professional backgrounds and experiences. Cross-listed with P AD 5460.

P AD 7502-3. Public Financial Management and Policy. The course includes topics on investment and spending policy; public borrowing and advancing credit to the public sector; specialties of budgeting anticipated revenues and costs, accounting for the receipt and disbursement of funds once the budget is enacted and purchasing goods and services; investing idle funds; issuing short-term and long-term debt. Prereq: P AD 7501 or 5501. Cross-listed with P AD 5502.

P AD 7503-3. Governmental Budgeting. Focuses on theory and practices of government budgeting, including cycles, formats, political considerations, costing and analytical tasks. Covers both operating and capital budgeting, plus fiscal management issues. Cross-listed with P AD 5503.

P AD 7540-3. Organization Development. Studies the dynamics involved in managing and facilitating change in organizations by application of behavioral science knowledge. Emphasis is placed on both cognitive and experiential learning. A background in organization theory and administrative behavior is required. Prereq: P AD 7210 or 5210. Cross-listed with P AD 5540.

P AD 7600-1 to 4. Special Topics in Public Administration. Studies special topics relevant to public administration, such as public/private sector partnerships, community participation, conflict management, regionalism, managing economic options for Colorado and nonprofit management and marketing. (Each semester various topics are studied.) Cross-listed with P AD 6600.

P AD 7615-3. Health Policy. Draws upon existing policy models and evaluates the status of health policy formulation and implementation. Health policy topics include Medicaid and Medicare, managed care, health care reform, proposals, telemedicine and the nonprofit and for-profit role in health. Cross-listed with P AD 5615.

P AD 7617-3. Health Economics. Extend students' understanding of basic economic principles to consumer, physician, insurer and health provider behavior. Current policy topics are analyzed from an economic perspective using published research. Students are required to write a research paper focused on analyzing a health care topic with the application of economic concepts. Prereq: P AD 7004/5004 or equivalent economics course. Cross-listed with P AD 5617.

P AD 7618-3. Cost-Benefit Analysis. An intermediate-level course on the theory, methods and application of economic evaluation in the health context. "Economic evaluation" includes cost analysis, cost-benefit analysis (CBA), cost-effectiveness analysis (CEA) and cost-utility analysis. Students are required to conduct an economic evaluation by collecting data and information related to a health area of interest. Prereq: P AD 7003/5003, 7330/5330 and 7617/5617. Cross-listed with P AD 5618.

P AD 7625-3. Local Government Management. Relates the systems, processes and principles of public management to the local government environment. Public management concepts such as strategic planning, bureaucracy, formal and informal organizational structures, human resource planning, management control, systems theory and administrative behavior are explored within the context of local government. Cross-listed with P AD 5625.

P AD 7626-3. Local Government Politics and Policy. Examines local government from the perspective of politics and public policy making. The course focuses on local government political structures, policy analysis and formulation, political forces in administrative decision making and the relationships between professional administrators and elected officials. Cross-listed with P AD 5626.

P AD 7628-3. Urban Social Problems. Examines local government from the perspective of sociology and group dynamics. Course could include some or all of the following subjects: neighborhoods and community groups, class and race relations, community crime, social

service issues, immigration, the underclass in American society and related urban social problems. Cross-listed with P AD 5628.

P AD 7631-3. Seminar in Environmental Politics and Policy.

Examines the fundamental principles of politics and policy that shape strategies of environmental protection. Focuses on the role of institutional processes, government organizations and nongovernmental organizations in environmental politics and policy. Cross-listed with P AD 5631.

P AD 7632-3. Seminar in Environmental Management. Examines the practical challenges facing environmental managers today, using a series of case studies. Focuses on the role of institutional processes, government organizations and nongovernmental organizations in the practice of environmental management. Cross-listed with P AD 5632.

P AD 7633-3. Seminar in Natural Resource and Environmental Health Law. Administrative law aspects of environmental policy implementation and enforcement and the role of courts in both stimulating and limiting statutory reform and regulatory innovation. Focus on the legal aspects of both natural resource allocation and management and environmental protection. Alternatives to traditional processes for environmental dispute resolution. Cross-listed with P AD 5633.

P AD 7650-3. Disaster and Emergency Management Policies.

Examines policies for the management of hazards, emergencies and disasters. Focuses on a series of case studies concerning major disasters and on management principles drawn from those cases. Examines the role of institutional processes, government organizations and nongovernmental organizations in emergency management. Cross-listed with P AD 5650.

P AD 7710-3. Public Sector Technology. Technology is an integral piece of public administration today. Taking a historical/topical approach, this course examines the relationship between technology and culture; technology's role in economic growth; how technologically-driven prosperity impacts the balance between governments and markets; and the impact of information technologies on e-Government and e-Democracy. Cross-listed with P AD 5710.

P AD 7910-3. Women and Violence: A Sociological Perspective.

This course is a sociological, feminist analysis of violence against women and girls, that addresses the intersection of sexism and other forms of oppression such as racism, classism and heterosexism, within historical, cultural, social and institutional contexts. Topics covered focus on overt and covert forms of sexual coercion, harassment and assault, battering and stalking. Cross-listed with P AD 5910, C J 5910 and 7910.

P AD 7920-3. Psychology of Violence Against Women. This class addresses the contributions and the limitations of current empirical and clinical psychological literatures about domestic violence. Topics covered include: distinguishing among mental health professionals regarding work with DV clients; the psychological impacts of domestic violence; services useful for responding to the needs of women and children; and an introduction to the psychology and treatment of batterers. Cross-listed with P AD 5920, C J 5920 and 7920.

P AD 7930-3. Battered Women and the Legal System. This course provides a practical understanding of how the following relate to battered women and their children: (a) major developments in federal, state, tribal, administrative, statutory and case law; (b) the role and responses of law enforcement, judges, attorneys, victim assistance providers and other legal system agents; and (c) the role and process of victim advocacy. Cross-listed with P AD 5930, C J 5930 and 7930.

P AD 7940-3. Domestic Violence Social Change and Advocacy. This course provides students information on the theories and strategies behind contemporary social change movements and the skills necessary to organize and implement actions to influence public awareness and policy. The values of American society are complex and require advocates/activists to develop a heightened sense of self, community and an ethical framework while confronting sexism, racism and other forms of oppression. Cross-listed with P AD 5940, C J 5940 and 7940.

P AD 8010-3. Historical and Comparative Foundations of Public Administration. A doctoral seminar on developments and changes in public administration as a field of study. It examines how public adminis-

tration and bureaucracy has evolved and is defined, practiced, studied and taught. It must normally be taken during the first full semester of the doctoral program. Prereq: P AD 7001 or 5001 (or equivalent).

P AD 8020-3. Seminar in Public Management. An in-depth examination of contemporary literature, concepts and theories of public management. Current issues and research problems are emphasized to prepare students for their advanced research. Prereq: P AD 7003/5003, 7004/5004 or equivalent.

P AD 8030-3. Seminar in Public Policy. Offers an in-depth examination of contemporary literature, concepts and theories of public policy, with an emphasis on policy process. Current issues and research problems are emphasized to prepare students for their advanced research. Prereq: P AD 7004/5004, 7005/5005 or equivalent.

P AD 8040-3. Critical Issues in Public Affairs. Identifies and examines emerging topics of public administration, policy and management in which additional research and theory are required with a focus on economic and related approaches. The intent is to help students identify advanced conceptual and methodological issues for dissertation research. Prereq: P AD 8010, 8020, 8030 and 8060.

P AD 8060-3. Seminar on Conduct of Empirical Inquiry. Examines a range of empirical approaches used in the study of public policy and management. Introduces some of the major concepts and problems of scientific inquiry; explores relevant aspects of the philosophy of science; and further develops skills in the design, conduct and use of research. Prereq: P AD 5003 or 7003.

P AD 8070-3. Advanced Seminar in Research Methods. Provides in-depth knowledge about designing and conducting dissertation research. The course follows a basic sequence of problem definition, theoretical and propositional formulation, sample selection, data collection and observational methods, data analysis and presentation and writing skills. Students must have passed their comprehensive examination and be at the beginning of the dissertation stage of their program.

P AD 8840-1 to 6. Independent Study. (Doctoral level) Affords students the opportunity to do independent, creative work. Prereq: permission of advisor.

P AD 8990-1 to 10. Doctoral Dissertation. Once students are admitted to candidacy, they must be continuously registered for dissertation credit each fall and spring semester or be automatically dropped from the program. Students must register for 5 credit hours per semester. In cases where students will not be using any university resources during a particular semester, they may petition the PhD director to register for fewer semester credit hours. Students must be registered for dissertation credit during the semester they have a colloquium or defense.

Performance Music: PMUS (Arts & Media)

PHIL: Philosophy (Liberal Arts and Sciences)

PHIL 1012-3. Introduction to Philosophy: Relationship of the Individual to the World: GT-AH3. Introductory course in philosophy that focuses on some of the central questions of philosophy, including theories of reality and the nature of knowledge and its limits. The knowledge of these areas of is essential to the student for informed participation in the resolution of contemporary problems in today's society.

PHIL 1020-3. Introduction to Ethics and Society: The Person and the Community: GT-AH3. Studies some of the traditional problems in ethics that tend to be focused on individual morality within the larger context of social and political philosophy. Some specific contemporary moral and social problems may be addressed, such as AIDS, abortion, famine and individual rights versus the collective rights of society.

PHIL 1111-1 to 3. Freshman Seminar.

PHIL 1700-3. Philosophy and the Arts. Considers philosophical questions involved in the analysis and assessment of artistic expressions and of the objects with which the arts, including the literary arts, are concerned.

PHIL 2441-3. Logic and Language: GT-AH3. Introductory course that considers the significance of logical form and language use in argumentation and persuasion. Topics covered include definition, types of discourse, informal fallacies, traditional syllogisms, rules of logical inference and problem solving similar to that found on the L.S.A.T.

PHIL 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

PHIL 3002-3. Ancient Greek Philosophy. History of ancient Greek thought, including traditional myth, pre-Socratic fragments, Plato's dialogues and Aristotle's systematic philosophy.

PHIL 3005-3. Roman and Early Medieval Philosophy. Surveys philosophy in the Roman era, focusing on the Hellenistic schools (Epicureanism, Stoicism and Skepticism), Neoplatonic thought, the advent of Christianity and the earliest Christian philosophers.

PHIL 3010-3. Medieval Philosophy. History of philosophy from Augustine through Scotus and Ockham, the 5th through the 14th centuries.

PHIL 3022-3. Modern Philosophy. History of philosophy from Descartes through Kant.

PHIL 3032-3. Twentieth Century Analytic Philosophy. Surveys representative philosophers, methods and problems in the 20th century analytic tradition.

PHIL 3100-3. Current Perspectives on the Evolution of Consciousness and Culture. Studies of evolution traditionally regard morphology (anatomy)/behavior and mind/consciousness as separate fields that belong either in biology/paleontology or in psychology/philosophy. The "middle ground" behavior, anthropology, social systems, is also treated separately in most cases. Recent approaches tend toward a more holistic view using unifying principles and "laws of nature" that show similar processes (dissipative effects, information theory, development theory) operating across all fields. Examines the relationships and common threads between the physical anatomical evolution of organisms and their behavior perception and consciousness. Prereq: Introductory course in evolution (biology/paleontology), psychology, philosophy, anthropology or permission of instructor. Cross-listed with GEOL 3100 and RLST 4280.

PHIL 3150-3. History of Ethics. Surveys the ethical thought of major figures in the history of philosophy, beginning with Plato and ending with the 19th century. Examples: Aristotle, Hume, Kant and Mill. (Class readings of primary philosophical texts.)

PHIL 3200-3. Social and Political Philosophy. Examines basic issues in social and political philosophy, including justice, freedom, individuality, power and community.

PHIL 3250-3. Business Ethics. Surveys some of the major moral problems which arise in business, such as the nature and scope of the moral responsibilities of corporations, affirmative action and truth in advertising. Begins with a study of moral reasoning, ethical theory and the challenges of applying ethical theory.

PHIL 3280-3. War and Morality. Attempts to identify and analyze some of the major moral issues of war. When is a war just, when is it not? What are morally acceptable rules of engagement? What, if anything, justifies violating them? How does one evaluate terrorism and war against terrorism? What are moral alternatives to the violence of war?

PHIL 3300-1 to 3. Special Topics in Philosophy.

PHIL 3350-3. Metaphysics. Studies major theories of reality, including topics such as the nature of substance, space and time and universals and particulars.

PHIL 3360-3. Epistemology. Study of major theories of knowledge, including such problems as perception and the distinction between belief and knowledge.

PHIL 3420-3. Kosmos: Theories of the Universe. A course in philosophical cosmology using material from the sciences, history and philosophy. The goal is to illuminate our present theories concerning the nature of the universe and the place of life within it. Cross-listed with RLST 4260.

PHIL 3440-3. Introduction to Symbolic Logic. *Spring.* Covers truth functional and quantificational logic through polyadic first order predicate calculus and theory of identity. Attention is given to such problems in metatheory as proofs of the completeness and consistency of systems of logic. Cross-listed with MATH 3440.

PHIL 3500-3. Ideology and Culture: Racism and Sexism. Surveys the nature and role of racism and sexism. Topics may include ideology theory, naturalism, the equal protection clause, recent scientific discussion, sociolegal history and social constructionism.

PHIL 3550-3. Philosophy of Death and Dying. Historical overview of the metaphysical question of whether there is life after bodily death, beginning with classical arguments through the current debate over such phenomena as near death experiences and deathbed visions. Also focuses on ethical controversies such as suicide, euthanasia and capital punishment and the efficacy of philosophical consolations for grief. Prereq: three hours of philosophy; preferably PHIL 1012.

PHIL 3656-3. Contemporary Religious Ethics: Jewish and Christian Traditions. Historical and thematic introduction to ethics in Judaism, Roman Catholicism and Protestantism. A study of selected ethical issues: bio-medical, social justice, sexuality, economic justice, business and personal ethics. Prereq: English composition; intro to philosophy; world religions; world history; junior status.

PHIL 3666-3. Asian Philosophies and Religions. We in the Western world encounter a vastly different world, a radically different "universe of meaning," when we examine the traditions of the East. Even what we tacitly assume to be "real" is claimed by the Hindus and Buddhists of India to be a grand illusion. The world of China is, again, very different from India. An examination of Tibetan and Japanese religious forms will conclude our study of Asian thought. Cross-listed with RLST 3400.

PHIL 3680-3. Differing Concepts of God. God, gods and goddesses have been imagined in many different modes, forms, aspects and guises throughout human history. This course investigates paleolithic models of God, the Great Goddess of the Neolithic era, the gods of mythological traditions, the Biblical God, the abstract God of the philosophers, the God of the pantheists, the deists and the God of the mystics. Cross-listed with RLST 4400.

PHIL 3840-1 to 3. Independent Study.

PHIL 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: junior standing and 2.75 GPA.

PHIL 3981-3. Chinese Philosophy. China is a fascinating world with its own characteristic orientation to philosophical questions. Chinese thinkers produced the "Flowering of a Hundred Schools of Thought" in the Axial Age, the same period of time in which philosophy was coming to birth in ancient Greece. Covers some of the Chinese schools, including Confucianism, Taoism, Mohism, Legalism, Chinese "logic," and the later schools of schools of Neo-Confucianism, Neo-Taoism and Chinese Buddhism. Cross-listed with RLST 3660.

PHIL 4040-3. Skeptic and Believer. Considers radical skepticism in the form of Sextus Empiricus' *Outlines of Pyrrhonism*. Following Peter Suber's "Essay on Classical Skepticism," the course also looks at historical responses to Pyrrhonian skepticism, especially in theories of belief. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5040.

PHIL 4101-3. Pragmatism: Classical American Philosophy. The most significant philosophical tradition born in the United States is pragmatism. Examines several of the most important classical works of this tradition, the influence of thinkers who have helped to shape pragmatism and the contemporary relevance of this tradition. Figures who may be included are: Emerson, Pierce, Royce, James, Dewey, Mead and Rorty. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5101.

PHIL 4150-3. Twentieth Century Ethics. Surveys representative philosophers, methods and/or problems in 20th century ethics. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor.

PHIL 4200-3. Philosophical Problems and Contemporary Culture. Issues and controversies in contemporary culture, their relation to modern theories of society and their manifestations in the arts, science and technology, education, religion and ethics. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor.

PHIL 4230-3. Postmodernism and the Social Sciences. Traces the history of a set of ideas collectively known as postmodern. Disrupting traditional frameworks of knowledge, these concepts have had an enormous impact on the social sciences, the humanities and the arts. Course readings expose students to the cross-disciplinary impact of postmodernism on theory, content and method. Prereq: upper division standing; PHIL 3002 or 3022, minimum grade of “C” in each previous philosophy course, or permission of instructor.

PHIL 4242-3. Bioethics. Examines some of the major moral issues confronting the nation’s health care system. The class will search for solutions to such problems as financing health care for those unable to do so on their own, determining the extent of a patient’s right to both refuse and demand certain types of medical treatment, and allocating scarce medical resources such as life-saving vital organs. The spring-board for examining these issues will be the doctor or patient relationship framed by the moral principles of respect for persons and beneficence. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5242.

PHIL 4260-3. Philosophy of Law. Surveys theoretical positions on the nature of law, with particular emphasis on American law. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5260.

PHIL 4270-3. Philosophy of History. Examines critical and speculative theories of history, including the problems of methodology, explanation, values and the relationship between history and social philosophy. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor.

PHIL 4300-3. Philosophy of Mind. Consideration of the problems in the philosophy of mind, such as the mind-body problem, the problem of our knowledge of other minds, the compatibility of free will and determinism and discussion of such concepts as action, intention, motive, desire, enjoyment, memory, imagination, dreaming and self-knowledge. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5300.

PHIL 4360-3. American Legal Process. Introduces students to basic issues in American jurisprudence as well as to the elements and dynamics of the modern American legal system. Cross-listed with PHIL 5360.

PHIL 4460-3. Theories of Human Nature. Consideration of such problems as the changeability and definability of human nature and the possibility of a science of human nature. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor.

PHIL 4470-3. Concepts of the Soul. Asks the questions: What is the nature of the human being? What makes us “human?” Do humans have a “soul?” What is its nature? Is it different from the “spirit?” What is its ultimate fate? Examines the various theories put forward by philosophers of both Eastern and Western traditions. Cross-listed with RLST 4440.

PHIL 4480-3. Perspectives on Good and Evil. Examines the “problem of evil.” As formulated in the philosophical tradition: if the deity is understood as perfect, then why is there evil? How can a perfect entity create imperfection? Why would an absolutely benevolent God cause or allow the innocent to suffer? Presents the classical formulation of the problem, the traditional solutions offered and the classical critiques of each answer. Considers the perspectives of the various

religious orientations, each of which deals differently with the question of suffering. Cross-listed with RLST 4480.

PHIL 4510-3. Philosophy of Nature. Critical comparison of different views of nature presupposed in science, environmental policy, art and religion. Concepts of “natural” are examined in relation to such issues as animal rights, wilderness preservation, synthetic landscape, technology, pollution and population control. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor.

PHIL 4600-3. Philosophy of Religion. Nature of religion and methods of studying it. Cross-listed with PHIL 5600, HUM 5600, RLST 4060, S SC 5600.

PHIL 4700-3. Seminar in a Major Philosopher (topics). The major philosophical texts of one philosopher is studied in this course. Philosophers to be studied are major figures in the history of philosophy such as Plato, Aristotle, Kant and Hume. Note: May be taken for credit more than once. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor.

PHIL 4710-3. Western Religious Thought. Focuses on philosophers and theologians who have contributed to the evolution of the three great religious traditions of the West: Judaism, Christianity and Islam. Targets thinkers from three periods: the ancient or formative era, the medieval era and the contemporary era. Note: Specific philosophers chosen may vary in different semesters. Cross-listed with RLST 4070.

PHIL 4720-3. Eastern Religious Thought. Parallels the course in Western religious thought. The great religious traditions of the East, including Hinduism, Buddhism, Confucianism and Taoism, are examined as they are presented in the writings of key philosophical representatives of each tradition. Cross-listed with RLST 4080.

PHIL 4730-3. Philosophy and Literature. Considers the philosophical dimensions of literature. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5730, ENGL 4735 and 5735.

PHIL 4735-3. Rationalism. Addresses the fundamental questions of truth and reality through natural reason. Topics vary and may include metaphysics and the rise of modern science; women and the enlightenment; historical problems and linguistic analysis. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5735.

PHIL 4740-3. Empiricism. Considers the nature and importance of experience. Focuses on British Empiricism, but additional themes which vary may include: American pragmatism, logical positivism, scientific empiricism, phenomenology of experience. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5740.

PHIL 4750-3. Introduction to Phenomenology. Examines the contribution of phenomenology to selected topics in the theory of meaning, philosophy of mind, ontology and epistemology, through a study of such philosophers as Husserl, Heidegger, Sartre and Merleau-Ponty. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5750.

PHIL 4760-3. Kant. A close study of Immanuel Kant’s revolutionary thought, focusing on Kant’s ontology, epistemology and ethical theory, as they are articulated in his Critique of Pure Reason and Critique of Practical Reason. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5830.

PHIL 4770-3. Hegel. A systematic study of the thought of G.W.F. Hegel through his most important and influential works: The Phenomenology of Spirit; The Encyclopedia of Philosophical Sciences; The Science of Logic; Lectures on the Philosophy of History; and his lectures on the history of philosophy, art and religion. Focus of the course varies. Prereq: PHIL 3002 or 3022, a minimum grade of “C” in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5770.

PHIL 4780-3. Heidegger. Studies the thought of Martin Heidegger, one of the most important philosophers of the 20th century. Includes texts from both Heidegger's early and later periods and focuses on his analyses of human subjectivity and being. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5780.

PHIL 4790-3. Nietzsche. A close study of Nietzsche's philosophical writings, with attention to his significance for philosophy in the 20th century and beyond. Cross-listed with PHIL 5790.

PHIL 4800-3. Plato. A careful study of Plato's writings, emphasizing the dialogue form and discussion of Plato's significance for the history of ethics, political theory, psychology, metaphysics and epistemology. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5800.

PHIL 4810-3. Aristotle. Examines Aristotle's systematic philosophy and discusses its contributions to logic, epistemology, physics, psychology, metaphysics, ethics and political theory. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5810.

PHIL 4812-3. Special Topics in Philosophy. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor.

PHIL 4820-3. Hume. Considers the work of eighteenth century philosopher David Hume. Emphasis on unity of Hume's thought. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5820.

PHIL 4833-3. Existentialism. Examines one of the most influential movements in recent European thought, beginning with existentialism's 19th century roots and continuing on to the existentialist philosophers of the 20th century. Figures covered may include Dostoyevsky, Kierkegaard, Nietzsche, Heidegger, Sartre and de Beauvoir. Prereq: PHIL 3000 or 3022, a minimum grade of "C" in each previous philosophy course or permission of instructor. Cross-listed with PHIL 5833.

PHIL 4840-1 to 3. Independent Study.

PHIL 4920-3. Philosophy of Media and Technology. A philosophical examination of interrelationships between contemporary media, technology and their impacts upon character of contemporary life and values. Topics may include ethics, epistemology, democracy, advertising, media literacy and criticism. Cross-listed with PHIL 5920.

PHIL 4933-3. Philosophy of Eros. Why is philosophy an erotic activity and what are the implications of this insight? We will explore these issues, first, by reading Plato's erotic dialogues: *Lysis*, *Symposium* and *Phaedrus*. Then we will focus on Freud's influential (and controversial) appropriation of Plato's thought in the writings that span his career, from *The Interpretation of Dreams* (1900) to *Civilization and its Discontents* (1930) and beyond. Finally, we will survey post-Freudian theories of eros, such as Michel Foucault's *History of Sexuality*, as well as the more recent contributions of thinkers such as Jonathan Lear, Thomas Nagel, Martha Nussbaum and Slavoj Žižek. Cross-listed with PHIL 5933, HUM 5933 and S SC 5933.

PHIL 4950-3 to 6. Honors Thesis.

PHIL 4980-1 to 3. Special Topics in Philosophy.

PHIL 5013-3. Philosophical Problems in the Social Sciences and the Humanities. Presents an overview of key theoretical issues currently emerging across academic disciplines. Examines questions about reality, knowledge and ethics that affect social research and writing in the humanities. Readings explore how contemporary philosophical and cultural discourses have altered theory and method. Assignments include influential theoretical pieces by key historical and contemporary thinkers, examples of application in social research and interpretations of thought and affect in cultural contexts. Cross-listed with HUM/S SC 5013.

PHIL 5020-3. Elements of Social Thought. Introduces students to the disciplines that comprise the social sciences (classical anthropology, sociology, sociology of religion, philosophy of history, political theory, classical psychology, etc.). Provides necessary tools for interdisciplinary students to understand the social infrastructure of contemporary society. Cross-listed with S SC 5020 and HUM 5020.

PHIL 5040-3. Sceptic and Believer. Considers radical skepticism in the form of Sextus Empiricus' *Outlines of Pyrrhonism*. Following Peter Suber's "Essay on Classical Skepticism," the course also looks at historical responses to Pyrrhonian skepticism, especially in theories of belief. Cross-listed with PHIL 4040.

PHIL 5100-3. Topics in the History of Philosophy.

PHIL 5101-3. Pragmatism: Classical American Philosophy. The most significant philosophical tradition born in the United States is pragmatism. Examines several of the most important classical works of this tradition, the influence of thinkers who have helped pragmatism and the contemporary relevance of this tradition. Figures who may be included in this course are: Emerson, Pierce, Royce, James, Dewey, Mead, Rorty. Prereq: an introductory course in philosophy. Cross-listed with PHIL 4101.

PHIL 5242-3. Bioethics. Examines some of the major moral issues confronting the nation's health care system. The class will search for solutions to such problems as financing health care for those unable to do so on their own, determining the extent of a patient's right to both refuse and demand certain types of medical treatment, and allocating scarce medical resources such as life-saving vital organs. The spring-board for examining these issues will be the doctor or patient relationship framed by the moral principles of respect for persons and beneficence. Cross-listed with PHIL 4242.

PHIL 5260-3. Philosophy of Law. Surveys theoretical positions on the nature of law, with particular emphasis on American law. Cross-listed with PHIL 4260.

PHIL 5300-3. Philosophy of Mind. Consideration of the problems in the philosophy of mind, such as the mind-body problem, the problem of our knowledge of other minds, the compatibility of free will and determinism and discussion of such concepts as action, intention, motive, desire, enjoyment, memory, imagination, dreaming and self-knowledge. Cross-listed with PHIL 4300.

PHIL 5360-3. American Legal Process. Introduces students to basic issues in American jurisprudence as well as to the elements and dynamics of the modern American legal system. Cross-listed with PHIL 4360.

PHIL 5550-3. Paris 1910: Art, Philosophy and Psychology. Traces the influences of philosophy, psychology and art in the English, French and German-speaking worlds in the early twentieth century. This intellectual history is extended to broader cultural and political contexts. Key period is between 1910 and 1968, when modernity's key aspirations and tensions became explicit. Cross-listed with HUM 5550 and S SC 5550.

PHIL 5600-3. Philosophy of Religion. Nature of religion and methods of studying it. Cross-listed with PHIL 4600, HUM 5600, RLST 4060, S SC 5600.

PHIL 5650-3. Reflections on Modernity. Explores modernity as a historical epoch and a theoretical space, looking at the commentaries and reflections of influential 20th century thinkers including Adorno, Arendt, Levinas, Merleau-Ponty, Habermas and Foucault. Examines how the theoretical inclinations of modernity were influenced by politics, art, literature and culture. Cross-listed with HUM 5650 and S SC 5650.

PHIL 5720-3. Topics in Recent Philosophy.

PHIL 5730-3. Philosophy and Literature. Considers the philosophical dimensions of literature. Cross-listed with PHIL 4730, ENGL 4735 and 5735.

PHIL 5735-3. Rationalism. Addresses the fundamental questions of truth and reality through natural reason. Topics vary and may include metaphysics and the rise of modern science; women and the enlightenment; historical problems and linguistic analysis. Prereq: six hours in Western philosophy. Cross-listed with PHIL 4735.

PHIL 5740-3. Empiricism. Considers the nature and importance of experience. Focuses on British Empiricism, but additional themes which vary may include: American pragmatism, logical positivism, scientific empiricism, phenomenology of experience. Prereq: six credit hours in Western philosophy. Cross-listed with PHIL 4740.

PHIL 5750-3. Introduction to Phenomenology. Examines the contribution of phenomenology to selected topics in the theory of

meaning, philosophy of mind, ontology and epistemology, through a study of such philosophers as Husserl, Heidegger, Sartre and Merleau-Ponty. Cross-listed with PHIL 4750.

PHIL 5770-3. Hegel. A systematic study of the thought of G.W.F. Hegel through his most important and influential works: *The Phenomenology of Spirit*; *The Encyclopedia of Philosophical Sciences*; *The Science of Logic*; *Lectures on the Philosophy of History*; and his lectures on the history of philosophy, art and religion. Focus of the course varies. Cross-listed with PHIL 4770.

PHIL 5780-3. Heidegger. Studies the thought of Martin Heidegger, one of the most important philosophers of the 20th century. Includes texts from both Heidegger's early and later periods and focuses on his analyses of human subjectivity and being. Prereq: six credit hours in Western philosophy. Cross-listed with PHIL 4780.

PHIL 5790-3. Nietzsche. A close study of Nietzsche's philosophical writings, with attention to his significance for philosophy in the 20th century and beyond. Cross-listed with PHIL 4790.

PHIL 5800-3. Plato. A careful study of Plato's writings, emphasizing the dialogue form and discussion of Plato's significance for the history of ethics, political theory, psychology, metaphysics and epistemology. Cross-listed with PHIL 4800.

PHIL 5810-3. Aristotle. Examines Aristotle's systematic philosophy and discusses its contributions to logic, epistemology, physics, psychology, metaphysics, ethics and political theory. Cross-listed with PHIL 4810.

PHIL 5812-3. Special Topics in Philosophy.

PHIL 5820-3. Hume. Considers the work of eighteenth century philosopher David Hume. Emphasis on unity of Hume's thought. Cross-listed with PHIL 4820.

PHIL 5830-3. Kant. A close study of Immanuel Kant's revolutionary thought, focusing on Kant's ontology, epistemology and ethical theory, as they are articulated in his *Critique of Pure Reason* and *Critique of Practical Reason*. Cross-listed with PHIL 4760.

PHIL 5833-3. Existentialism. Examines one of the most influential movements in recent European thought, beginning with existentialism's 19th century roots and continuing on to the existentialist philosophers of the 20th century. Figures covered may include Dostoyevsky, Kierkegaard, Nietzsche, Heidegger, Sartre and de Beauvoir. Cross-listed with PHIL 4833.

PHIL 5840-1 to 3. Independent Study.

PHIL 5920-3. Philosophy of Media and Technology. A philosophical examination of interrelationships between contemporary media, technology and their impacts upon character of contemporary life and values. Topics may include ethics, epistemology, democracy, advertising, media literacy and criticism. Cross-listed with PHIL 4920.

PHIL 5933-3. Philosophy of Eros. Why is philosophy an erotic activity and what are the implications of this insight? We will explore these issues, first, by reading Plato's erotic dialogues: *Lysis*, *Symposium* and *Phaedrus*. Then we will focus on Freud's influential (and controversial) appropriation of Plato's thought in the writings that span his career, from *The Interpretation of Dreams* (1900) to *Civilization and its Discontents* (1930) and beyond. Finally, we will survey post-Freudian theories of eros, such as Michel Foucault's *History of Sexuality*, as well as the more recent contributions of thinkers such as Jonathan Lear, Thomas Nagel, Martha Nussbaum and Slavoj Zizek. Cross-listed with PHIL 5933, HUM 5933 and S SC 5933.

PHYS: Physics (Liberal Arts and Sciences)

PHYS 1000-4. Introduction to Physics: GT-SC1. Introductory survey course for nonscientists that emphasizes the main concepts of physics. Although this course is mainly descriptive, some high school algebra will be used. The accompanying laboratory work is designed to illustrate the material discussed in the lectures.

PHYS 1052-4. General Astronomy I: GT-SC1. The history of astronomy is studied from early civilizations to the present. The basic motions of the earth, moon, sun and planets are discussed both qualitatively and quantitatively, using elementary principles of physics. Properties of our solar system are discussed in detail, including results from unmanned space probes. Note: An additional 30 hours of

laboratory work (at times to be arranged), plus appropriate report preparation time, are required to complete laboratory component of the course. Prereq: high school algebra or equivalent.

PHYS 1111-1 to 3. Freshman Seminar.

PHYS 1115-1 to 3. Physics Content. Covers content areas of undergraduate physics. Topics include matter and energy; heat and thermodynamics; atomic and nuclear structure; mechanics; electricity and magnetism; and wave characteristics.

PHYS 1840-1 to 3. Independent Study. Students must check with a faculty member before taking this course.

PHYS 2010-4. College Physics I: GT-SC1. Mechanics, heat and sound. Prereq: college algebra and trigonometry.

PHYS 2020-4. College Physics II: GT-SC1. Electricity, magnetism, light and modern physics. Prereq: PHYS 2010.

PHYS 2030-1. College Physics Laboratory I: GT-SC1.

PHYS 2040-1. College Physics Laboratory II: GT-SC1. Prereq: PHYS 2030.

PHYS 2311-4. General Physics I: Calculus-Based. Covers vector displacement, uniform and accelerated motion, force, momentum, energy, rotating systems, oscillations and an introduction to thermodynamics. Emphasis is on basic principles. Coreq: MATH 1401.

PHYS 2321-1. General Physics Laboratory I.

PHYS 2331-4. General Physics II: Calculus-Based. Covers electrostatics, magnetic fields, electromagnetic waves (including light) and optics. Prereq: PHYS 2311; coreq: MATH 2411.

PHYS 2341-1. General Physics Laboratory II. Prereq: PHYS 2321.

PHYS 2711-3. Vibrations and Waves. Introduces vibrations and waves associated with physical phenomena. Analytic and numerical methods in physical contexts. Topics include harmonic oscillators, resonance, coupled oscillators, nonlinear oscillators, waves in elastic media, sound waves, pulses and dispersion. Prereq: PHYS 2331 and MATH 2411.

PHYS 2811-4. Modern Physics I. Presents a study of the events and discoveries that occurred during the latter part of the 19th and the first part of the 20th centuries which led to the discovery of quantum mechanics; namely, special relativity, particle nature of radiation, wave properties of particles, models of the atom and the introduction of quantum mechanics. Prereq: PHYS 2331 and MATH 2411.

PHYS 2821-3. Modern Physics II. Quantum physics used for an understanding of energy levels and configuration of hydrogen atoms, strength of molecular bonds, atomic and molecular spectroscopy, solid state physics, band theory, nuclear and subatomic physics. Also includes quantum statistics, general relativity and cosmology. Prereq: PHYS 2811.

PHYS 2840-1 to 3. Independent Study. Students must check with a faculty member before taking this course.

PHYS 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

PHYS 3040-3. Modern Cosmology. Designed for non-majors covering the large-scale structure of the universe. Topics covered are gravitational concepts, neutron stars, pulsars, black holes, big bang universe and cosmological tests. Prereq: PHYS 1052 or equivalent.

PHYS 3050-3. General Astronomy II. Evolution of our sun and other stars is studied, as well as the methods used to gain the information. Discussion includes objects such as neutron stars, novae and supernovae and black holes. Large-scale structures, including clusters and galaxies, are studied. Prereq: PHYS 1052, 2010 or 2311.

PHYS 3060-3. Astronomical Image Processing Laboratory.

Techniques in digital image processing. Emphasis in data reduction of astronomical images, processed and reduced on the department's own computer and software platform. Exercise and project oriented. Prereq: MATH 2411 or PHYS 2811 or 1052 and PHYS 2020.

PHYS 3082-3. Energy and the Environment. For students of various backgrounds who wish to increase their understanding of the environmental and technical issues of supplying the energy demands of our society. Alternative energy sources and conservation are explored as solutions to promote sustainable society. Prereq: One college-level science course and MATH 1110 or equivalent. Cross-listed with ENVS 3082.

PHYS 3120-3. Methods of Mathematical Physics. Typically covers calculus of variations, special functions, partial differential equations, integral transforms, linear vector spaces and tensor analysis. Prereq: MATH 2421 and 3195 (or equivalent) or permission of instructor.

PHYS 3211-4. Analytical Mechanics. Topics include the Lagrange and Hamiltonian formulations, the two-body problem, rigid body motion and small oscillations. Prereq: PHYS 2711, MATH 2421 and 3195 or equivalent; Coreq: PHYS 3120.

PHYS 3411-3. Thermal Physics. Covers the basic concepts of the three related disciplines of thermodynamics, statistical mechanics and kinetic theory. Prereq: PHYS 2331, 2811 and MATH 2421; coreq: MATH 3195 or equivalent.

PHYS 3620-3. Sound and Music. Considers the basic nature of sound waves, the ear and hearing and musical instruments. Although this course is mainly descriptive, some high school algebra will be used. Prereq: MATH 1070 or equivalent.

PHYS 3711-2. Junior Laboratory I. Advanced laboratory in classical and modern physics. Prereq: PHYS 2811.

PHYS 3721-2. Junior Laboratory II. Advanced laboratory in classical and modern physics. Prereq: PHYS 3711.

PHYS 3811-3. Quantum Mechanics. A course in which both wave and matrix mechanics are developed and applied to selected problems in atomic physics. Prereq: PHYS 2811 and 3211.

PHYS 3820-3. Subatomic Physics. Introductory treatment of the various concepts and models used to describe nuclear and high energy particle phenomena. Prereq: PHYS 2811.

PHYS 3840-1 to 3. Independent Study. Note: Students must check with a faculty member before taking this course.

PHYS 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: junior standing and 2.75 GPA.

PHYS 4331-4. Principles of Electricity and Magnetism. Elements of mathematical theory of electricity and magnetism, including electrostatics, magnetostatics, polarized media, direct and alternating current theory and introduction to electromagnetic fields and waves. Prereq: PHYS 2331 and 3120.

PHYS 4400-4449-1. Topics in Scientific Instrumentation and Laboratory Methods. Five-week modules on technical knowledge needed to design scientific instruments and to develop special laboratory procedures for research. Topics include materials, mechanisms, electronics and optics. Specific topic information is available through the department Web site <http://physics.cudenver.edu>.

PHYS 4510-3. Optics. Presents a contemporary treatment of selected topics in optics, such as matrix methods in geometrical optics, the Fourier analysis approach to physical optics and interaction of light with matter. Prereq: PHYS 2331, 2811 and 3120.

PHYS 4550-3. Astrophysics. Covers stellar astrophysics, solar physics, star formations, stellar evolution, processes in the interstellar medium, galactic dynamics and evolution, formation of galaxies and cosmology. Prereq: MATH 3195; PHYS 2821 and 3050 recommended.

PHYS 4610-2. Computational Physics. Designed to provide an understanding of the role of the computer in modern theoretical physics by studying the simulation of physical phenomena in various fields of physics. Prereq: PHYS 3120.

PHYS 4620-2. Computational Physics II. Assigns the student to an individual, advanced-level project modeling a physical phenomenon on the computer. Prereq: PHYS 4610.

PHYS 4650-3. Solid State Physics. Covers the basic thermal and electrical properties of solids which are explained in terms of the Brillouin zone structures of phonons and electrons. Prereq: PHYS 3411 and 3811.

PHYS 4711-2. Senior Laboratory I. Individual project laboratory with emphasis on modern methods of physical experimentation. Prereq: PHYS 3721.

PHYS 4721-2. Senior Laboratory II. Individual project laboratory with emphasis on modern methods of physical experimentation. Prereq: PHYS 4711.

PHYS 4810-3. Atomic and Molecular Structure. A course in which quantum mechanical methods are applied to problems in atomic and molecular physics, such as the one-electron atom, atomic and molecular spectra and particle scattering. Prereq: PHYS 3811.

PHYS 4840-1 to 3. Independent Study. Note: Students must check with a faculty member before taking this course.

PHYS 4920-1. Advanced Undergraduate Seminar. Studies a focused topic such as: size and age of the universe, critical phenomena, nonlinear optics, energy, fiber-optic communications, among others. Students research these topics and give a seminar outlining their findings. Prereq: PHYS 2811 or permission of instructor.

PHYS 4931-2 to 4. Internship in Applied Physics. Laboratory experience at major federal and industrial laboratories; an alternative means by which senior physics students complete their senior laboratory requirement. Note: To be taken in lieu of PHYS 4711 and/or 4721. Prereq: PHYS 3721.

PHYS 4980-1 to 3. Advanced Physics Topics. Covers a particular topic, as announced in the 'Schedule Planner'. Note: May be taken more than once for credit in different topics. Prereq: PHYS 2811.

PHYS 5101-4. RM-MSMSP: Forces and Motion. Systematic study of the concepts of motion and the forces that cause motion to change, using daily hands-on activities that include identifying patterns by collecting, graphing or analyzing data and applying concepts to everyday phenomena. Concepts are linked to other scientific, mathematical, societal and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: permission of project director.

PHYS 5102-3. RM-MSMSP: Light, Color and Geometrical Optics. Systematic study of numerous phenomena in light and geometrical optics including: illumination, shadows and pinholes; reflection and image formation with lenses; color. Concepts are linked to other scientific, mathematical, societal and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: permission of project director.

PHYS 5400-5449-1. Topics in Scientific Instrumentation and Laboratory Methods. Five-week modules on technical knowledge needed to design scientific instruments and to develop special laboratory procedures for research. Topics include materials, mechanisms, electronics and optics. Specific topic information is available through the department Web site <http://physics.cudenver.edu>.

PHYS 5840-1 to 3. Independent Study. Note: Students must check with a faculty member before taking this course.

PHYS 5939-1 to 6. Internship/Cooperative Education. Note: Students must check with a faculty member before taking this course.

PHYS 5950-1 to 8. Master's Thesis. Note: Students must check with a faculty member before taking this course.

PHYS 5960-1 to 8. Master's Project. Note: Students must check with a faculty member before taking this course.

PHYS 5980-3. Advanced Physics Topics. Covers a particular topic as announced in the 'Schedule Planner'. Note: May be taken more than once for credit in different topics. Prereq: PHYS 2811 or permission of instructor.

PHYS 6840-1 to 3. Independent Study. Note: Students must check with a faculty member before taking this course.

PMUS: Performance Music (Arts & Media)

PMUS 1000-1. Music Basics Boot Camp. Covers the circle-of-fifths and the construction of major and minor scales in a very thorough manner. Students are introduced to the construction of chords and the identification of intervals. Intended for students who wish to study music theory at the college level.

PMUS 1001-3. Music Appreciation: GT-AH1. Explores the style of music in the major compositional periods, including contemporary pop styles. This course will not satisfy any degree requirements for music majors. For nonmusic majors who want to learn how to listen to music with greater understanding and pleasure.

PMUS 1010-3. Music Fundamentals. Designed to present the basic concepts of music theory to students with little or no formal musical training. The fundamentals of music are presented in the context of commercial and popular music rather than “classical” music. This course is a preparatory course for PMUS 1100.

PMUS 1020-3. Beginning Musicianship. Provides basic musical and theoretical skills to students who do not have the proficiency to enroll in Theory I and Ear Training I. Major concepts include an introduction to music fundamentals, basic ear training, introduction to sight singing and an applied understanding of the keyboard. This course will not satisfy any degree requirements for Music majors.

PMUS 1023-1. Piano Class. Offered from beginning through intermediate levels. Course content includes functional piano skills of sight-reading, transposition, improvisation, playing by ear and performing in various styles. Class meets in the Kurzweil mini synthesizer keyboard laboratory. Coreq: PMUS 1100, 1110, 1200, 1210, or PMUS 2100 and 2110.

PMUS 1040-1. Class Guitar. Designed to provide each student with a basic knowledge of the fretboard. The course material focuses on beginning note reading, basic chord forms and elementary improvisation. Students have the opportunity to perform in both individual and group settings.

PMUS 1041-1. Class Guitar II. This group guitar class is designed to go beyond PMUS 1040 and provide students with an advanced knowledge of the fretboard. The course material focuses on advanced position note reading, complex chord forms and scale vocabulary. Students have the opportunity to perform in both individual and group settings. Prereq: PMUS 1040.

PMUS 1050-1. Voice Class I. Fundamentals of voice production: posture, breath management and support, tone, resonance, diction, phrasing and interpretation. Development of technique, confidence and control through group and solo singing. Development of repertoire that includes contemporary and commercial vocal styles.

PMUS 1060-1. Voice Class II. Fundamentals of voice production: posture, breath management and support, tone, resonance, diction, phrasing and interpretation. Extension PMUS 1050, with opportunity to continue to develop individual skills in singing. Development of technique, confidence and control through group and solo singing. Development of repertoire that includes contemporary and commercial vocal styles. Prereq: PMUS 1050.

PMUS 1093-2. Commercial Guitar Styles and Theory. A comprehensive guitar course that focuses on various harmonic and style elements of the guitar fingerboard. Topics include: chord voicing and inversions, scales and modes, jazz and commercial accompaniment styles and improvising styles.

PMUS 1094-2. Commercial Guitar Styles and Theory. A comprehensive guitar course that focuses on various melodic and style elements of the guitar fingerboard. Topics include: chord voicing and inversions, scales and modes, jazz and commercial accompaniment styles and improvising styles.

PMUS 1100-3. Music Theory I. *Fall.* Study of harmonic procedures as derived from the common practice period and their relationship to contemporary concepts. Prereq: placement tests; coreq: PMUS 1110 and 1023.

PMUS 1110-1. Ear Training and Sight Singing I. *Fall.* Laboratory course designed to help students listen to music analytically and to apply the harmonic principles learned in PMUS 1100 to the performance of music. Coreq: PMUS 1023 and 1100.

PMUS 1111-3. Freshman Seminar. Freshman seminar courses are academic courses for entering freshmen taught under a controlled enrollment environment to promote student-faculty interaction and critical thinking skills. An ancillary function is to provide students with academic proficiencies necessary for success in a liberal arts baccalaureate program.

PMUS 1200-3. Music Theory II. *Spring.* (Continuation of PMUS 1100.) Prereq: PMUS 1100; coreq: PMUS 1210 and PMUS 1023.

PMUS 1210-1. Ear Training and Sight Singing II. *Spring.* Laboratory course designed to help students listen to music analytically and to apply

the harmonic principles learned in PMUS 1200 to the performance of music. Prereq: PMUS 1100; coreq: PMUS 1200 and PMUS 1023.

PMUS 1310-2. Beginning Sight Reading and Improvisation. Explores the techniques and concepts of instrumental jazz/commercial improvisation and beginning sight reading. Major concepts include understanding and interpreting the construction of jazz harmonic nomenclature and the mastery of the melodic elements of improvisation.

PMUS 1400-2. Group Applied Lessons. Consists of group music lessons of up to four students per group. The course meets for one hour per week. 45 minutes will be in group format and 15 minutes will be rotating private instruction. Prereq: must be music major or minor; coreq PMUS 1500.

PMUS 1500-0. General Recital. May be taken on a pass/fail basis only. Co-requisite for all applied music courses for music majors and minors. Attendance at musical performances is required.

PMUS 1501 through 1743/3502 through 3743. Applied Music Instruction. Private instruction in electric and acoustic bass, banjo, bassoon, clarinet, bass clarinet, flute, French horn, guitar, oboe, percussion, piano, jazz piano, saxophone, synthesizer, trombone, trumpet, tuba, violin, viola, cello and voice. Open only to accepted music majors enrolled for a minimum of 7 semester credit hours of nonapplied courses. Prereq: students must be accepted as a music major. Coreq: students must be registered for a 2-credit hour applied lesson.

PMUS 1600-1 to 3. Topics in Performance Music. Various topics related to music performance.

PMUS 1741-1. Applied Instruction. Private instruction in electric and acoustic bass, banjo, bassoon, clarinet, bass clarinet, flute, French horn, guitar, oboe, percussion, piano, jazz piano, saxophone, synthesizer, trombone, trumpet, tuba, violin, viola, cello and voice. Open only to accepted music majors enrolled for a minimum of 7 semester credit hours of nonapplied courses. Prereq: students must be accepted as a music major. Coreq: students must be registered for a 2-credit hour applied lesson.

PMUS 1800-2. Applied Music: Music Industry Studies. Applied, private lessons for students enrolled in the music industry studies track within the College of Arts and Media. Coreq: PMUS 1500.

PMUS 2000-1. Music Ensembles. Coaching and performance opportunities for vocal and instrumental groups within a wide range of stylistic offerings. Ensembles include: guitar, Dixie, chamber music, pop or rock music, percussion, string orchestra, vocal, jazz combo, flute choir, musical styles and Latin music. Prereq: admission to the music program or permission of the music department; audition or meeting with ensemble faculty. Cross-listed with PMUS 4000.

PMUS 2100-3. Music Theory III. *Fall.* (Continuation of PMUS 1200.) Prereq: PMUS 1200; coreq: PMUS 1023 and 2110.

PMUS 2110-1. Ear Training and Sight Singing III. *Fall.* A laboratory course designed to help students listen to music analytically and to apply the harmonic principles learned in PMUS 2100 to the performance of music. Prereq: PMUS 1200; coreq: PMUS 1023 and 2100.

PMUS 2200-3. Contemporary Styles. *Spring.* Surveys classical, jazz and popular styles of the 20th century. Prereq: PMUS 2100.

PMUS 2283-3. Theory and Practice of Jazz/Pop. Explores music theory as it applies to the genres of jazz and popular music. Topics include: jazz improvisation, popular styles and techniques, the history of jazz and popular music practices and form analysis. Prereq: MUS 1010.

PMUS 3010-1. Commercial Singing I. Fundamentals of voice production: posture, breath management and support, tone, resonance, diction, phrasing and interpretation. Development of contemporary solo vocal repertoire (pop, rock, jazz, rhythm and blues) and traditional styles. Training in all aspects of vocal performance needed for live performance and recording sessions (microphone technique, stage presence, appropriate vocal styles and delivery). Development of solid understanding of vocal technique and its application to all vocal styles.

PMUS 3020-1. Commercial Singing II. Fundamentals of voice production: posture, breath management and support, tone, resonance, diction, phrasing and interpretation. Extension of PMUS 3010, with opportunity to continue to develop individual skills in commercial solo

singing. Development of contemporary solo vocal repertoire (pop, rock, jazz, rhythm and blues) and traditional styles. Training in all aspects of vocal performance needed for live performance and recording sessions (microphone technique, stage presence, appropriate vocal styles and delivery). Development of solid understanding of vocal technique and its application to all vocal styles. Prereq: PMUS 3010.

PMUS 3110-3. Social and Political Implications of American Music. Examines and describes the social meaning of American music with particular reference to the roles of major ethnic groups in the creation of this music and the way that the music reveals attitudes toward these groups.

PMUS 3210-3. Introduction to Teaching Private Music Lessons. Prepares students to teach private music lessons. Includes a survey of teaching styles from around the world, exercises, guest lectures, practical guidance for establishing a teaching studio and student research presentations.

PMUS 3300-2. Advanced Sight Reading and Improvisation. Explores the techniques and concepts of instrumental jazz/commercial improvisation and sight reading. Major concepts include understanding and interpreting the construction of jazz harmonic nomenclature and the mastery of the melodic elements of improvisation. Prereq: Beginning Sight reading and Improvisation or permission of instructor.

PMUS 3810-3. Music of the Popular Culture. Surveys folk music, world music, pop and jazz. Focuses on musical style with considerable attention to the relationship between music and society.

PMUS 3820-1. Music History Modules. A set of three different five-week music style surveys. These surveys introduce concert, popular and ethnic idioms sequentially, so the student may choose to enroll in one to three sections.

PMUS 3825-3. History of Rock 'n' Roll: 1950's thru 1970's. Examines how the styles of rock 'n' roll developed from the 1950's into the 1970's, as well as lasting impact today. Includes blues, R&B, teen idols, soul, British Invasion, folk-rock, psychedelic music and singer-songwriters. Extensive class listening and video viewing.

PMUS 3826-3. History of Rock 'N Roll II: 1970s to the Present. Examines how styles of rock developed from the 1970s to the present, introducing methods of musical analysis. Includes genres from the 1970s (including Funk, Progressive Rock, British Metal), 80s (including American Metal, New Wave), 90s (including Grunge, Hip Hop, Techno) and 00s (including Media Pop, Electronica). Class listening, video viewing and research presentations.

PMUS 3830-3. History and Literature of Music I and II. Surveys music from 11th century through the 20th centuries, world music, electronic music, jazz and rock. Prereq: any semester of theory. Cross-listed with PMUS 3831.

PMUS 3831-3. History and Literature of Music I and II. Surveys music from the 11th century through the 20th century. Emphasis is on listening skills. Prereq: any semester of theory. Cross-listed with PMUS 3830.

PMUS 4000-1. Music Ensembles. Coaching and performance opportunities for vocal and instrumental groups within a wide range of stylistic offerings. Ensembles include: guitar, Dixie, chamber music, pop or rock music, percussion, string orchestra, jazz combo, flute choir, musical styles, sight reading and improvisation, Texas guitar and fiddle and CU Alumni Choir. Prereq: admission to the music program or permission of the music department; audition or meeting with ensemble faculty. Cross-listed with PMUS 2000.

PMUS 4200-2. Senior Recital. This course is for music performance students to prepare for their capstone senior recital and to prepare materials for their required portfolio. Prereq: permission of instructor

PMUS 4400-3. Summit Jazz Seminar. Designed especially for instrumental music teachers with an interest in swing-style jazz. Some of the finest jazz performers from Denver and North America instruct and demonstrate in clinic and concert settings. Note: admissions to all events is free to enrolled students.

PMUS 4600-1 to 3. Topics in Music. Cross-listed with PMUS 5600.

PMUS 5600-1 to 3. Topics in Music. Cross-listed with PMUS 4600.

P SC: Political Science (Liberal Arts and Sciences)

P SC 1001-3. Introduction to Political Science: The Quest for Freedom and Justice: GT-SS1. Introduces the study of politics, its human importance and its relationship to social institutions. Analysis of the relationship between individual political behavior and characteristics of the political system. Development of key concepts such as power, legitimacy, authority, political socialization and revolution. Note: Required of all P SC majors.

P SC 1101-3. American Political System: GT-SS1. General introduction to the American political system with emphasis upon citizen involvement, the relationships among the various levels and branches of government, formal and informal institutions, processes and behavior. Note: Required of all P SC majors.

P SC 1111-1 to 3. Freshman Seminar.

P SC 2001-3. Topics in Political Science. Covers different areas of politics. Note: May be taken more than once for credit when topics vary.

P SC 2840-1 to 3. Independent Study. An opportunity for lower division students who demonstrate academic potential to pursue the study of some subject of interest in greater detail, with supervision from a faculty member in the department. Subjects chosen and arrangements for assignments to be made between student and faculty. Prereq: one semester of course work at Downtown Denver Campus.

P SC 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

P SC 3000-1. Topics: Conference Participation.

P SC 3002-1 to 3. Topics in Political Science. Covers different areas of politics. Note: May be taken more than once for credit when topics vary.

P SC 3011-3. Research Methods. Design of political/social research, both qualitative and quantitative. Applications of statistical techniques and procedures to social and political phenomena. Use of computer and the Internet.

P SC 3022-3. Introduction to Comparative Politics. Comparison of the basic political features of selected countries with focus on political behavior, institutions and political cultures. Themes examined include development, democratization, social movements, political instability and globalization.

P SC 3034-3. Race, Gender, Law and Public Policy. Historical overview of race and gender relations in the U.S. and an examination of the treatment of issues of race and gender in the judicial system and public policy.

P SC 3035-3. Political Movements: Race and Gender. Examines the emergence, growth and decline of social movements for race and gender equality. Discussion of political issues of race and gender in the 1990s.

P SC 3042-3. Introduction to International Relations. Basic background and theories of international relations with focus on the interaction between nation states, international organizations, regimes and transnational movements. Themes examined include foreign policy conduct, international security and political economy, human rights and environmental management.

P SC 3064-3. Power and Empowerment in the United States.

Introduces U.S. political economy. Analysis of the political and economic forces and structures that shape the opportunities available to the American people. Among topics included are reciprocal impacts of government and business, the federal budget, taxation, lobbying and special interests, community organizing and elections.

P SC 3074-3. Politics, Culture and the Environment. Provides students with tools to: (1) make informed environmental and political choices; (2) learn how citizens can influence environmental issues; and (3) critically evaluate the environmental policies of government and business and the impact those policies can have on our present and future.

P SC 3125-3. Introduction to Latin American Society. Explores the central characteristics of political-economic systems and cultures of Latin America. Prepares students to follow developments in the region with greater understanding and to pursue advanced study.

P SC 3214-3. Federal Law and American Indians. Examines the legal and political history of the U.S. in relation to American Indian Nations. Focuses on specific laws and Supreme Court cases in federal Indian law, with analysis of U.S. policy. There will be some comparison with Indian policies of other countries. Cross-listed with ETST 3216.

P SC 3333-3. Utopian Transformations. Explores cutting-edge theory and practice in social change that transcends traditional left-right divisions and merely incremental reform. Utopian and transformative experiments studied include communes, worker cooperatives, neighborhood organizing and green parties. Note: Service-learning option can fulfill major requirement.

P SC 3347-3. Film and Politics. Presents historical and contemporary films to introduce students to critical evaluation of film as a political medium. Whether designed as propaganda or entertainment, films shape and reflect critical issues in our political and social culture.

P SC 3840-1 to 3. Independent Study.

P SC 3914-3. The Urban Citizen. Course emphasis is community, the individual and the good life. Experiential learning and classroom discussions about capacities of urban citizens. Focus is on social, political and economic resources that individuals command, issues of equality and inequality and possibilities of constructive change. Prereq: a willingness to spend a semester working and studying together as a team in both the classroom and the community.

P SC 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of political concepts and skills in supervised employment situations. Prereq: junior or senior standing and 3.0 GPA.

P SC 4002-3. Topics in Political Science. Specialized areas of politics. Note: May be taken more than once for credit when topics vary.

P SC 4009-3. Politics of the Budgetary Process. Develops each student's understanding of budgeting and financial management in the public and nonprofit sectors. An overview of public sector and nonprofit fiscal management is provided, along with thorough exploration of the political influences that affect financial decision-making.

P SC 4014-3. Media and Politics. Explores the impact of the news media on the American political system, including public policy and citizen participation and addresses trends in news coverage and media ownership and their impact on public opinion. Prereq: P SC 1001 and 1101 or permission of instructor.

P SC 4024-3. Legislatures and Legislation. Structure and organization of legislatures, informal influences and the process of statute law making.

P SC 4025-3. Local Governance and Globalization. Introduces international political economy, consequences of globalization for localities, interplay between wealth and power among nations, multinational corporations, NGOs and the UN and impact of their actions on local governments. Topics include development, aid, trade, outsourcing, eco-sustainability and global equity. Prereq: graduate standing or permission of instructor. Cross-listed with P SC 5025.

P SC 4034-3. Political Parties and Pressure Groups. Democrats, Republicans, third parties and pressure groups in the United States. Analysis of pressure politics and political behavior. Impact of parties and pressure groups on the public good.

P SC 4044-3. The Presidency. An overview of the historical, constitutional and functional aspects of the presidency. Focuses on the powers and vulnerabilities of the presidency and on the style and politics of the current president. Prereq: P SC 1101. Cross-listed with P SC 5044.

P SC 4057-3. Religion and Politics. Explores: (1) the theoretical perspectives on the relationship between religion and politics, (2) the causes of and justifications for the historical development of the Western separation of "church" and state, (3) contemporary responses to and analyses of this separation and (4) several current debates about public policy in America that reveal tensions between these two spheres. Cross-listed with P SC 5057, RLST 4500

P SC 4074-3. Urban Politics. The crisis and the promise of U.S. cities. Nature and roots of critical urban problems. Citizen involvement in urban decision making. Government as problem and as solution.

P SC 4084-3. Local Government and Administration. Policy and administrative challenges faced by local government in the 21st century. Emphasis on cities under federalism, alternative forms of city governance and new challenges from increasingly diverse constituents. Issues of poverty, public safety, health, transportation, environment, corruption and accountability. Cross-listed with P SC 5084.

P SC 4085-3. Comparative Public Policy. Comparison of public policy making in such areas as health care, environment, family assistance and employment in the United States and at least two other countries. Prereq: graduate standing or permission of instructor. Cross-listed with P SC 5085.

P SC 4094-3. Seminar: American Politics. Foundations of U.S. politics and contemporary political issues. Federal/state/community relations. Relationship among the three branches of the Federal government. Colorado controversies arising under the U.S. Constitution. Cross-listed with P SC 5014.

P SC 4105-3. Comparative Politics: Europe. An intensive and comparative analysis of the political systems and processes of Europe. Emphasis on political culture and economy; executive-legislative relationships; electoral systems; political parties and interest groups; political conflict and citizen participation; and the impact of social changes on political institutions. Cross-listed with P SC 5105.

P SC 4114-3. Law, Policy and Conflict. Analysis and intensive discussion of how and where social conflicts are resolved privately, judicially and legislatively. Development of student theories of how such conflicts could best be resolved. Prereq: upper division standing or permission of instructor.

P SC 4115-3. Third World Politics. Examines the factors challenging political stability in low income nations and the prospects for democracy and economic development.

P SC 4124-3. Denver Politics. Surveys Denver's dominant political and economic forces and community agendas that compete with the downtown growth machine. Examines urban renewal strategies, gentrification and grass-roots resistance, and the role of officials in shaping Denver's distribution of wealth and life-opportunities.

P SC 4126-3. Introduction to International Political Economy. A short introduction to international economy, including classic readings of international political economy (such as Smith, Ricardo, Marx, Lenin) and more recent work on globalization, applying related theories to the current world economy.

P SC 4144-3. Indigenous Political Systems. Surveys political theory and practice in indigenous societies in the Americas. Examines the impact of indigenous political thought on Euro-American politics, especially the U.S. Constitution and explores the contemporary impact of indigenous people on current politics. Cross-listed with ETST 4144.

P SC 4146-3. Indigenous Politics. Surveys the status of the world's native peoples and nations and the role of law and politics in the future of indigenous peoples in the global arena. Examines questions of human rights, economic development and international law and politics. Prereq: P SC 1001. Cross-listed with P SC 5145 and ETST 4146.

P SC 4155-3. Political Systems of the Middle East and North Africa. Comparative analysis of political processes in the Middle East and North Africa. Islamic political theory and its contemporary manifestations. The role of nationalism and the quest for modernity in the political development of this region. Parties and programmed modernization in transitional politics. Violent and nonviolent change.

P SC 4156-3. The Arab-Israeli Peace Process. Critical analysis of Arab and Israeli perspectives on the on-going peace negotiations in the Middle East. Historical background and religious-cultural aspects of current problems. Prereq: Upper division standing. Cross-listed with ETST 4156.

P SC 4165-3. Islamic Politics and Culture. Comprehensive, in-depth study of Islam and Muslims. Islam is viewed as a "way of life" with social, economic, psychological, spiritual and political implications. Among topics to be examined are: women in Islam, Jihad, fundamentalism, Islamic movements, Islam and the West. Cross-listed with RLST 3100.

P SC 4175-3. Politics and Governments of the Pacific Rim. Examines the domestic governments and political economies of selected

Pacific Rim countries—especially Japan, Korea, Taiwan, China, Singapore and Malaysia—and of these countries involvement in the international political economy and U.S. foreign policy.

P SC 4185-3. Corruption in the U.S. and Abroad. Explores the causes and consequences of administrative and political corruption in developed and developing countries and evaluates various anti-corruption strategies. Prereq: P SC 1001 or 3022.

P SC 4186-3. East Asia in World Affairs. Political and economic systems and foreign policies of East Asian powers, such as China, Japan, Taiwan, South Korea and Hong Kong; interactions of these powers and their collective economic and political roles in world affairs; major theoretical approaches to the study of East Asian powers.

P SC 4206-3. Social Movements, NGOs and Global Politics. Examines global social movements and NGOs as new political actors within world politics; how international relations' theoretical perspectives have addressed these actors; and the forms of interaction between these actors and institutions of global governance. Cross-listed with P SC 5206.

P SC 4207-3. Theories of Social and Political Change. Conservative, radical and incremental approaches to change. Role of psychological and sociological factors in political change. Comparative perspectives on change. Self-perpetuation processes of power systems and their vulnerabilities. Requisites of system maintenance and system change. Selected case studies.

P SC 4215-3. Women's Rights, Human Rights: Global Perspectives. Explores the global feminist movement's campaign to "engender" human rights. Examination of women's human-rights issues and of the critique of this campaign as representing cultural imperialism. Prereq: six hours of political science or instructor permission.

P SC 4216-3. International Politics: Human Rights. The system of nation states, concepts of national interest, goals of foreign policies, conduct of diplomacy and the bearing of these elements on the problem of human rights. Presentation and evaluation of the solutions that have been offered for the securing of justice and the maintenance of peace.

P SC 4217-3. Human Rights in Theory and Practice. Explores the ideas of human rights and the practical efforts to actualize rights in society. Students study the theories of rights and the evolution of rights in history, as well as work with a service organization. Cross-listed with P SC 5217.

P SC 4225-3. Democracy and Democratization. Examines the conditions under which countries turn from authoritarianism towards democracy and become stable democratic regimes. Also examines the impact of foreign and international factors on new democracies. Cross-listed with P SC 5225.

P SC 4226-3. The United Nations in World Affairs. Current operation and future potential of the United Nations as a complex actor in world affairs, both expressing conflicting interests of its participants and promoting universal goals, including world peace, human rights and environmental protection. Model U.N. trip if funded.

P SC 4235-3. Politics and Markets in Latin America. Explores political economic development in Latin America within the context of the world system. Includes the study of colonization, land tenure, foreign investment, authoritarianism, militarism, social and revolutionary movements, human rights and democratization.

P SC 4236-3. American Foreign Policy. Examines the postwar events, controversies and most recent challenges in U.S. foreign policy. Analyses of the major sources of U.S. foreign policy, such as ideology, national interests and national power. Attention to the pattern and process of foreign policy-making.

P SC 4248-3. Gender and International Development. Examines interdisciplinary perspectives on gender and international development. Investigation of the costs and benefits to women of the processes of globalization. Cross-listed with P SC 5245.

P SC 4266-3. International Law. Investigates the body of law that regulates relations between nations and provides a framework for solving common problems and disputes between nations. Prereq: upper division political science major. Cross-listed with P SC 5266.

P SC 4274-3. Conflict Resolution and Public Consent Building. Alternative strategies for resolving or mediating conflicts facing public or nonprofit organizations and for building public consent, with emphasis on personal, interpersonal, organizational, interest-group, cross-cultural and roots of conflict and bases for consent. Cross-listed with P SC 5274.

P SC 4286-3. International Relations: War or Peace? Presents alternative theoretical frameworks for the explanation of war and peace. Investigations of the efficacy of international law, just-war norms and the UN in preventing or containing conflict. Prereq: P SC 1001. Cross-listed with P SC 5286.

P SC 4324-3. Politics, Public Policy and Leadership. Role of politics in public and nonprofit sectors. Theories of administration and policy-making, emphasizing the role of leadership in public outcomes. Hands-on approach to case studies and use of students' policy experiences in practical application of theories. Cross-listed with P SC 5324.

P SC 4326-3. Advanced International Political Economy: Globalization. Engages the current debate about globalization. Conceptualizes globalization and evaluates the pros and cons of global trade and finance for developed and developing countries. Develops a model for a sustainable and just global economy. Prereq: P SC 4126. Cross-listed with P SC 5326.

P SC 4354-3. Environmental Politics. Political, legal and economic forces in environmental law and policy. Special emphasis on air and water pollution and on threats to public and agricultural land. Environmental groups and their opponents.

P SC 4365-3. Global Ecological Crises. Overview of global ecological problems such as climate change, transboundary pollutions and loss of bio-diversity in an attempt to understand the political, economic and cultural forces behind these problems and the status of legal and policy initiatives to address them.

P SC 4374-3. Public Priorities for the 21st Century. Identification of and planning for social, political and economic trends in American society likely to transform governmental, nonprofit and private entities. Rigorous examination of and debate on competing priorities such as liberty, security, welfare, equality, diversity, growth and ecology. Cross-listed with P SC 5374.

P SC 4407-3. Early Political Thought. Main currents of political thought in their historical setting from Plato to Machiavelli, with a critical evaluation of those elements of continuing worth.

P SC 4414-3. Organizational Change Agents. Explores strategies for changing public and nonprofit organizations and of ways leadership abilities can be used for this purpose. Analysis of obstacles to organizational change and of methods for overcoming them. Principles of change applied to real-life contexts. Cross-listed with P SC 5514.

P SC 4417-3. Modern Political Thought. Main currents of political thought in their historical setting from the 17th century to the present. Development of the student's own political theory. P SC 4407 is not a prerequisite for P SC 4417.

P SC 4427-3. Law, Politics and Justice. Analysis of the relationship of politics, law and justice, particularly the degree to which moral norms and political concerns should and do influence legal standards and their perceived legitimacy.

P SC 4437-3. Coercion and the State. An analysis of: (1) the historical emergence of the modern state; (2) the theoretical justifications for the concentration of political power and the activist state; (3) the internationalization of the European state system; and (4) anarchist and Fourth World challenges.

P SC 4444-3. Contemporary Culture and Politics in America. Intellectual and experiential investigation of the interplay of culture and politics in American society, as manifested in literature, social and political philosophy, psychological writings and trends, radical movements, popular culture and daily behavior.

P SC 4446-3. Advanced Indigenous Peoples' Politics. Builds upon the theoretical and applied foundations of P SC 4146. Intensive study of international legal and political developments are examined, particularly in the United Nations and the Organization of American

States systems. Prereq: P SC 4144 or 4146 or permission of instructor. Cross-listed with P SC 5446.

P SC 4457-3. American Political Thought. American law, politics and conflict. History and development of American political theories and ideas from Native American roots through the colonial period to the present. Political theory and practice in the U.S. today.

P SC 4477-3. Constitutional Law I. Nature and scope of the following American constitutional principles as developed by the U.S. Supreme Court: federalism, jurisdiction of the federal courts, separation of powers, the taxing power and the commerce power. Case method.

P SC 4487-3. Constitutional Law II. Continuation of P SC 4477, with emphasis on the war powers of the president, citizenship, the Bill of Rights and the Civil War amendments. (Case method.) Note: P SC 4477 is not a prerequisite for P SC 4487.

P SC 4494-3. Judicial Politics. Examines principal actors in the legal system: police, lawyers, judges, citizens. About half of this course is devoted to the study of judicial behavior, especially at the Supreme Court level. Political and personal influences on judicial behavior.

P SC 4505-3. The Post-Soviet World: Origins and Present Condition. Central and East Europe, Russia and Central Asia, from earliest times to the present. Equal emphasis on economics, culture and politics.

Particular attention to recent developments in the former Soviet Union.

P SC 4545-3. Immigration Politics. Introduces students to central theories of migration and a survey of immigration law and policy in the 20th century. Highlights experiences of Mexican and Latin American immigrants and related topics, including: U.S. Mexican foreign relations, bilingual education, undocumented immigration and globalization.

P SC 4554-3. Chicano and Latino Politics. Analysis of the social, cultural and economic factors that affect political behavior of Latinos. Special attention is paid to the Mexican American cultural heritage and to relations between Mexican Americans and Anglo Americans. Cross-listed with ETST 4558.

P SC 4555-3. International Women's Resistance. Examines local and international struggles of women to build peace and justice by resisting systems of inequality such as colonialism, racism, patriarchy, globalization and religious intolerance. Cross-listed with P SC 5555 and ETST 4555.

P SC 4564-3. Gender and Politics. Analysis of the political experience of women and of strategies for change. Emphasis on the U.S.

P SC 4574-3. Children, Families and Politics. Critical analysis of rights, responsibilities and roles of children and adults in families and in society. Examination of strategies for empowerment of youth, families and communities. Studies the influence of electoral politics, legislative agendas, helping professions and controversies over parenting philosophies, birthing, feeding and socialization. Prereq: P SC 1001 or 1101 or permission of instructor.

P SC 4605-3. Politics and Governments of South Asia. Studies the political systems of India, Pakistan, Sri Lanka and Nepal. The impact of British rule on the development of political institutions on the subcontinent as well as problems of political development at all levels.

P SC 4615-3. Politics and Government of China. Political and governmental changes within China, from the 19th century to the present. Primary emphasis on contemporary political systems and sociopolitical problems. China's struggle for independence and economic development. The Chinese revolutions, Maoist communism and the post-Maoist period.

P SC 4644-3. Ethical Responsibilities of Leaders. Explores concepts of ethical decision making within the context of public leadership in both the public and nonprofit sectors. Universal and individual ethical standards are examined. Cross-listed with P SC 5644.

P SC 4645-3. Comparative Political Leadership. Comparative study of historical, socio-cultural and psychological bases of political leadership. Leadership types in peasant societies, empires and revolutionary movements. Dilemmas of democratic versus authoritarian leadership in modernizing and industrial states.

P SC 4726-3. Russian and Chinese Foreign Policy. Foreign policies of Russia and China; relations with Western powers and the Third World; interaction of domestic developments and foreign policy; role of national interest, ideology and elite personalities.

P SC 4736-3. The Middle East in World Affairs. Evolution and revolution in the Middle East. The character of nationalism in the area. Analysis of inter-regional and international problems affecting the Middle East, with special emphasis on current Arab-Israeli relations.

P SC 4757-3. Legal Reasoning and Writing. Introduces the fundamentals of legal reasoning and legal argumentation through intensive class discussion, formal debate and writing. Attention is given to the relationship between case and statutory law and their application in trial and appeals courts in the United States. Prereq: ENGL 1020, 2030 and any one 3000-level English/writing course or CMMU 3120. Cross-listed with P SC 5747, CMMU 4750, 5750.

P SC 4807-3. Revolution and Political Violence. Study, discussion and evaluation of alternative frameworks for the analysis of revolution and political violence. The theoretical material is firmly couched in case situations such as Western, class, colonial, urban, international, historical, racial, religious and intergenerational violence. The class develops its own theoretical model(s).

P SC 4827-3. Women and the Law. Examines the role of the courts in the development of public policy toward women; how the legal system affects the economic power, family roles, safety and political participation of women. Cross-listed with ETST 4827.

P SC 4837-3. Contemporary Issues in Civil Liberties. Conflicting rights of individuals and groups in several areas of civil liberties, including religious groups, free speech, sexual freedom, racial quotas and anti-governmental actions and publications. This course includes case law, readings, guest speakers and case discussions. Cross-listed with P SC 5837.

P SC 4840-1 to 3. Independent Study. An opportunity for advanced students with good scholastic records and with appropriate courses completed, to pursue independently the study of some subject of special interest to them. Subjects chosen and arrangements made to suit the needs of each student. Note: Primarily for seniors. Prereq: 15 semester hours in political science and permission of instructor.

P SC 4934-3. C U at the Capitol. Examines current year legislative session of Colorado General Assembly. Study of various elected leaders; Colorado party system; Governor-Assembly relations; citizen and lobbyist influence; corruption and virtue in politics; current affairs. Each student will be placed in a state government internship.

P SC 4995-1 to 3. Travel Study Topics. Students study various topics at an off-campus location, either a foreign country or another city or region in the United States, led by a Downtown Denver campus instructor. Prereq: P SC 1001 or 3022 or permission of instructor. Cross-listed with P SC 5995.

P SC 4996-3. The Middle East at Hand. Designed to provide students with an in-depth examination of the contemporary Palestinian, Jordanian and Israeli societies and thus allow students to enhance understanding of the connection between geographical and topographical features of the region and the politics of conflict and cooperation. Prereq: Good standing at the junior level or above and having had 3-6 hours in a CLAS major. Cross-listed with P SC 5996.

P SC 5000-3. State of the Discipline. Introduces graduate study in political science. Provides an overview of theories and methods in the four fields of American politics, political theory, comparative politics and international relations. Guest lectures by department faculty. Prereq: graduate standing or permission of instructor.

P SC 5007-3. Beyond Political Correctness. Explores and critiques "political correctness" defined as "ideological narrowing, intolerance and silencing of dissent." Analysis of origins, dynamics and consequences of PC with emphasis on its advantages and disadvantages for practitioners. Foundational works, illustrative cases and contemporary voices.

P SC 5008-3. Graduate Topics in Political Science.

P SC 5009-3. Politics of the Budgetary Process. Explores budgeting and financial management in the public and nonprofit sectors. An overview of public sector and nonprofit fiscal management is provided, along with thorough exploration of the political influences that affect financial decision-making. Note: offered as a special topics course in an intensive three-weekend format, which is reflected in the syllabus.

P SC 5013-3. Philosophical Problems in the Social Sciences.

Explores the fundamentals of the conduct of inquiry; concept formation and theory construction in the social sciences; issues related to value judgments and objectivity, social praxis, human nature and political choice. Cross-listed with S SC 5013.

P SC 5014-3. Seminar: American Politics. Foundations of U.S. politics and contemporary political issues. Federal/state/community relations. Relationship among the three branches of the Federal government. Colorado controversies arising under the U.S. Constitution. Cross-listed with P SC 4094.

P SC 5024-3. State Politics: Focus on Colorado. Analysis of unique aspects of Colorado government and politics. Political comparison of Colorado with other states. Preparation and discussion of research papers.

P SC 5025-3. Local Governance and Globalization. Introduces international political economy, consequences of globalization for localities, interplay between wealth and power among nations, multinational corporations, NGOs and the UN and impact of their actions on local governments. Topics include development, aid, trade, outsourcing, eco-sustainability and global equity. Prereq: graduate standing or permission of instructor. Cross-listed with P SC 4025.

P SC 5044-3. The Presidency. An overview of the historical, constitutional and functional aspects of the presidency. Focuses on the powers and vulnerabilities of the presidency and on the style and politics of the current president. Prereq: graduate status or permission of instructor. Cross-listed with P SC 4044.

P SC 5054-3. The Legislative Process. An intensive examination of the structures and interactions through which laws are made in the United States. The major emphasis is the national level, but considerable attention is devoted to state legislatures and local lawmaking bodies. Impact of money and interest groups.

P SC 5057-3. Religion and Politics. Exploration of: (1) the theoretical perspectives on the relationship between religion and politics, (2) the causes of and justifications for the historical development of the Western separation of "church" and state, (3) contemporary responses to and analyses of this separation and (4) several current debates about public policy in American that reveal tensions between these two spheres. Cross-listed with P SC 4057, RLST 4500.

P SC 5084-3. Local Government and Administration. Policy and administrative challenges faced by local government in the 21st Century. Emphasis on cities under federalism, alternative forms of city governance and new challenges from increasingly diverse constituents. Issues of poverty, public safety, health, transportation, environment, corruption and accountability. Cross-listed with P SC 4084.

P SC 5085-3. Comparative Public Policy. Comparison of public policy making in such areas as health care, environment, family assistance and employment in the United States and at least two other countries. Prereq: graduate standing or permission of instructor. Cross-listed with P SC 4085.

P SC 5094-3. Seminar: Urban Politics. An intensive analysis and research of major aspects of politics and government in metropolitan areas. Impact of corporations and higher levels of government on cities. Opportunities for and barriers to, citizen participation.

P SC 5105-3. Comparative Politics: Europe. Examination and writing of research papers on selected topics of industrial democracies, especially those of Europe. Cross-listed with P SC 4105.

P SC 5135-3. Seminar: Political Economy of Latin America. Focuses on the political economies and cultures of Latin America. Particular attention is given to the impact of the export-led growth strategy on social and political development.

P SC 5145-3. Indigenous Politics. Surveys the status of the world's native peoples and nations and the role of law and politics in the future of indigenous peoples in the global arena. Examines questions of human rights, economic development and international law and politics. Prereq: Graduate status or permission of instructor. Cross-listed with P SC 4146 and ETST 4146.

P SC 5206-3. Social Movements, NGOs and Global Politics. Examines global social movements and NGOs as new political actors within world

politics; how international relations' theoretical perspectives have addressed these actors; and the forms of interaction between these actors and institutions of global governance. Cross-listed with P SC 4206.

P SC 5216-3. Seminar: International Relations. Introduces contending theories, empirical studies and research methods in the field. Writing and discussion of comprehensive research papers in the field of international power politics and alternative attempts at controlling conflicts among nations.

P SC 5217-3. Human Rights in Theory and Practice. Explores the ideas of human rights and the practical efforts to actualize rights in society. Students study the theories of rights and the evolution of rights in history, as well as work with a service organization. Cross-listed with P SC 4217.

P SC 5225-3. Democracy and Democratization. Examines the conditions under which countries turn from authoritarianism towards democracy and become stable democratic regimes. Also examines the impact of foreign and international factors on new democracies. Cross-listed with P SC 4225.

P SC 5236-3. Seminar: American Foreign Policy. Examines selected methodological and substantive problems. Particular emphasis on elements of national decision making, America's adaptation to the changing world and opportunities for student contributions through research and discussion.

P SC 5245-3. Gender and International Development. Examines interdisciplinary perspectives on gender and international development. Investigation of the costs and benefits to women of the processes of globalization. Cross-listed with P SC 4248.

P SC 5256-3. Seminar: National Question and Self-Determination. Designed to provide students with a broad theoretical and empirical understanding of the causes of ethnic conflicts and to assess different strategies of conflict resolution.

P SC 5266-3. International Law. Investigates the body of law that regulates relations between nations and provides a framework for solving common problems and disputes between nations. Prereq: upper division political science major. Cross-listed with P SC 4266.

P SC 5274-3. Conflict Resolution and Public Consent Building. Alternative strategies for resolving or mediating conflicts facing public or nonprofit organizations and for building public consent, with emphasis on personal, interpersonal, organizational, interest-group, cross-cultural and roots of conflict and bases for consent. Cross-listed with P SC 4274.

P SC 5276-3. Conflicts and Rights in International Law. Explores specific case studies in international law, particularly the contending interpretations and practices regarding: (1) the collective right to self-determination and resulting intrastate and interstate conflicts; and (2) political, cultural and economic human rights and their implications for state policies.

P SC 5286-3. International Relations: War or Peace? Presents alternative theoretical frameworks for the explanation of war and peace. Investigations of the efficacy of international law, just-war norms and the UN in preventing or containing conflict. Prereq: graduate status or permission of instructor. Cross-listed with P SC 4286.

P SC 5324-3. Politics, Public Policy and Leadership. Role of politics in public and nonprofit sectors. Theories of administration and policy-making, emphasizing the role of leadership in public outcomes. Hands-on approach to case studies and use of students' policy experiences in practical application of theories. Cross-listed with P SC 4324.

P SC 5326-3. Advanced International Political Economy: Globalization. Engages the current debate about globalization. Conceptualizes globalization and evaluates the pros and cons of global trade and finance for developed and developing countries. Develops a model for a sustainable and just global economy. Cross-listed with P SC 4326.

P SC 5354-3. Seminar: Environmental Politics and Policy. Consideration of competing models of the policy process in natural-resources decision making. Focus on selected case studies. Impact of environmental and pro-growth forces on the political process.

P SC 5374-3. Public Priorities for the 21st Century. Identification of and planning for social, political, and economic trends in American society likely to transform governmental, nonprofit and private entities. Rigorous examination of and debate on competing priorities such as liberty, security, welfare, equality, diversity, growth and ecology. Cross-listed with P SC 4374.

PSC 5414-3. Organizational Change Agents. Explores of strategies for changing public and nonprofit organizations and of ways leadership abilities can be used for this purpose. Analysis of obstacles to organizational change and of methods for overcoming them. Principles of change applied to real-life contexts. Cross-listed with P SC 4414.

P SC 5417-3. Seminar: Practical Utopias. Explores of utopian theories applied in real-world experiments and political movements, including communes, worker cooperatives, neighborhood organizing and Green parties. One or more field trips and a final retreat during which the class will develop its own practical-utopian model(s).

P SC 5446-3. Advanced Indigenous Peoples' Politics. Builds upon the theoretical and applied foundations of P SC 4146. Intensive study of international legal and political developments are examined, particularly in the United Nations and the Organization of American States systems. Prereq: P SC 4144 or 4146 or permission of instructor. Cross-listed with P SC 4446.

P SC 5457-3. Seminar: American Political Thought. An intensive research in and presentation of competing ideas in the development of American political thought and practice, beginning with those of the Iroquois Confederacy and the founders of the United States Constitution.

P SC 5468-3. Research Methods in Political Science. Analysis and evaluation of research methods, techniques and empirical materials in political science application to Internet research.

P SC 5477-3. The U.S. Constitution: Law and Politics. An intensive analysis of the most recent doctrinal developments in the areas of federal jurisdiction, federalism, separation of powers, commerce, taxing and war powers, civil liberties and civil rights. Prereq: P SC 4477 or 4487 or permission of instructor.

P SC 5545-3. Immigration Politics. Introduces students to central theories of migration and a survey of immigration law and policy in the 20th century. Highlights experiences of Mexican and Latin American immigrants and related topics, including U.S. - Mexican foreign relations, bilingual education, undocumented immigration and globalization.

P SC 5555-3. International Women's Resistance. Examines local and international struggles of women to build peace and justice by resisting systems of inequality such as colonialism, racism, patriarchy, globalization and religious intolerance. Prereq: Graduate status or permission of instructor. Cross-listed with P SC 4555 and ETST 4555.

P SC 5615-3. Seminar: Chinese Development. Discussion of readings about China. Analysis of several of the following: party-government relations, ideology and political behavior, leadership, diplomacy, political and economic development and post-Mao reforms.

P SC 5644-3. Ethical Responsibilities of Leaders. Explores concepts of ethical decision making within the context of public leadership in both the public and nonprofit sectors. Universal and individual ethical standards are examined. Cross-listed with P SC 4644.

P SC 5726-3. Seminar on U.S. and China Relations. Detailed examination of historical context and current issues in U.S./China relations. Emphasis on post-1949 period, with particular attention to post-1978 relations and issues. Prereq: graduate status or permission of instructor.

P SC 5747-3. Legal Reasoning and Writing. Introduces the fundamentals of legal reasoning and legal argumentation through intensive class discussion, formal debate and writing. Attention is given to the relationship between case and statutory law and their application in trial and appeals courts in the United States. Cross-listed with P SC 4757, CMMU 4750, 5750.

P SC 5807-3. Seminar: Conflict Behavior and the Politics of Violence. Theoretical and empirical analysis of conflict behavior with special emphasis on the explanation of political violence. Revolution, international warfare and urban unrest are studied as forms of political

violence and the role of systematic empirical research is emphasized in the development of general theories of intergroup conflict.

P SC 5827-3. Seminar: Political Psychology. Role of personality variables in political attitudes, behavior and system maintenance and change; human nature as a parameter; political relevance of psychoanalytic, behaviorist, humanistic and social psychology; alienation, ethnocentrism, dogmatism and aggression as political variables. Prereq: political science or psychology background.

P SC 5830-3. Grant Writing for Nonprofits. Designed to help current and future professionals in the nonprofit sector understand the social, political, and economic context and mechanics of pursuing grants, government contracts and other funding for nonprofit organizations. Cross-listed with S SC 5830.

P SC 5837-3. Contemporary Issues in Civil Liberties. Conflicting rights of individuals and groups in several areas of civil liberties, including religious groups, free speech, sexual freedom, racial quotas and anti-governmental actions and publications. This course includes case law, readings, guest speakers and case discussions. Cross-listed with P SC 4837.

P SC 5840-1 to 3. Independent Study.

P SC 5914-3. Community Development. The theory and practice of community-sensitive development. Global forces challenge communities, alternatively, with floods and droughts of international capital. By collaborating with a nonprofit community-based organization, this class examines how communities develop progressive methods of engaging global forces. Prereq: graduate standing or permission of instructor.

P SC 5939-1 to 6. Cooperative Education.

P SC 5950-1 to 6. Master's Thesis.

P SC 5960-1 to 3. Master's Project.

P SC 5995-1 to 3. Travel Study Topics. Students study various topics at an off-campus location, either a foreign country or another city or region in the United States, led by a Downtown Denver campus instructor. Prereq: P SC 1001 or 3022 or permission of instructor. Cross-listed with P SC 4995.

P SC 5996-3. The Middle East at Hand. Designed to provide students with an in-depth examination of the contemporary Palestinian, Jordanian and Israeli societies and thus allow students to enhance understanding of the connection between geographical and topographical features of the region and the politics of conflict and cooperation. Prereq: Good standing at the junior level or above and having had 3-6 hours in a CLAS major. Cross-listed with P SC 4996.

P SC 6840-1 to 3. Independent Study.

PSY: Psychology (Liberal Arts & Sciences)

PSY 1000-3. Introduction to Psychology I: GT-SS3. Introduces the scientific study of behavior, including an overview of the biological basis of behavior, sensation or perception, states of consciousness, learning and memory, thinking and language, intelligence, motivation and emotion.

PSY 1005-3. Introduction to Psychology II: GT-SS3. Introduces the scientific study of behavior, including an overview of the history of psychology, development, personality, psychological disorders, therapy, health psychology and social behavior. PSY 1000 is not a prerequisite for this course.

PSY 1111-1 to 3. Freshman Seminar.

PSY 2050-2. Improving Memory. Applies psychological principles of memory function and process to everyday settings and experiences. Covers topics such as how memory works, principles of memory improvement and strategies for effective learning.

PSY 2060-3. Psychology Applied to Everyday Life. A primer in psychological principles applied to everyday situations. Covers topics such as learning, stress and health, attraction and love and personality.

PSY 2090-4. Statistics and Research Methods. Introduces statistics and research methods in the field of psychology. Note: Intended for those who plan to major in psychology. Completion of college algebra or equivalent is recommended. Prereq: PSY 1000.

PSY 2220-3. Biological Basis of Behavior: GT-SC2. Introduces the biological basis of behavior. This course will feature concepts

like neurons, synaptic and hormonal transmission and physiological set-points. Behavior of simple (invertebrate) and complex organisms (vertebrates) will be related to the activity of specific brain neural networks. Prereq: PSY 1000 or BIOL 2051.

PSY 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

PSY 2990-1 to 3. Topics in Psychology. Studies special topics to be selected by the instructor. Note: May be repeated for credit.

PSY 3090-3. Research Methods in Experimental Psychology.

Principles of experimental methodology, data collection, interpretation and presentation of results, evaluation of scientific literature, scientific writing and advanced statistical concepts. Note: Strongly recommended for students who wish to pursue a career in research or professional psychology. Prereq: PSY 1000, 1005 and 2090.

PSY 3091-1. Laboratory in Experimental Psychology. Exercises in several areas of experimental psychology are prepared, performed and reported. Considerable statistical content. Note: Laboratory exercises corresponding to topics in PSY 3090. Prereq: must be taken concurrently with PSY 3090.

PSY 3135-3. Organizational Psychology. Surveys the behavior of individuals in organizations. Topics include leadership and motivation theories; group dynamics; measuring, understanding and explaining job attitudes; analyzing and designing jobs; training and organizational development. Prereq: PSY 1000, 1005 and 2090 or permission of instructor.

PSY 3205-3. Human Development I: Child Psychology. Studies human development covering birth, infancy, toddler, preschool and school-aged child. Covers biological, cognitive and social processes. Prereq: PSY 1000 or 1005.

PSY 3215-3. Human Development II: Adolescence and Adulthood. Study of human development from adolescence through adulthood and aging. Covers biological, cognitive and social processes. Prereq: PSY 1000 or 1005.

PSY 3222-3. Principles of Learning and Behavior. Introduces the scientific study of learning and behavior, focusing on "Behaviorism." Principles of operant and classical conditioning are discussed. A particular emphasis is placed on the relevance and application of these principles to understanding human behavior and psychopathology. Prereq: PSY 1000.

PSY 3235-3. Human Sexuality. Examines the physiological, psychological and social psychological bases of human sexuality. Research on the range of sexual behaviors, individual sexual response, sexual development, sexual dysfunction and variants of sexual orientation. Prereq: PSY 1000, 1005 and 2090, or permission of instructor.

PSY 3254-3. Introduction to Animal Behavior. Surveys the behavior of nonhuman animals, emphasizing the evolution through natural selection. Prereq: One semester of general biology, biological anthropology, or other course emphasizing evolutionary perspective. Cross-listed with BIOL 3254.

PSY 3262-3. Health Psychology. An overview of the scientific study of attitudes, behaviors and personality variables related to health and illness. Emphasis is on the interaction of biological, psychological and social factors that cause illness and influence its treatment and prevention. Prereq: PSY 1000, 2090 and 2220 or permission of instructor.

PSY 3263-3. Hormones and Behavior. The hormonal regulation of behavior will be the primary focus of this course. Topics include: hormonal basis of sexual differentiation and behavioral differences, parental behavior, biological rhythms, aggression, mood and stress. Prereq: PSY 1000, 2090 and 2220 or permission of instructor.

PSY 3265-3. Drugs, Brain and Behavior. Explores the pharmacological, biological and behavioral basis of drug effects. Topics include mechanisms of drug action, brain reward pathways, role of environment and history on drug effects and the impact of science on drug abuse and medication development. Prereq: PSY 1000, 2090 and 2220 or permission of instructor.

PSY 3305-3. Abnormal Psychology. Borderline disorders as extreme variations of the normal personality. Major functional and organic

disorders. Theories of mental disorders and methods of psychotherapy. Prereq: PSY 1000.

PSY 3405-3. Family Psychology. Overview of theory and research pertaining to marital and family structure, functioning and dynamics. Prereq: PSY 1005.

PSY 3505-3. Psychology and the Law. Examines the legal and extralegal applications of psychology, such as assessment of insanity and competence, psychologists as expert witnesses, accuracy of eyewitness accounts and issues relating to employment discrimination. Prereq: PSY 1000, 1005 and 2090 or permission of instructor.

PSY 3600-1 to 3. Topics in Psychology. Studies special topics to be selected by the instructor. Note: May be repeated for credit.

PSY 3610-3. Psychological Trauma. Overview of psychological trauma, including: history, theoretical application, trauma models, diagnosis and treatment implications. Topics include family violence, child abuse, sexual abuse and the trauma of war. Prereq: PSY 1000, 1005 and 2090 or permission of instructor.

PSY 3611-3. Psychology of Women. Reviews psychological theories and research of women's social, cultural, emotional and behavioral experience. Examines the sociocultural context of women's experience and explores women's socialization, developmental issues, cognitive abilities and achievement motivation, personality variables, stereotypes, psychological disorders, victimization, intimacy and sexuality. Prereq: PSY 1000, 1005 and 2090 or permission of instructor.

PSY 3612-3. Domestic Abuse. Examines the nature and extent of domestic violence. Personal characteristics and dynamics that contribute to spouse abuse are reviewed. Theories and research in the general field of family violence, victims' and perpetrators' treatment and child abuse are discussed. Prereq: PSY 1000, 1005 and 2090 or permission of instructor.

PSY 3724-3. Developmental Psychobiology. Explores the biological influences on the development of brain and behavior. Emphasis is on the evolution and development, the role of experience in prenatal and postnatal development, the ontogeny of sensory systems, learning and memory and the biological bases of language acquisition. Prereq: PSY 1000/1005 or BIOL 2051/2061.

PSY 3810-3. Neuropsychology. Brain organization and function and its relationship to human memory, language, perception and other cognitive abilities. Covers the application of clinical neuropsychology to working with individuals that have neurological disorders. Prereq: PSY 1000 and 2220 or permission of instructor.

PSY 3822-3. Aging, Brain and Behavior. Examines the aging process, behavioral changes during senescence and the accompanying changes in the aged brain. Changes that are part of healthy aging are studied, as will age-related brain disorders. Prereq: PSY 1000, 2090 and 2220 or permission of instructor.

PSY 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: junior standing, completion of minimum of 12 hours in psychology with minimum grade of 'C'.

PSY 4054-3. Behavioral Neuroscience. The morphological, neurochemical and physiological bases of behavior. Emphasis is on structure and function of the brain. Prereq: PSY 1000, 2090 and 2220 or permission of instructor.

PSY 4101-3. Applied Statistics Using SAS and SPSS I. Teaches the practical statistical tools social scientists use to analyze real-world problems. It is split into four modules, each taught by a different instructor. The first module introduces SAS and SPSS; modules 2-4 are problem-based and cover topics such as ANOVA, multivariate regression and cluster analysis. Prereq: any statistics course.

PSY 4102-3. Applied Statistics Using SAS and SPSS II. Students use the skills they learned in the previous semester to analyze a social issues of their choosing and present their findings. Note: A continuation of PSY 4101. In addition to lectures, weekly one-on-one meetings between faculty and students are required. Prereq: PSY 4101.

PSY 4104-3. Behavioral Genetics. Interdisciplinary course on relationships between behavior and heredity, with emphasis on human

behavioral genetics. Prereq: General biology or general psychology. Cross-listed with BIOL 4104.

PSY 4144-3. Human Cognition. Studies information processing in humans, with emphasis on memory, thinking and language. Prereq: PSY 1000.

PSY 4164-3. Psychology of Perception. Studies sensory processes and perceptual variables. Covers processes related to vision, audition, gustation and olfaction. Prereq: PSY 1000, 2090 and 2220 or permission of instructor.

PSY 4415-3. Experimental Social Psychology. Readings and lectures focused on the formulation of researchable problems in social psychology. Prereq: PSY 1000 and 1005.

PSY 4455-3. Theories of Personality. An in-depth look at several major theories of personality, including those from psychodynamic, behavioral and humanistic schools of thought. Students are required to think actively and abstractly and communicate their ideas in papers and classroom contributions. Prereq: PSY 1000, 1005 and 2090 or permission of instructor.

PSY 4485-3. Psychology of Cultural Diversity. Studies diversity in the development of the individual across Asian, Black, Hispanic and Native American cultures. The experience of self, role of the family, expression of emotions and psychology of prejudice are emphasized. Prereq: six semester hours of psychology, sociology and/or anthropology in any combination.

PSY 4500-3. Psychotherapy. Overview of the major systems of psychotherapy, including psychoanalysis, person-centered therapy, family therapy, cognitive or behavioral approaches and relationships among the various approaches. Prereq: 12 hours in psychology, including PSY 1005 and 2090.

PSY 4511-3. History of Psychology. Development of psychological theories since 500 B.C. Schools of psychology and their adherents. Readings of primary and secondary sources. Prereq: PSY 1000 and 1005.

PSY 4645-3. Industrial Psychology. Surveys the field of industrial psychology. Organizational structure, communication networks, personnel selection, training, stress and human relations are examined. Prereq: PSY 1000, 1005 and 2090 or permission of instructor.

PSY 4730-3. Clinical Psychology: Ethics and Issues. An in-depth exploration of the values and ideas that guide professional practice in psychology, including professional codes of conduct and philosophical ethical principles. Topics include confidentiality, informed consent, competence, integrity and respect. Prereq: 12 hours in psychology, including PSY 1005 and 2090.

PSY 4803-3. Principles of Psychological Testing. Principles underlying construction, validation and use of tests of ability, intelligence and personality and of attitude surveys. Covers statistical topics such as content and construct validity, item analysis and reliability analysis. Prereq: a prior course in statistics. Cross-listed with PSY 5803.

PSY 4840-1 to 3. Independent Study. Prereq: permission of instructor.

PSY 4990-1 to 3. Topics in Psychology. Advanced study of special topics to be selected by the instructor. May be repeated for credit. Prereq: permission of instructor. Cross-listed with PSY 5990.

PSY 5360-3. Introduction to Psychotherapy. Surveys some of the major schools of psychotherapy, including psychodynamic, cognitive-behavioral and family systems. Coverage also includes therapy techniques, process of therapy and treatment-outcome research. Prereq: permission of instructor.

PSY 5713-3. Advanced Statistical Methods. Experimental design and analysis of controlled interventions and evaluations. Emphasis on multifactor analysis of variance, orthogonal contrasts, post-hoc tests, multiple regression and analysis of co-variance. Prereq: admission to the graduate program.

PSY 5730-3. Clinical Psychology: Ethics and Issues. An in-depth exploration of the values and ethical ideas that guide professional practice in psychology, including philosophical ethical principles and professional codes of conduct. Specific topics include confidentiality, informed consent, competence and respect for persons. Students are expected to be able to think about and communicate difficult ethical

concepts in the form of class participation and a major paper. Prereq: permission of instructor.

PSY 5803-3. Principles of Psychological Testing. Principles underlying construction, validation and use of tests of ability, intelligence and personality and of attitude surveys. Covers statistical topics such as content and construct validity, item analysis and reliability analysis. Prereq: admission to psychology graduate program. Cross-listed with PSY 4803.

PSY 5830-3. Clinical Interviewing. Students practice interviewing and develop skills, including the ability to listen actively, to critique their own work and the work of others, to think carefully about issues that arise in clinical work with clients. Note: Limited to students who are admitted to the graduate program in psychology. Prereq: permission of instructor.

PSY 5840-1 to 3. Independent Study.

PSY 5939-1 to 6. Internship/Cooperative Education.

PSY 5990-1 to 3. Topics in Psychology. Advanced study of special topics to be selected by the instructor. Note: May be repeated for credit. Prereq: permission of instructor. Cross-listed with PSY 4990.

PSY 6200-3. Child Psychopathology. Diagnostic theory and practice regarding childhood mental disorders. Students study etiology of disorders, diagnostic schemes, differential diagnoses and basic treatment methods. Prereq: master's student in clinical psychology.

PSY 6400-3. Child Assessment. Psychometric theory and practice in assessment of children with focus on the diagnostics, the WISC-III and personality assessment. Prereq: permission of instructor.

PSY 6420-3. Adult Assessment. Psychometric theory and practice in assessment of adults, with a focus on diagnostics, intelligence and personality assessment and report writing. Prereq: permission of instructor.

PSY 6500-3. Advanced Psychopathology. Covers diagnosis, etiology and treatment of the major mental disorders using a bio-psycho-social framework. Attention will also be given to experimental approaches to psychopathology. Prereq: permission of instructor.

PSY 6710-3. Multivariate Statistics. Topics include canonical analysis, discriminate function analysis and multiple regression. Prereq: admission to graduate program in psychology.

PSY 6840-1 to 3. Independent Study. A structured experience, planned and implemented with the assistance of a sponsoring faculty member in ongoing programs of research or other scholarly activity. Prereq: admission to the graduate program in psychology.

PSY 6910-3. Research Practicum.

PSY 6930-4 to 8. Psychology Internship. Half- or full-time placement in a setting which provides supervision by qualified professionals. Students participate in screening, diagnosis, therapeutic intervention and/or evaluation and research. Prereq: completion of 24 hours of course work in the CU-Denver graduate program in psychology.

PSY 6950-1 to 6. Master's Thesis.

Public Administration: P AD (Public Affairs)

Religious Studies: RLST (Liberal Arts and Sciences)

REM: Research and Evaluation Methodology (Education)

REM 5000-3. Orientation to Research and Measurement in Education. Provides an overview of the research process, various types of research and major concepts and techniques in educational measurement. The emphasis is on: (1) critiquing educational research studies; and (2) critiquing tests and other measures used in educational research as well as for other assessment purposes. A limited coverage of statistics and evaluation is included.

REM 5050-3. Assessment for Teachers. Provides teachers with a conceptual framework for developing new assessments of student learning and attitudes and for evaluating and selecting assessment instruments developed by others. Techniques of performance assessment and the use of portfolios in assessment are emphasized.

A variety of assessment purposes—and their particular uses in placement, grading, instructional planning and accountability—considered. Students design and administer portfolios and performance assessments; in addition, they read articles from leaders in the field.

REM 5080-3. Research for Teachers. Provides teachers with the competencies necessary for examining their professional experiences using formal and informal methods of inquiry. Teachers become more reflective practitioners who investigate questions that arise from their work in schools. The course also prepares teachers to critique published research in a thoughtful manner. The intended audience for the course is beginning and experienced P-12 teachers.

REM 5100-3. Basic Statistics. A first-level course on the use and interpretation of descriptive and inferential statistics. Topics covered include: frequency distributions, measures of central tendency and measures of variability; shapes of distributions; standard scores; scattergrams, correlation and regression; t-tests and analysis of variance.

REM 5200-3. Introduction to Research Methods. Examines the purposes of research, the methods and designs of quantitative and qualitative research and the processes involved in research studies. The methods of research examined include experimental designs, quasi-experimental designs, descriptive surveys, case studies, ethnographies and correlational designs. Designing a research study is a part of the course activities.

REM 5300-3. Introduction to Measurement. A first-level course that examines the nature and purpose of psychological measurement. Particular attention is paid to the concepts of reliability, validity, norms, interpretation of scores, response sets, fairness in testing and norm-referenced vs. criterion-referenced interpretation of scores. A variety of instruments that are used to measure human attributes and behaviors are studied.

REM 5350-3. Workshop in Instrument Development. Provides an opportunity to learn the art and technology of developing different measures in education. Students develop an instrument of their own design. Topics vary.

REM 5400-3. Introduction to Evaluation of Programs and Persons. Models and methods of evaluating programs and persons in education and related fields, such as business and nursing, are examined. Emphasis is given to the topics of formative and summative evaluation, frameworks for program evaluation, teacher evaluation, merit pay and the measurement and design problems associated with each topic.

REM 5800-1 to 4. Workshop: Topics in Research and Evaluation Methodology. Topics and credit hours vary from term to term. Often workshops address a current topic in research, evaluation, or measurement by considering its scholarly foundations and its application to schools and other educational settings.

REM 5840-1 to 4. Independent Study.

REM 5910-1 to 4. Practicum in Research and Evaluation Methodology. Supervised work in projects that provide experience in data analysis, research, measurement, or evaluation. Requires a minimum of 75, 150, 225, or 300 clock hours under supervision (for 1, 2, 3, or 4 credit hours, respectively).

REM 5920-1 to 3. Readings in Educational Statistics.

REM 5921-1 to 3. Readings in Educational Research.

REM 5923-1 to 3. Readings in Educational Measurement.

REM 5924-1 to 3. Readings in Program Evaluation.

REM 6050-3. Seminar in Assessment Policy Issues. Three public policy issues involving educational assessment are analyzed. The policy issues selected vary to reflect current policy debates. Sample issues are school accountability, grading and report cards, performance-based graduation standards, classification of students as having special needs, merit pay for teachers and retaining students in grade. Each analysis examines (a) policy history; (b) value assumptions and constituency interests; (c) validity of assessment procedures; and (d) consequences of policy alternatives. Prereq: REM 5000, 5050 or 5300 (or another introductory course in educational measurement or assessment).

REM 6100-3. Methods of Qualitative Inquiry. Prepares graduate students to conduct field research employing qualitative methods and

perspectives. Students become familiar with evolving theoretical and methodological perspectives in qualitative research drawn from anthropology, clinical psychology, sociology and education. Students apply techniques of qualitative data collections and analysis in a pilot investigation. Prereq: REM 5000 or 5200 (or equivalent).

REM 7050-3. Methods of Survey Research. Covers the purposes and methods of survey research. Topics included are: goals and uses of survey research, data collection methods, questionnaire and interview protocol design, reliability and validity of data collection methods, sampling, ways to reduce error in data collection and sampling, data analysis techniques commonly used in survey research studies, interpreting and reporting results and ethical issues. Students design and conduct a survey as part of the course requirements. Prereq: REM 5100, 5200 or EDLI 7000 (or their equivalents, as determined by the course instructor).

REM 7100-3. Advanced Methods of Qualitative Inquiry. An advanced seminar directed at individuals who have completed an introductory course in methods of qualitative research. Topics included are qualitative data collection, data analysis and writing about data. Students collect and analyze data. Prereq: REM 6100 or equivalent.

REM 7110-3. Intermediate Statistics. Continuation of REM 5100, covering more advanced methods of analyzing data, with an emphasis on the use and interpretation of descriptive and inferential techniques. Topics covered are one-way and two-way analysis of variance; power; multiple comparisons; factorial designs and factorial ANOVA; partial correlation, multiple correlation and regression; analysis of covariance; and selected use of packaged statistical programs (SPSS). Prereq: REM 5100 or equivalent.

REM 7120-3. Advanced Methods in Quantitative Inquiry and Measurement. Covers advanced topics in quantitative design and analysis, including advanced measurement topics. Topics include: specific types of design used in experimental, quasi-experimental, correlational and survey research; multivariate ANOVA, ANCOVA and MRC; factor and trend analyses; classical test theory; and IRT approaches. Students analyze their own data using techniques presented in the course. Prereq: REM 5000/5200 and REM 7110 or permission of instructor.

REM 7240-1 to 6. Patterned Inquiry for Educational Administrators. This seminar provides students with a conceptual and practical basis for conducting and evaluating educational research. Its focus is on the application of research to problems of administrative practice. The seminar is also intended to prepare students for dissertation research. Prereq: REM 7110.

REM 7500-1 to 6. Special Topics in Research and Evaluation Methods. Specific topics vary from semester to semester.

RLST: Religious Studies (Liberal Arts and Sciences)

RLST 1610-3. Introduction to Religious Studies:GT-AH3. Religion is a complex phenomenon which involves social norms, beliefs and fears and overarching world view. Religious experiences are among the most profound an individual can have. The course examines religious phenomena from various perspectives, including historical, psychological, anthropological, political, sociological, the symbolic and ritual.

RLST 2660-3. World Religions: GT-AH3. Provides an introduction to the basic beliefs and concepts of the world's great religious traditions. Covers the history, development, belief patterns and institutional forms of the world's religions, including Judaism, Zoroastrianism, Islam, Christianity, Hinduism, Buddhism, Confucianism, Taoism and Shintoism.

RLST 2680-3. The American Indian Experience. Surveys the relationships between Indian and non-Indian peoples, particularly in the context of the unique interaction between tribes and the federal government. Cross-listed with ETST 2606.

RLST 2700-3. The Bible As Literature. Introduces students to biblical literature. Selections from the various genres of writing in Hebrew (history, wisdom, prophecy, literature) are read and discussed, as well as representative sections from the New Testament, including the gospels and the writings of Paul. Cross-listed with ENGL 2520.

RLST 3000-3. Judaism and Christianity: Affinity and Difference.

Provides a foundation for understanding key concepts and beliefs of these two great Western religious traditions. Though they are interrelated, there is much in Christianity that is unrecognizable from a Jewish perspective and vice-versa. Much is assumed by each group about the other without being grounded in fact. This course will fill in the gaps for each side.

RLST 3060-3. History of Early Christianity. History of the rise of Christianity and the decline of paganism in the Roman Empire from the birth of Jesus of Nazareth to ca. 500 A.D. Special emphasis on social, historical, legal and cultural context of Christianity's rise and paganism's decline. Cross-listed with HIST 4017, 5017.

RLST 3080-3. Reformation Europe. Between the early 16th and the middle 17th centuries, Europe was torn by explosive ideological conflicts, resulting in religious upheaval, political revolution and civil and international wars, but also underwent important experiments in representative government and economic controls. Cross-listed with HIST 4022, 5022.

RLST 3100-3. Islamic Politics and Culture. Comprehensive, in-depth study of Islam and Muslims. Islam is viewed as a "way of life" with social, economic, psychological, spiritual and political implications. Among topics to be examined are: women in Islam, Jihad, fundamentalism, Islamic movements, Islam and the West. Cross-listed with P SC 4165.

RLST 3160-3. The Islamic World. Examines the Islamic world in broader global terms and the development of Islam, not just in the Middle East, but throughout Asia and northern Africa, from the 7th century to the present, with special emphasis on Islam in both the religious and cultural senses. Cross-listed with HIST 4460, 5460.

RLST 3300-3. Shamanic Traditions. Explores shamanic religious traditions across the world. This form of religion, involving spiritism, animism, trance states and "mind power," is the oldest and most widespread religion in world history. Covers the "Shramana" disciplines of India, probable source for the name "shamanism;" then Tibet, Central Asia, Korea, China, Japan, Australia; then the Pacific island, Native American and traditional African cultures.

RLST 3400-3. Asian Philosophies and Religions. We in the Western world encounter a vastly different world, a radically different "universe of meaning," when we examine the traditions of the East. Even what we tacitly assume to be "real" is claimed by the Hindus and Buddhists of India to be a grand illusion. The world of China is, again, very different from India. An examination of Tibetan and Japanese religious forms will conclude our study of Asian thought. Cross-listed with PHIL 3666.

RLST 3500-3. Religions of India. Examines the transcendentalist philosophy of India, which rests at the foundation of the great Eastern religious traditions of Hinduism and Buddhism. The Indian ideas of God, the soul, time, the nature of the universe and its ultimate goal are examined.

RLST 3660-3. Chinese Philosophy. China is a fascinating world with its own characteristic orientation to philosophical questions. Chinese thinkers produced the "Flowering of a Hundred Schools of Thought" in the Axial Age, the same period of time in which philosophy was coming to birth in ancient Greece. Covers some of the Chinese schools, including Confucianism, Taoism, Mohism, Legalism, Chinese "logic" and the later schools of Neo-Confucianism, Neo-Taoism and Chinese Buddhism. Cross-listed with PHIL 3981.

RLST 3720-3. Religious Narratives. Investigates the language and structure of religious discourse in Western literature. Welcomes interdisciplinary and comparative perspectives with a focus on cultural constructions of the sacred. Cross-listed with ENGL 3520.

RLST 3740-3. Biblical Traditions: Old Testament. Investigates the history and nature of the Biblical text. Follows the tradition of critical scholarship beginning in the Enlightenment era and continued down to the present day, sometimes entitled "Secular Humanism." Topics include theories of authorship of the Torah, its general nature and content; the historical books of the Bible, the Prophets and the Wisdom Literature.

RLST 3760-3. Biblical Studies: New Testament. Examines the books of the New Testament from a scholarly, historical-critical perspective,

which views it as a historically and culturally conditioned text, reflecting the beliefs and attitudes of the authors who produced it. The course covers the canonical gospels, letters and other writings of the New Testament.

RLST 3770-3. Archaeological Discoveries Relating to the Bible. Examines the revolutionary impact of archaeology on Biblical Studies. Among these discoveries, examines Egyptian, Mesopotamian and Canaanite texts, the Dead Sea Scrolls and the buried Gnostic texts.

Through these investigations the Bible will be placed in its appropriate historical, literary and cultural context.

RLST 4000-3. Religion and Cultural Diversity. Religion is one of the key elements which creates multiculturalism. This course explores issues in religion and religious identity in contemporary America, including Native American spiritual traditions, Jewish-American traditions, Muslim-American traditions, Asian-American traditions, the African-American Pentecostal movement and the growth of the Black Muslim movement. Attention is also given to the question of gender issues, as the traditional model for gender roles was formulated, in part, from a religious basis.

RLST 4010-3. Comparative Religious Systems. A cross-cultural analysis of religious belief and behavior. Emphasis is placed on religions found among non-Western cultural groups and includes consideration of how major religions of the world are manifested on local levels. Cross-listed with ANTH 4130 and 5130.

RLST 4020-3. Sociology of Religion. Sociological analysis of the place of religion in contemporary society. The course examines the various meanings of religion, the social psychological commitment to religion, the class association of religious groups. The issue of secularization is examined and placed in context. Cross-listed with SOC 4610, 5610.

RLST 4040-3. Psychology of Religion. Examines the theories developed by some of the great names in the field of psychology and their approaches to religion. Questions addressed include why people become religious, how religion functions in their lives, religious experience and assessment of the validity of religious claims. Key theorists studied will include: William James, Sigmund Freud, Carl G. Jung, Abraham Maslow and Erich Fromm.

RLST 4060-3. Philosophy of Religion. Nature of religion and methods of studying it. Cross-listed with PHIL 4600, 5600, HUM 5600, S SC 5600.

RLST 4070-3. Western Religious Thought. Focuses on philosophers and theologians who have contributed to the evolution of the three great religious traditions of the West: Judaism, Christianity and Islam. Targets thinkers from three periods: the ancient or formative era, the medieval era and the contemporary era. Note: Specific philosophers chosen may vary in different semesters. Cross-listed with PHIL 4710.

RLST 4080-3. Eastern Religious Thought. Parallels the course in Western religious thought. The great religious traditions of the East, including Hinduism, Buddhism, Confucianism and Taoism, are examined as they are presented in the writings of key philosophical representatives of each tradition. Cross-listed with PHIL 4720.

RLST 4100-3. Special Topics in Religion. This special topics course allows for a variety of subjects to be explored in different semesters, including such issues as the nature of religious experience, communication with the divine, specific historical themes and events in religion.

RLST 4160-3. Mysticism. Explores the mystical strains within the world's great religious traditions. Jewish, Christian and Islamic mystics did not always express the same beliefs and attitudes as mainstream adherents. When mystics are placed side-by-side, amazing similarities appear. One cannot always tell whether a given mystical statement is Hindu, Jewish, Sufi, or Christian. This class examines these mystical traditions, East and West.

RLST 4260-3. Kosmos: Theories of the Universe. A course in philosophical cosmology using material from the sciences, history and philosophy. The goal is to illuminate our present theories concerning the nature of the universe and the place of life within it. Cross-listed with PHIL 3420.

RLST 4280-3. Current Perspectives on the Evolution of Consciousness and Culture. Studies of evolution traditionally regard

morphology (anatomy)/behavior and mind/consciousness as separate fields that belong either in biology/paleontology or in psychology/philosophy. The “middle ground” behavior, anthropology, social systems, is also treated separately in most cases. Recent approaches tend toward a more holistic view using unifying principles and “laws of nature” that show similar processes (dissipative effects, information theory, development theory) operating across all fields. Examines the relationships and common threads between the physical anatomical evolution of organisms and their behavior perception and consciousness. Prereq: Introductory course in evolution (biology/paleontology), psychology, philosophy, anthropology, or permission of instructor. Cross-listed with GEOL 3100 and PHIL 3100.

RLST 4300-3. Myth and Symbol. Approaches the field of classical Greek mythology and religion from the perspective of Jungian archetypal theory. The deities of the ancient Greeks are presented as archetypal patterns with universal correlates elsewhere in world religions. A foundation in C. G. Jung’s archetypal theory will be offered to ground the course material.

RLST 4320-3. Spirituality in the Modern World. Examines the issue of spiritual currents in the modern world. Joseph Campbell claimed that Western culture long ago lost an active sense of the sacred and that the traditional religions have not been the spiritual center for the vast majority of moderns for centuries. This class looks at the modern spiritual awakening in Shamanism, Eastern thought, the New Age movement, the men’s movement, paganism and goddess religion and the revival of traditional religious forms in recent decades. Prereq: RLST 4300.

RLST 4340-3. The Hero’s Journey. The myth of the hero’s journey serves as a metaphor for the vicissitudes life puts each of us through. The hero or her represents the ego-self who undertakes the journey—a grand adventure into the realm of the unknown—to seek the treasure. He or she is greatly transformed by the process, ultimately into the great self, who wins the boon to share with all humanity. Versions of the story are found all over the world, such as in the sagas of Gilgamesh, Odysseus, Psyche, King Arthur, Dorothy of Oz and Luke Skywalker from a galaxy far, far, away. Cross listed with ENGL 3530.

RLST 4360-3. Freudian and Jungian Perspectives in Dream Analysis. Focuses on the phenomenon of dreams in a way that differs distinctly from the traditional approach to the subject in the field of psychology. Throughout history, dreams have been regarded as prophetic, as the voice of the gods. These “spiritual” approaches to dreams are examined, as well as some major theorists on dreams, especially the work of Sigmund Freud and C. G. Jung.

RLST 4400-3. Differing Concepts of God. God, gods and goddesses have been imagined in many different modes, forms, aspects and guises throughout human history. This course investigate paleolithic models of God, the Great Goddess of the Neolithic era, the gods of mythological traditions, Biblical God, the abstract God of the philosophers, the God of the pantheists, the deists and the God of the mystics. Cross-listed with PHIL 3680.

RLST 4420-3. Goddess Traditions. Explores the many forms which goddesses have assumed through history, including the Neolithic Great Mother and her heiresses in the ancient Mediterranean cultures, such as: Isis, Ishtar, Demeter, Hecate, Aphrodite, Artemis, Athena and others and their parallels in India. Goddess traditions have encompassed a full spectrum from virgins to Great Mothers to dark underworld goddesses of death and destruction. This rich heritage will be the focus of the course.

RLST 4440-3. Concepts of the Soul. Asks the questions: What is the nature of the human being? What makes us “human?” Do humans have a “soul?” What is its nature? Is it different from the “spirit?” What is its ultimate fate? Examines the various theories put forward by philosophers of both Eastern and Western traditions. Cross-listed with PHIL 4470.

RLST 4460-3. Death and Concepts of Afterlife. Examines how the major religious traditions approach the issue of death. Where the Egyptians were fascinated by death, their Mesopotamian and Hebrew neighbors saw no kind of experience continuing after death. Concepts of the Final Judgment Day and the end of the world follow in Zoroastrianism, Christianity and Islam, while Indian religions

developed a sophisticated theory of reincarnation and the “art of dying.” Finally, we will turn to Chinese belief in ancestral spirits.

RLST 4480-3. Perspectives on Good and Evil. Examines the “problem of evil.” As formulated in the philosophical tradition: if the deity is understood as perfect, then why is there evil? How can a perfect entity create imperfection? Why would an absolutely benevolent God cause or allow the innocent to suffer? Presents the classical formulation of the problem, the traditional solutions offered and the classical critiques of each answer. Considers the perspectives of the various religious orientations, each of which deals differently with the question of suffering. Cross-listed with PHIL 4480.

RLST 4500-3. Religion and Politics. Exploration of: (1) the theoretical perspectives on the relationship between religion and politics; (2) the causes of and justifications for the historical development of the Western separation of “church” and state; (3) contemporary responses to and analyses of this separation; and (4) several current debates about public policy in America that reveal tensions between these two spheres. Cross-listed with P SC 4057, 5057.

RLST 4730-3. Whores and Saints: Medieval Women. Studies how women are presented in texts, as well as works by women. Investigates the roles open to women and societal attitudes toward women, who were considered seductresses, saints, scholars and warriors in the Middle Ages. Cross-listed with ENGL 4510 and 5510.

RLST 4840-1 to 3. Independent Study. Various topics in religious studies pursued in independent research.

School Library: SL (Education)

School Psychology: SPSY (Education)

SECE: Secondary Education (Education)

SECE 5060-3. Improvement of Instruction. Designed to assist the educator in the systematic improvement of instruction. Emphasis is on emergent knowledge related to successful classroom practices, techniques of assessment, analysis and action related to the improvement of professional skills. Cross-listed with ELED 5060.

SECE 5170-3. Community and Interpersonal Relations. Provides an opportunity for pre-service teachers to develop communication and interpersonal skills that will enable them to facilitate positive student self-concept and interaction among professional educators, the community and social groups. Exposes students to the urban environment. Topics also include child abuse and its recognition. Cross-listed with ELEC 5170.

SECE 5180-3. Entomology For Teachers. Introduces teachers to the wonders of the insect world and explores methods for bringing that world into the primary and secondary classroom setting. Topics include insect biology, classification, behavior and ecology, cultural entomology and inquiry science techniques.

SECE 5200-3. Classroom Management. Instructional management, physical management and behavior management are studied as interactive components in the establishment and maintenance of an effective learning environment. Cross-listed with ELED 5200.

SECE 5210-3. Models of Teaching. Emphasis on learning, refining, analyzing and redesigning various teaching models, including: inquiry, concept attainment, role playing, cooperative learning and advance organizers. Students are assigned to small groups for purposes of planning and teaching lessons designed around various models under examination. Cross-listed with ELEC 5210.

SECE 5300-3. Introductory Curriculum and Methods in Secondary Mathematics. Surveys secondary mathematics curriculum and methods for pre-service teachers. Topics include planning lessons, motivation, grading, constructing tests, problem solving, teaching aids, expository and discovery lessons, teaching concepts, procedures and problem solving.

SECE 5350-3. Issues and Problems in Science Education.

Recent developments in theory, curriculum, methods and materials in secondary science, examined for their contribution to the objectives of science education.

SECE 5360-3. Supervision of Science Curriculum. Workshop for supervisors of science in city school systems; basic content in science fields.

SECE 5400-3. Curriculum in Secondary Mathematics. Investigates curriculum in middle and high school mathematics, development, history and trends and pertinent research. Participants construct and share curriculum relevant to their interest.

SECE 5401-3. Assessment in Mathematics Education. Curriculum-based assessment covering nature of assessment and its relation to evaluation and grading; teacher-made assessments; validity and authentic assessment; techniques for assessing learning of mathematical concepts, procedures and problem solving. Emphasis on assessment practices of mathematics teachers.

SECE 5410-3. Advanced Methods and Strategies in Secondary Mathematics. An in-depth investigation of specific methods and strategies suitable for teaching mathematics for middle and senior high schools. Participants model and share various strategies, including the expository, collaborative discovery, laboratory and Socratic methods.

SECE 5411-3. Mathematics Education and Gender. Investigates gender-inclusive curriculum and teaching methods, equity and assessment, mathematical life histories, women in mathematics history, women's individual development and voice, single sex programs and gender differences.

SECE 5417-3. Structure of Rational Numbers. Emphasizes the use of multiple solution strategies to examine the structure of rational numbers. The assigned problems allow elementary and secondary teachers to investigate the mathematical notions of equivalence, properties, unitization, partitioning, ratios and proportionality. Prereq: teaching license or permission of instructor. Cross-listed with ELED 5417.

SECE 5418-3. Mathematical Modeling. Elementary and secondary teachers explore settings where mathematics is utilized in everyday activities. Teachers create mathematical models to describe events or situations in the world and use a variety of modeling strategies to solve problems. Prereq: teacher licensure or permission of instructor. Cross-listed with ELED 5418.

SECE 5419-3. Exploring the Structure of Geometry Using Technology. Develops elementary and secondary teachers' conceptual understanding of geometric properties and theorems through investigations on dynamic computer software. The software enhances and extends teachers' ability to solve complex problems by manipulating abstract ideas on the computer. Prereq: teaching license or permission of instructor. Cross-listed with ELED 5419.

SECE 5420-3. Teaching Mathematics to Low Achievers. Problems and characteristics of low achievers, motivation, attitudes, scaffolding with available materials, programs for low achievers, self-esteem, mathematics laboratory, activity approach to teaching mathematics. Appropriate for all grades.

SECE 5430-3. Teaching Aids in Mathematics Education. Examination, production and use of manipulative aids, audiovisual aids and other materials for teaching mathematics. Open to elementary and secondary teachers.

SECE 5440-3. Topics in Mathematics Education. An in-depth study of topics such as computers, testing, learning theory and mathematics laboratories. (May be repeated as topics vary.)

SECE 5460-3. Secondary Social Studies Methods and Curriculum Design. Recent developments in theory and materials in the social studies are examined and present practices are analyzed for their contribution to general goals of social studies education. Appropriate for secondary teachers and elementary teachers with a specialization in social studies.

SECE 5464-3. Teaching About Ethnicity, Race and Prejudice. Designed to introduce the nature of racial and ethnic groups, prejudice, discrimination and ethno violence. It also includes the teaching about these and related topics and deals with resolving problems of intergroup

relations in schools and institutional settings. Cross-listed with ELED 5464.

SECE 5465-3. Teaching Critical Issues in Social Studies: An Interdisciplinary Approach. An in-depth study of critical social issues related to global or international; ethnicity, race, gender and minorities; cross-cultural studies; and current societal problems. Requires an interdisciplinary approach and covers the structure of the social science disciplines. Prereq: a minimum of 24 semester hours in history and social sciences.

SECE 5480-3. Museum Studies in Paleontology. A practical laboratory-based course covering aspects of museum studies related to paleontological collections. Students learn how to stabilize and prepare bones removed from fossil quarries. They learn molding and casting techniques for bones and fossils. Students also assist with the cataloging and curation of the collection and participate in designing museum displays. Prereq: at least one science class. Cross-listed with GEOL 3415, ELED 5480.

SECE 5490-3. Middle School Curriculum. Explores the unique curriculum requirements of transient youth. Topics to be addressed include team teaching, interdisciplinary curricula, flexible flexible scheduling, basic skills development, guidance function, fine arts, practical arts, industrial arts, career education, teaching strategies and management techniques. Cross-listed with ELED 5490.

SECE 5650-3. Environmental Education. Theory and practice of conservation education, which include use of resource personnel and the study of curricular and instructional development. Field experiences are incorporated. Primarily oriented to elementary and junior high school.

SECE 5660-3. Energy Education. Explores current energy problems. Students examine such topics as fuels from plants, fuels from wastes, fossil fuels, nuclear energy, wind energy, geothermal energy, solar energy and energy conservation. Included is a demonstration of available educational resources for grades K-12. The purpose of the course is to make technical aspects of energy accessible to the lay person. Cross-listed with ELED 5660.

SECE 5780-1 to 4. Storytelling. Explores the history, function, philosophy and techniques of storytelling. This class also includes collecting, selecting, preparing, developing and delivering stories. Research and resources are emphasized. Cross-listed with ELED 5780.

SECE 5800-5 to 4. Curriculum Workshop for Secondary Teachers. Opportunity to construct curriculum relevant to teachers' interests. Topics and credit hours vary.

SECE 5840-1 to 4. Independent Study.

SECE 5910-1 to 4. Advanced Practicum in Teaching. This course is not to be used as independent study, but is to be used by students approved in advance by the director of teacher education. This course fulfills the student teaching requirement for students seeking a second endorsement. Prereq: permission of instructor.

SECE 5920-1 to 4. Readings in Secondary Education.

SECE 5930-3. Internship in Secondary Education.

SECE 5950-1 to 8. Master's Thesis.

SECE 6100-3. Seminar in Secondary Education. Students work on individual topics and report orally and in writing. Prereq: permission of instructor.

SECE 6110-3. Curriculum Development and School Improvement. Places curriculum development in the historical, social and political context of educational change. Considers underlying concepts and assumptions, examines the implications of implementation theory and practice for school restructuring and professional development. Prereq: graduate student status.

SECE 6120-3. International Perspectives on the Curriculum. Considers schooling patterns in the U.S., the U.K., Japan, Australia and several European countries, examining different approaches to curriculum issues in relation to social, historical and economic factors. Prereq: FNDS 5500 or permission of instructor.

SECE 6840-1 to 4. Independent Study.

SECE 6910-3. Geology Field Study in Hawaii For Teachers.

Integrated summer field study course in Hawaii with emphasis on

science education. Topics include: structural geology/volcanism, marine biology or oceanography, botany, natural energy, astronomy and human interaction. Participants are involved in hands-on science activities utilizing the vast Hawaiian Island resources.

SECE 6950-4. Master's Thesis.

Secondary Education: SECE (Education)

SL: School Library (Education)

SL 6720-3. Practitioner-Based Research in School Libraries.

Analyze, evaluate and interpret published research conducted in library science. Provide an introduction to qualitative and quantitative data collection and data analysis measures. A school library practitioner-based action research project will be produced. Prereq: IT 5160/SL 5160.

SL 5110-2. Integrating Instructional Technology Practices in School Libraries.

Analyze instructional technology use in school library settings. Discuss current trends and issues related to the use of technology within schools. Emphasis integrating instructional technology that focuses on student achievement and the students' ability to use technology resources that promote critical thinking skills, information evaluation and dissemination skills.

SL 5160-3. Managing School Library Programs. Case studies in the organization and administration of school library and instructional leadership of programs and projects. Topics include project management, personnel administration, budget development, management philosophies, copyright and intellectual freedom. Prereq: SL 5530, 5110, 5120, 5130 and 5140.

SL 6999-3. Leadership and Practice in School Libraries. Designed to be the final class in the Master's in School Libraries Program, it is a reflective examination of the nature of contemporary leadership and practice the field and provide a structure and forum for the successful completion of the comprehensive portfolio. Prereq: SL 5530, 5110, 5020, 5160 and 6720.

SL 5020-3. Collection Development. Principles and practices for developing information collections to meet user needs. Includes selection, evaluation and policy and procedure development for all materials, including print, electronic technologies and multimedia. Prereq: SL 5530.

SL 5030-4. Information Literacy and Reference. Teaching, assessment, and integration of information literacy skills and educational technology standards with subject content areas. Reference collection development, policies and procedures, and use of and reference tools, including electronic resources. Emphasis is placed on standards-based collaborative planning and instruction with classroom teachers. Prereq: SL 5530, 5110 and 5020.

SL 5040-2. Information Storage and Utilization. Provides basic principles and practices of utilizing standard methods for organizing, accessing and storing information. Includes cataloging and classification in text-based and electronic systems.

SL 5530-2. Foundations of School Librarianship. This course is the first course in the School Library programs and provides an overview of school librarianship. The course is designed to develop an understanding of the history of school library programs, their current place in the public school system and society and their future.

SL 5911-3. School Library Field Experience—Elementary. Provides practical experience in the management of a school library program. Includes 90 hours in an elementary school library plus instruction within an online seminar for practicum coaching and field experience goals and instructional development. Prereq or coreq: IT 5160 or SL 5160.

SL 5912-3. School Library Field Experience—Secondary. Provides practical experience in the management of a school library program. Includes 90 hours in a secondary (7-12) school library plus instruction within an online seminar for practicum coaching and field experience goals and instructional development. Prereq or coreq: IT 5160 or SL 5160.

Social Sciences: S SC (Liberal Arts and Sciences)

SOC: Sociology (Liberal Arts and Sciences)

SOC 1001-3. Introduction to Sociology: GT-SS3. A survey course in which the main concepts that define the sociological perspective are presented, and a picture of society is provided by examining major social institutions and forms of social organization within society.

SOC 1050-3. Analysis of Modern Society. Examines various sociological views of modern society, including those of Lundberg, Mills, Riesman, Goffman, Sorokin, Cohen and others.

SOC 1111-1 to 3. Freshman Seminar.

SOC 2462-3. Introduction to Social Psychology. Studies the development and functioning of persons, especially within a group context and the dynamics of small groups. Emphasis is on import of symbols for human behavior, development of self-concepts and the processes of competition and cooperation in group dynamics.

SOC 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

SOC 3001-3. Urban Sociology. The city and urban society are examined in terms of social structure, residential and institutional patterning, process of interaction, demographic processes and patterns of growth and change. Cross-listed with ETST 3001.

SOC 3010-3. Sociology of Human Sexuality. Increases the understanding of differences in views of sexuality, specifically the link between sex and reproduction and its role as the motivation for gender roles and sex acts. Explores the history of sexuality, cross-cultural studies and primate modeling.

SOC 3020-3. Race and Ethnicity in the U.S. A sociological examination of race and ethnicity in contemporary U.S. society. Includes a focus on the nature and causes of prejudice and discrimination. Dominant-minority relations are examined, with an emphasis on current status of minority groups and issues. Prereq: six hours of social science.

SOC 3030-3. Social Change. Process of change in Western societies and its effects on the individual, communities and economic and political institutions.

SOC 3050-3. Sociology of Education. Topics covered include school socialization, A.D.D. diagnoses and drugs, special education, effects of standardized testing, race, ethnicity, gender, poverty in schools, public policies and funding, teacher burnout, student aspirations, secondary education and local issues in education.

SOC 3080-3. Sex and Gender. Causes and consequences of sex role differentiation at the individual, group and societal levels. Current issues related to changing norms and values concerning gender in modern society are examined.

SOC 3111-3. Research Methods. Design of social research. Application of statistical techniques and procedures to social phenomena.

SOC 3121-4. Statistics. Quantitative techniques used in analyzing social phenomena. Prereq: MATH 1070 or equivalent.

SOC 3297-3. Social History of Asian Americans. Introductory-level course surveys the social history of Asian American groups from the mid-19th century to the present. Examines immigration patterns, the development of communities, social and economic problems and anti-Asian movements and activities. Cross-listed with ETST 3297.

SOC 3300-3. Advanced Social Problems. Social problems are the subject of controversy, such as that surrounding controversy may swirl around definitions (e.g., the social net and the poverty line), around degree of seriousness, about "causes," and inevitably about solutions. Controversy also centers on the "proper" role of the social theorist and social scientist, observer only or activist as Well? While other disciplines study social problems, they are the very heart of the sociology perspective, and the wellspring of sociological inquiry.

SOC 3460-3. The Social Psychology of Intergroup Relations. Study of those aspects of human interaction which deal with individuals perceiving themselves and/or being perceived by others, as members

of a social category. Focuses on the dynamics of intergroup conflicts—how they arise, what course they may take, and how they might be resolved. Prereq: six hours of sociology, psychology, or any combination of the two.

SOC 3480-3. Global Issues. Social issues such as race relations, social inequality, urbanization, family dynamics, global competition are examined using different theoretical perspectives. Existing policies are used to study “private troubles” and “public issues” and the relationships among global, national and local levels.

SOC 3490-3. Criminology. Theories, nature and causes of crime as a social phenomenon. Processes of making laws, breaking laws and reaction toward the breaking of laws.

SOC 3500 through 3550-1 to 3. Topics in Sociology. Special topics in sociology to be selected by the instructor. Note: Can be taken more than once when topics vary.

SOC 3560-3. Death and Dying. Designed to examine the attitudes, customs and institutions related to death and dying in contemporary American society. Several theoretical approaches from a sociological perspective are utilized, as well as historical and cross-cultural data.

SOC 3600-3. Social Relations. The course has two aims: first, to improve the student’s abilities to observe, analyze and understand his own behavior and that of others in everyday interpersonal situations; and second, to improve his ability to see the small group as a social system. The student is expected to demonstrate his abilities by effective participation in his group as well as in periodic written analyses.

SOC 3700-3. Sociology of the Family. The family as a social institution. Historical development and contemporary cross-cultural analysis, with emphasis on the contemporary American family.

SOC 3840-1 to 3. Independent Study.

SOC 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: junior standing and 2.75 GPA.

SOC 4101-3. Applied Statistics Using SAS and SPSS I. Teaches the practical statistical tools social scientists use to analyze real-world problems. Split into four modules, each taught by a different instructor. The first module introduces SAS and SPSS; modules 2-4 are problem-based and cover topics such as ANOVA, multivariate regression and cluster analysis. Prereq: any statistics course.

SOC 4102-3. Applied Statistics Using SAS and SPSS II. Students use the skills they learned in the previous semester to analyze a social issue of their choosing and present their findings. Note: A continuation of SOC 4101. In addition to lectures, weekly one-on-one meetings between faculty and students are required. Prereq: SOC 4101.

SOC 4110-3. Sociology of Health Care. Examines the health care institutions of the United States. Issues such as the rising cost, the effect of class, racial and gender inequality, the professionalization and monopolization of roles, the current restructuring, construction of illness and health, managed care, health care for profit and ethics of health care decisions. Cross-listed with SOC 4110.

SOC 4120-3. Popular Culture and the American Family. A course in family sociology in which the ways American family is portrayed in the mass media and popular culture are studied. Even though the historical evolution of this reciprocal relationship is not ignored, the focus is on today’s relevant issues. Cross-listed with SOC 5120.

SOC 4150-3. History of Sociological Theory. An analysis of the major contributions and determinants of earlier social analysts to present-day social thought and analysis of pertinent sociological issues. Cross-listed with SOC 5150.

SOC 4160-3. Contemporary Sociological Theory. The explication of various conceptual approaches to the problems of social order, societal functioning and integration, social conflict and social structural change by the examination of the work of contemporary theorists. Cross-listed with SOC 5160.

SOC 4220-3. Population Change and Analysis. The sociological importance of population study. Advanced demographic analysis and population theory. Natality, mortality, problems of population growth

and international and internal migrations, population policy and aspects of population planning and control.

SOC 4280-3. Urban Social Space. The city simultaneously attracts and repulses us. It has openness and beauty; it is also cramped, crowded and ugly. The city provides us with freedoms undreamed of in other times and places, yet it restricts our movements and activities. This course examines how different professionals have viewed the city, with particular attention to the spaces in the city. Both social and physical spaces are discussed.

SOC 4290-3. Aging, Society and Social Policy. The role of the aged in today’s society. Emphasizes interrelationships of the aged with the family, community, work, retirement and leisure.

SOC 4340-3. Juvenile Delinquency. Factors involved in delinquent behavior. Problems of adjustment of delinquents and factors in treatment and post-treatment adjustment.

SOC 4440-3. Social Stratification. The relations among the concentration of income and wealth, economic organization and power, power and class phenomena in the United States.

SOC 4460-3. Hate Groups and Group Violence. Social sciences help us understand the phenomena of hate groups and group violence and contribute toward their elimination. Examples are examined using theoretical perspectives on different levels of analysis and within different areas of research. Cross-listed with SOC 5680.

SOC 4475-3. Self and Identity. A course in social psychology focusing on individuals in social interaction. Focuses on self-conception, identify presentation of self and self and emotion management. Major theories and research in social psychology literature are examined. Cross-listed with SOC 5475.

SOC 4510-3. Advanced Study of Social Change. Historical change of societies from one epoch to another (e.g., from feudalism to capitalism) and from one stage to another (e.g., competitive capitalism to monopoly capitalism), with focus on attendant social processes such as development of the working class, the rise of the corporation, the expanding role of the state, the irrationality of growth and economic crises and imperialism.

SOC 4520-3. Collective Behavior. Social, cultural and psychological factors affecting behavior in unpredictable situations. An in-depth analysis of social change through such phenomena as riots, crowds, publics and social movements.

SOC 4610-3. Seminar: Sociology of Religion. Sociological analysis of the place of religion in contemporary society. The course examines the various meanings of religion, the social psychological commitment to religion, the class association of religious groups. The issue of secularization is examined and placed in context. Cross-listed with SOC 5610, RLST 4020.

SOC 4640-3. Sociology of Childhood and Adolescence. An in-depth overview of the theories and research regarding the life course understanding of infancy, childhood and adolescence. Children’s lives and cultures in relation to adults and their transition from childhood to adolescence are studied. Cross-listed with SOC 5640.

SOC 4650-3. Sociology of Adulthood and Aging. An in-depth overview of the theories and research using the life course understanding of adulthood and aging. Adult’s lives, transition from adulthood to elderly status and social policy issues are also studied. Cross-listed with SOC 5650.

SOC 4770-3. Advanced Topics in Sociology. Advanced study of special topics in sociology to be selected by the instructor. Note: may be repeated for credit when topics vary. Cross-listed with SOC 5770.

SOC 4771-3. Advanced Topics in Sociology. Advanced study of special topics in sociology to be selected by the instructor. Note: may be repeated for credit when topics vary. Cross-listed with SOC 5771.

SOC 4772-3. Advanced Topics in Sociology. Advanced study of special topics in sociology to be selected by the instructor. Note: may be repeated for credit when topics vary. Cross-listed with SOC 5772.

SOC 4773-3. Advanced Topics in Sociology. Advanced study of special topics in sociology to be selected by the instructor. Note: may be repeated for credit when topics vary. Cross-listed with SOC 5773.

SOC 4774-3. Advanced Topics in Sociology. Advanced study of special topics in sociology to be selected by the instructor. Note: may be repeated for credit when topics vary. Cross-listed with SOC 5774.

SOC 4831-3. Senior Seminar. Seminar for senior sociology majors considering important concepts, issues and problems in sociology. Prereq: SOC 3111 and 3121.

SOC 4840-1 to 3. Independent Study.

SOC 4910-1 to 3. Research Practicum. Practical experiences for undergraduates in application of principles of research design and data processing to a social research problem selected by the instructor. Prereq: permission of instructor required.

SOC 5015-3. Seminar: Contemporary Sociological Theories and Theory Construction. Contemporary sociological theory and theory construction. Note: Required for M.A. students in sociology. Prereq: permission of instructor.

SOC 5024-3. Seminar: Research Methods I. Problems and procedures in research design, data collection and processing. Note: Required for M.A. graduate students in sociology.

SOC 5110-3. Sociology of Health Care. Examines the health care institutions of the United States. Issues such as the rising cost, the effect of class, racial and gender inequality, the professionalization and monopolization of roles, the current restructuring, construction of illness and health, managed care, health care for profit and ethics of health care decisions. Cross-listed with SOC 5110.

SOC 5120-3. Popular Culture and the American Family. A course in family sociology in which the ways American family is portrayed in the mass media and popular culture are studied. Even though the historical evolution of this reciprocal relationship is not ignored, the focus is on today's relevant issues. Cross-listed with SOC 4120.

SOC 5150-3. History of Sociological Theory. An analysis of the major contributions and determinants of earlier social analysts to present-day social thought and analysis of pertinent sociological issues. Cross-listed with SOC 4150.

SOC 5160-3. Contemporary Sociological Theory. The explication of various conceptual approaches to the problems of social order, societal functioning and integration, social conflict and social structural change by the examination of the work of contemporary theorists. Cross-listed with SOC 4160.

SOC 5183-3. Seminar: Quantitative Data Analysis. A research-oriented seminar stressing the utilization of social data already collected in the test or generation of sociological theory. Note: Required for M.A. graduate students in sociology.

SOC 5220-3. Population Change and Analysis. The sociological importance of population study, advanced demographic analysis and population theory.

SOC 5430-3. Societies in Transition. A description and analysis of changing social structures and social relationships as a response to technological innovation and change.

SOC 5440-3. Seminar: Social Stratification. Historical development of various systems of production of social surplus, its differential distribution among distinct social groups and the effects on social structure.

SOC 5475-3. Self and Identity. A course in social psychology focusing on individuals in social interaction. Focuses on self-conception, identify presentation of self and self and emotion management. Major theories and research in social psychology literature are examined. Cross-listed with SOC 4475.

SOC 5550-3. Seminar: Sociology of the Family. An intensive review and analysis of the family as a social institution.

SOC 5610-3. Seminar: Sociology of Religion. An intensive review and analysis of the fundamental tenets of religion as a social institution, with emphasis on present-day religious cults, their beliefs and activities in society. Cross-listed with SOC 4610, RLST 4020.

SOC 5640-3. Sociology of Childhood and Adolescence. An in-depth overview of the theories and research regarding the life course understanding of infancy, childhood and adolescence. Children's lives and cultures in relation to adults and their transition from childhood to adolescence are studied. Cross-listed with SOC 4640.

SOC 5650-3. Sociology of Adulthood and Aging. An in-depth overview of the theories and research using the life course understanding of adulthood and aging. Adult's lives, transition from adulthood to elderly status and social policy issues are also studied. Cross-listed with SOC 4650.

SOC 5660-3. Seminar: Social Psychology. Sociological approaches to the study of the self, role theory, persons in situations, identifications, socialization and other characteristics of persons in society.

SOC 5680-3. Hate Groups and Group Violence. Social sciences help us understand the phenomena of hate groups and group violence and contribute toward their elimination. Examples are examined using theoretical perspectives on different levels of analysis and within different areas of research. Cross-listed with SOC 4460.

SOC 5750-3. Seminar: Criminology. An intensive review and analysis of the literature and research dealing with sociology of crime in modern society.

SOC 5770-3. Advanced Topics in Sociology. Advanced study of special topics in sociology to be selected by the instructor. Note: may be repeated for credit when topics vary. Cross-listed with SOC 4770.

SOC 5771-3. Advanced Topics in Sociology. Advanced study of special topics in sociology to be selected by the instructor. Note: May be repeated for credit when topics vary. Cross-listed with SOC 4771.

SOC 5772-3. Advanced Topics in Sociology. Advanced study of special topics in sociology to be selected by the instructor. Note: may be repeated for credit when topics vary. Cross-listed with SOC 4772.

SOC 5773-3. Advanced Topics in Sociology. Advanced study of special topics in sociology to be selected by the instructor. Note: may be repeated for credit when topics vary. Cross-listed with SOC 4773.

SOC 5774-3. Advanced Topics in Sociology. Advanced study of special topics in sociology to be selected by the instructor. Note: may be repeated for credit when topics vary. Cross-listed with SOC 4774.

SOC 5840-1 to 3. Independent Study.

SOC 5910-1 to 3. Research Practicum.

SOC 5920-1 to 3. Guided Readings in Sociology.

SOC 5930-1 to 6. Internship in Sociology.

SOC 5939-1 to 6. Cooperative Education.

SOC 5955-1 to 4. Master's Thesis.

SOC 5964-1 to 4. Master's Report.

SPAN: Spanish (Liberal Arts and Sciences)

SPAN 1000-3. Introduction to Cultures of the Spanish Speaking World. Introduces students to the Spanish-speaking cultures of Spain, Latin America and the United States through a historical overview and a focus on contemporary politics and culture. Note: Taught in English.

SPAN 1010-5. Beginning Spanish I. Introduces basic Spanish pronunciation and grammar, useful vocabulary and idioms. Readings and class discussions relating to the Hispanic world. Prereq: Students must complete this course with a grade of "C" (2.0) or better to continue on to SPAN 1020.

SPAN 1011-5. Intensive Spanish. Offered only during the summer term. SPAN 1011/1021 combines both semesters of the first year and meets the needs of highly motivated students of the language and culture. Prereq: Students having studied Spanish previously should not enroll in SPAN 1011/1021 without first consulting a department advisor. Cross-listed with SPAN 1021.

SPAN 1020-5. Beginning Spanish II. (Continuation of SPAN 1010.) Further development of listening, speaking, reading and writing skills. Prereq: SPAN 1010 with grade of "C" (2.0) or better (or equivalent).

SPAN 1021-5. Intensive Spanish. Offered only during the summer term. SPAN 1011/1021 combines both semesters of the first year and meets the needs of highly motivated students of the language and culture. Prereq: Students having studied Spanish previously should not enroll in SPAN 1011/1021 without consulting a department advisor. Cross-listed with SPAN 1011.

SPAN 1111-1 to 3. Freshman Seminar.

SPAN 1995-1 to 15. Travel Study Topics. For students doing travel study in a Spanish-speaking country; register through the Office of International Education.

SPAN 2110-3. Second Year Spanish I. Continues the development of skills acquired in 1010 and 1020. Readings deal with Hispanic culture and current topics from Spain and Latin America. Development of informal oral and written expression. Prereq: a grade of “C” (2.0) or better in SPAN 1020.

SPAN 2120-3. Second Year Spanish II. Continues the development of skills acquired in SPAN 1010, 1020 and 2110, together with a review of grammar. Readings deal with Hispanic culture and literature. Development of informal oral and written expression. SPAN 2120 satisfies the fourth-semester language requirement at most graduate schools. Prereq: a grade of “C” (2.0) or better in SPAN 2110.

SPAN 2130-3. Current Topics in the Spanish-speaking World. A fourth-semester course (parallel to 2120) designed for students majoring or minoring in international affairs, but open to anyone wishing to continue the study of Spanish beyond 2110. Along with development of language skills and grammar review, class work involves contemporary topics in cultural, political, economic and social affairs. Prereq: a grade of “C” (2.0) or better in SPAN 2110 or placement exam.

SPAN 2939-1 to 3. Internship/Cooperative Education. Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA.

SPAN 2995-1 to 15. Travel Study Topics. For students doing travel study in a Spanish-speaking country; register through the Office International Education.

SPAN 3010-3. Advanced Conversation and Composition I. Expansion and reinforcement of oral and written skills in Spanish at an advanced level, in a broad cultural context. Oral activities are individual and in groups. Topics are introduced through oral activities and are then used for written assignments. Prereq: SPAN 2120 or 2130.

SPAN 3020-3. Advanced Conversation and Composition II. (Continuation of SPAN 3010.) Development of oral and written skills in Spanish in preparation for taking other advanced courses. Topics of increasing complexity are selected from current publications in Spanish. Prereq: SPAN 3010.

SPAN 3060-3. Hispanic Phonetics: Theory and Practice. Explores the phonetics of spoken Spanish throughout the world. Theoretical content: classification of all Spanish sounds and how they are affected and change according to their phonetic environment and region. Practical features: pronunciation and strategies teaching English speakers to pronounce Spanish. Prereq: SPAN 3010 or upper division standing in Spanish.

SPAN 3070-3. Bilingual Communities: Spanish as a Language of Contact. Explores bilingualism by tracing the series of linguistic and ethnic contacts that converted Castilian from a Latin dialect to the language of the Spanish empire, the primary language of Latin America, and a fast-growing language in the United States. Prereq: SPAN 3010 for majors, or permission of instructor for non-majors.

SPAN 3073-3. Bilingual Communities: Spanish in a Global Setting. Taught in English; no major or minor credit. Studies Spanish as a language of contact. Emphasis is placed on Spanish in the United States, as well as bilingualism in Spain and Latin America.

SPAN 3082-3. Introduction to Translation I. The first course in a two-semester sequence that introduces the methodology and practice of written translation. Thorough analysis of source texts precedes translation into target language. Students must demonstrate third-year competence in Spanish and advanced writing skills in English. Prereq: upper division standing in Spanish.

SPAN 3092-3. Introduction to Translation II. Second course in a two-semester sequence (see SPAN 3082). Prereq: SPAN 3082, upper division standing in Spanish, or permission of instructor.

SPAN 3100-3. Culture and Civilization of Spain. Surveys the development of Spanish civilization—the social, political, economic, religious, literary and artistic life of Spain—within the framework of the Western tradition and its later dissemination in the New World. Note: Taught in English; no major or minor credit. Prereq: minimum of sophomore standing.

SPAN 3212-3. Spanish American Culture and Civilization. Surveys the social, political, economic, religious, literary and artistic life of Spanish America from the conquest to the present. Note: Taught in Spanish for major and minor credit. Prereq: SPAN 2120 or 2130.

SPAN 3221-3. Culture and Civilization of Spain I. From prehistoric times through Phoenician, Greek, Roman and Visigothic eras to the Moorish invasion in 711; the Arab period; the Reconquest; the Catholic Kings; the Imperial Period; and the Inquisition. Prereq: upper division standing in Spanish.

SPAN 3222-3. Culture and Civilization of Spain II. (Continuation of 3221.) Studies the social, intellectual and artistic development of Spain from the time of the Bourbons (18th century) through the civil war of 1936 and the Franco regime to the restoration of democracy under Juan Carlos I and the present day. Prereq: upper division standing in Spanish.

SPAN 3252-3. Introduction to the Study of Literature. The basic terms and skills needed to analyze both the themes and form of literary works, together with an introduction to research skills. All literary examples come from Hispanic literature. Note: SPAN 3252 is a prerequisite (previous or concurrent) to all other literature courses taught in Spanish. Prereq: SPAN 2120 or 2130 (or equivalent).

SPAN 3300-3. Twentieth Century Spanish Literature. The literature of Spain from the beginning of the 20th century to the present through short stories, novels, poems and plays. Prereq or coreq: SPAN 3252.

SPAN 3310-3. Spanish Writing and Grammar I. A close study of the structure of the language and practice in its written use. Note: Recommended for those intending to teach Spanish at the secondary level. Prereq: upper division standing in Spanish.

SPAN 3400-3. Survey of Spanish Literature I. The most important works in the literature of Spain from the early Hispano-Arabic lyric poems through the golden age of the 17th century. Prereq or coreq: SPAN 3252.

SPAN 3410-3. Survey of Spanish Literature II. The most important works in the literature of Spain from the 18th century to the present. Prereq or coreq: SPAN 3252.

SPAN 3510-3. Survey of Spanish American Literature II. The most important works in the literature of Spanish America from the late 19th century to the present. Prereq or coreq: SPAN 3252.

SPAN 3550-3. Spanish American Short Story. The Spanish American short story from its beginnings in the romantic period of the 19th century to the present. Prereq or coreq: SPAN 3252.

SPAN 3700-3. Spanish for International Business I. Development of proficiency in oral and written Spanish as used in business and industry throughout the Hispanic world, together with an increased awareness of social, economic and political conditions affecting business transactions, particularly in long-term operations. Prereq: upper division standing in Spanish.

SPAN 3710-3. Spanish for International Business II. (Continuation of SPAN 3700.) Further development of oral and written language proficiency, together with further examination of pertinent social, economic and political conditions of the Hispanic world. Prereq: upper division standing in Spanish; SPAN 3700 desirable.

SPAN 3730-3. Special Topics in Spanish for International Business. Variable topics not otherwise covered sufficiently in regular courses. Note: May be taken more than once, provided that the topic is different each time. Prereq: SPAN 3700.

SPAN 3830-3. Topics in Spanish Literature. Varying topics in Hispanic literature for students not able to read Spanish well. Note: Taught in English; no major or minor credit. May be taken more than once, provided that the topic is different each time.

SPAN 3840-1 to 3. Independent Study.

SPAN 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: junior standing and 2.75 GPA.

SPAN 3970-3. Topics in Spanish Literature. Varying topics in Hispanic literature appropriate the 3000 level, not otherwise covered by

regular courses. Note: Taught in Spanish for major and minor credit. May be taken more than once, provided that the topic is different each time. Prereq: SPAN 3252.

SPAN 3995-1 to 15. Travel Study Topics. For students doing travel study in a Spanish-speaking country; register through the Office of International Education.

SPAN 4010-3. History of the Spanish Language. Studies the history of the Spanish language, both internal and external, from the language's Latin roots to the present. Historical phonetics are emphasized, though all features of the language are discussed. Prereq for SPAN 4010: upper division standing. Cross-listed with SPAN 5010.

SPAN 4020-3. Spanish Sociolinguistics. Studies the Spanish language in its social context. In addition to specific regional linguistic features, social factors such as geography, social class, politics, race, gender, economics, education and history are discussed as determiners of the linguistic landscape. Prereq: SPAN 3060. Cross-listed with SPAN 5020.

SPAN 4060-3. Dialects of the Spanish-Speaking World. Studies the geography of the Spanish language in those countries where it is spoken as a primary language. Includes a comparison of dialect features and a study of factors that contribute to the diversity of the Spanish language. Prereq: SPAN 3060. Cross-listed with SPAN 5060.

SPAN 4110-3. Contemporary Spanish Literature. Major works published since the Spanish Civil War, which ended in 1939. Prereq: SPAN 3252 and preferably at least one additional literature course. Cross-listed with SPAN 5110.

SPAN 4130-3. Medieval Spanish Literature. Examines Spanish literature from the jarchas and the *Cid* through the *Celestina* in the context of the reconquest. Considers the construction of the Christian knight as a hero and the corresponding representations of women, Jews and Muslims. Prereq for SPAN 4130: SPAN 3252 and at least one additional literature course. Cross-listed with SPAN 5130.

SPAN 4150-3. Masterpieces of Spanish Literature. The most enduring works in the literature of Spain across the centuries. Prereq: SPAN 3252 and preferably at least one additional course in Hispanic literature. Cross-listed with SPAN 5150.

SPAN 4160-3. Masterpieces of Spanish-American Literature. Focuses on a limited number of outstanding works in Spanish-American literature across the centuries. Prereq: SPAN 3252 and at least one additional course in Hispanic literature. Cross-listed with SPAN 5160.

SPAN 4220-3. Mexican Literature. Mexican literature from pre-Columbian times to the present. Prereq: SPAN 3252 and at least one additional course in Hispanic literature. Cross-listed with SPAN 5220.

SPAN 4230-3. Modern Culture of Spain Through Film and Narrative. Culture of modern Spain studied through Spanish film. The death of military dictator Francisco Franco opened the process for the recuperation of a usurped democratic, representational system that has become the basis of a cultural and economic resurgence. Taught in Spanish. Prereq: SPAN 3252 and one other Spanish/Spanish American literature course at the 3000-level. Cross-listed with SPAN 5230.

SPAN 4300-3. Generation of 1898. Spanish literature from around the turn of the century through the first third of the 20th century, reflecting the deep intellectual and cultural foment occasioned in part by Spain's loss of the Spanish-American War of 1898. Prereq: SPAN 3252 and preferably at least one additional literature course. Cross-listed with SPAN 5300.

SPAN 4310-3. Seminar in Spanish Creative Writing: Poetry and Short Fiction. A capstone writing course. Semester writing project will be collected poems and short stories. Prereq: SPAN 3252 and one other upper-division literature course, or permission of instructor. Cross-listed with SPAN 5310.

SPAN 4400-3. Romanticism in Spain. The romantic movement in 19th century Spain through plays, poems, essays. Prereq: SPAN 3252 and preferably at least one additional literature course. Cross-listed with SPAN 5400.

SPAN 4410-3. Modernism. Examines the first real flowering of Spanish American literature, from about 1880 to 1910. The dominant genres of the period were the short story, the essay and lyric poetry. Readings come from Dario, Jose Enrique Rodo, Manuel Gutierrez

Najera, Manuel Diaz Rodriguez and others. Prereq: SPAN 3252 and at least one additional course in Hispanic literature. Cross-listed with SPAN 5410.

SPAN 4500-3. Nineteenth-Century Spanish Novel. The Spanish novel in one of its most productive periods, beginning with romanticism and carrying through the realist and naturalist movements. Prereq for SPAN 4500: SPAN 3252 and preferably at least one additional literature course. Cross-listed with SPAN 5500.

SPAN 4510-3. Contemporary Spanish-American Novel. The novel in Spanish America since the Second World War, the period in which the greatest number and quality of works has been produced. Prereq: SPAN 3252 and at least one additional course in Hispanic literature. Cross-listed with SPAN 5510.

SPAN 4520-3. Golden Age Drama. Spanish drama of the 16th and 17th centuries, the period of greatest dramatic productivity in the nation's history. Readings include selections from Lope de Vega, Tirso de Molina, Calderon de La Barca and others. Prereq: SPAN 3252 and at least one additional course in Hispanic literature. Cross-listed with SPAN 5520.

SPAN 4540-3. Race, Class and Gender in Spanish Golden Age Literature. Explores works of various genres in relation to their social and political contexts in 16th and 17th century Spain, emphasizing the cultural attitudes toward race, class and gender that inform them. Prereq: SPAN 3252 and at least one additional literature course. Cross-listed with SPAN 5540.

SPAN 4620-3. Don Quijote. The complete *Don Quijote* in Spanish, focusing on its historical, social and philosophic context and its role in the emergence of the modern novel. Prereq: SPAN 3252 and at least one additional literature course. Cross-listed with SPAN 5620.

SPAN 4840-1 to 3. Independent Study.

SPAN 4970-3. Special Topics in Literature. Varying topics in Hispanic literature not otherwise covered by regular courses. Note: May be taken more than once, provided that the topic is different each time. Prereq for SPAN 4970: SPAN 3252 and at least one additional course in Hispanic literature. Cross-listed with SPAN 5970.

SPAN 4980-3. Special Topics in Linguistics. Varying topics in Hispanic language and literature not otherwise covered by regular courses. Note: May be taken more than once provided that the topics are different each time. Prereq: SPAN 3060 and at least one other upper division Spanish course. Cross-listed with SPAN 5980.

SPAN 5000-3. Introduction to Graduate Studies in Spanish.

Introduces critical methodologies and critical perspectives of practices of signification such as literature and film, among others, in the context of culture and history. Prereq: graduate standing.

SPAN 5010-3. History of the Spanish Language. Studies the history of the Spanish language, both internal and external, from the language's Latin roots to the present. Historical phonetics are emphasized, though all features of the language are discussed. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4010.

SPAN 5020-3. Spanish Sociolinguistics. Studies the Spanish language in its social context. In addition to specific regional linguistic features, social factors such as geography, social class, politics, race, gender, economics, education and history are discussed as determiners of the linguistic landscape. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4020.

SPAN 5060-3. Dialects of the Spanish-Speaking World. Studies the geography of the Spanish language in those countries where it is spoken as a primary language. Includes a comparison of dialect features and a study of factors that contribute to the diversity of the Spanish language. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4060.

SPAN 5110-3. Contemporary Spanish Literature. Major works published since the Spanish Civil War, which ended in 1939. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4110.

SPAN 5130-3. Medieval Spanish Literature. Examines Spanish literature from the jarchas and the *Cid* through the *Celestina* in the context of the reconquest. Considers the construction of the Christian knight as a hero and the corresponding representations of women, Jews and Muslims. Prereq for SPAN 5130: graduate standing in Spanish. Cross-listed with SPAN 4130.

SPAN 5150-3. Masterpieces of Spanish Literature. The most enduring works in the literature of Spain across the centuries. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4150.

SPAN 5160-3. Masterpieces of Spanish-American Literature. Focuses on a limited number of outstanding works in Spanish-American literature across the centuries. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4160.

SPAN 5220-3. Mexican Literature. Mexican literature from pre-Columbian times to the present. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4220.

SPAN 5230-3. Modern Culture of Spain Through Film and Narrative. Culture of modern Spain studied through Spanish film. The death of military dictator Francisco Franco opened the process for the recuperation of a usurped democratic, representational system that has become the basis of a cultural and economic resurgence. Taught in Spanish. Prereq: Graduate standing. Cross-listed with SPAN 4230.

SPAN 5300-3. Generation of 1898. Spanish literature from around the turn of the century through the first third of the 20th century, reflecting the deep intellectual and cultural foment occasioned in part by Spain's loss of the Spanish-American War of 1898. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4300.

SPAN 5310-3. Seminar in Spanish Creative Writing: Poetry and Short Fiction. A capstone writing course. Semester writing project will be collected poems and short stories. Prereq: Graduate standing in Spanish. Cross-listed with SPAN 4310.

SPAN 5400-3. Romanticism in Spain. The romantic movement in 19th century Spain through plays, poems, essays. Prereq: Graduate standing in Spanish. Cross-listed with SPAN 4400.

SPAN 5410-3. Modernism. Examines the first real flowering of Spanish American literature, from about 1880 to 1910. The dominant genres of the period were the short story, the essay and lyric poetry. Readings come from Darío, José Enrique Rodó, Manuel Gutiérrez Najera, Manuel Díaz Rodríguez and others. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4410.

SPAN 5500-3. Nineteenth-Century Spanish Novel. The Spanish novel in one of its most productive periods, beginning with romanticism and carrying through the realist and naturalist movements. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4500.

SPAN 5510-3. Contemporary Spanish-American Novel. The novel in Spanish America since the Second World War, the period in which the greatest number and quality of works has been produced. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4510.

SPAN 5520-3. Golden Age Drama. Spanish drama of the 16th and 17th centuries, the period of greatest dramatic productivity in the nation's history. Readings include selections from Lope de Vega, Tirso de Molina, Calderon de La Barca and others. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4520.

SPAN 5540-3. Race, Class and Gender in Spanish Golden Age Literature. Explores works of various genres in relation to their social and political contexts in 16th and 17th century Spain, emphasizing the cultural attitudes toward race, class and gender that inform them. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4540.

SPAN 5620-3. Don Quijote. The complete Don Quijote in Spanish, focusing on its historical, social and philosophical context and its role in the emergence of the modern novel. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4620.

SPAN 5840-1 to 3. Independent Study.

SPAN 5939-1 to 6. Internship/Cooperative Education.

SPAN 5970-3. Special Topics in Literature. Varying topics in Hispanic literature not otherwise covered by regular courses. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4970.

SPAN 5980-3. Special Topics in Linguistics. Varying topics in Hispanic language and literature not otherwise covered by regular courses. Note: May be taken more than once provided that the topics are different each time. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4980.

SPED: Special Education (Education)

SPED 4021-2. Exploring Diversity in Content and Pedagogy II. An essential feature of instructional and curriculum design, implementation and evaluation is the ability of teachers to draw upon students' previous experience, help students make connections between new information and previous knowledge and skills and support students to transfer new information to real-life contexts and environments. The purpose of this course is to explore multiple aspects of complex processes including: 1) standards-based instruction (e.g., the relationship between standards and curriculum); 2) instructional design including both direct and indirect instruction; and 3) assessment, including both objective measures as well performance and portfolio assessment; and 4) differentiation in curriculum and instruction so that meaningful instruction becomes accessible to all students. Prereq: IPTE 4006. Cross-listed with SPED 5021.

SPED 4111-3. Teaching for the Success of All Adolescents. Understanding the impact of learner variance due to differences in abilities or disabilities, linguistic experiences, socio-economic backgrounds and ethnicity on learning and development. These differences are examined through the cognitive, affective, communicative and physical or health domains as well as the socio-cultural context. Prereq: concurrent enrollment in an internship or permission of instructor. Cross-listed with SPED 5111.

SPED 4112-3. Teaching for the Success of All Children. Understanding the impact of learner variance due to differences in abilities or disabilities, linguistic experiences, socio-economic backgrounds and ethnicity on learning and development. These differences are examined through the cognitive, affective, communicative and physical or health domains as well as the socio-cultural context. Prereq: concurrent enrollment in an internship or permission of instructor required. Cross-listed with SPED 5112.

SPED 4150-1. Individualizing Instruction for Learners with Challenging Behaviors. Serves as an introduction to the knowledge, skills and dispositions necessary for teachers to proactively and systematically address student needs that underlie the presence of problem behaviors in schools and classrooms. Course content consists of specific strategies to promote social and communication skill development and introduction to functional behavior assessment and intervention, including guidelines for the role of general educators as specified in federal and state regulations. Prereq: SPED 5111 or 5112, IPTE 5120 or 5121. Cross-listed with SPED 5150.

SPED 4710-1. Significant Health Support Needs Academy. Intends to prepare paraeducators with knowledge and skills needed for working with children with significant health support needs. Consisting of seven modules of varying length, this 15 clock hour academy focuses on training both the health aid and the significant health support needs professional.

SPED 4720-1. Significant Supports for Challenging Behavior Academy. This academy provides the paraeducator with the knowledge and skills needed for working with children who have significant behavior needs. The academy focuses on working with students who have challenging behaviors. Its aim is to provide paraeducators with the basic understanding of behavior support and to provide them with the necessary skills to implement written behavior support plans. It is recommended that paraeducators complete the Behavior Management Academy prior to taking this course.

SPED 4730-1. Significant Communication Support Needs Academy. This academy provides the paraeducator with the knowledge and skills needed for working with children who have significant behavior needs. The academy focuses on working with students who have challenging behaviors. Its aim is to provide paraeducators with a basic understanding of behavior support and to provide them with the necessary skills to implement written behavior support plans. It is recommended that paraeducators complete the Behavior Management Academy prior to taking this course.

SPED 4740-1. Life Skills Academy. This 18 clock hour academy is intended to provide the paraeducator with knowledge and skill in instructional methods and life skill support for youth and young adults who have moderate to severe cognitive, communicative, physical or affective needs.

SPED 4750-1. Orientation to Special Education. This 15 clock hour academy is designed to provide a basic introduction to special education and the needs of students who have disabilities. It includes introductory material regarding legal and historical foundations of special education, human growth and development, the nature of disabilities and an introduction to the basic human needs that must be addressed.

SPED 4910-2. Special Education Generalist Internship and Site Seminar I. Special education teacher candidates engage in systematic observation of, participation in, design of and reflection on inclusive curricular, instruction and management practices. Graduated learning activities for each internship and time requirements are specified in the School Internship handbook and the Special Education Guidelines. In partner school, the site coordinator and site professor are responsible for coaching, supervision and site seminars. In internship outside partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: completion of special education core or permission of instructor and advisor. Cross-listed with SPED 5910.

SPED 4919-2. CO-TOP Practicum. The paraeducator engage in systematic observation of and participation in instruction of management practices. The learning activities for each practicum are specified in the CO-TOP Practicum handbook and information sheet. Cooperating teachers, district coordinators and/or university-based supervision observe paraeducators in the classroom. Prereq: completion of CO-TOP academies or permission of the CO-TOP Coordinator.

SPED 5010-3. Instructional Strategies for Students with Special Needs. The content of this course extends three essential special education program areas; curriculum, instruction and assessment, to service provision for students with severe and multiple disabilities. Course content is accessed through in-depth study of four case studies. Prereq: SPED 5111/5112, IPTE 5120/5121, IPTE 5020 and SPED 5021 or permission of instructor

SPED 5021-2. Exploring Diversity in Content and Pedagogy II. An essential feature of instructional and curriculum design, implementation and evaluation is the ability of teachers to draw upon students' previous experience, help students make connections between new information and previous knowledge and skills and support students to transfer new information to real-life contexts and environments. The purpose of this course is to explore multiple aspects of complex processes including: 1) standards-based instruction (e.g., the relationship between standards and curriculum); 2) instructional design including both direct and indirect instruction; and 3) assessment, including both objective measures as well performance and portfolio assessment; and 4) differentiation in curriculum and instruction so that meaningful instruction becomes accessible to all students. Prereq: IPTE 5006/4006. Cross-listed with SPED 4021.

SPED 5111-3. Teaching for the Success of All Adolescents. Understanding the impact of learner variance due to differences in abilities or disabilities, linguistic experiences, socio-economic backgrounds and ethnicity on learning and development. These differences are examined through the cognitive, affective, communicative and physical or health domains as well as the socio-cultural context. Prereq: concurrent enrollment in an internship or permission of instructor. Cross-listed with SPED 4111.

SPED 5112-3. Teaching for the Success of All Children. Understanding the impact of learner variance due to differences in abilities/disabilities, linguistic experiences, socio-economic backgrounds and ethnicity on learning and development. These differences will be examined through the cognitive, affective, communicative and physical/health domains as well as the socio-cultural context. Prereq: concurrent enrollment in an internship or permission of instructor required. Cross-listed with SPED 4112.

SPED 5130-3. Speech/Language Characteristics of Students with Severe Communication Needs. Provides a basis for identification and description of speech and language dysfunctions of students with severe communication needs. Careful attention is given to the transdisciplinary nature of speech or language and its effects on cognitive, affective or motor functioning. Prereq: SPED 5600, 5010 and IPTE 5120 or permission of instructor.

SPED 5140-4. Advanced Assessment in Special Education. Provides the practitioner with an understanding of the special education assessment process as specified by federal and state guidelines. Students analyze formal and informal tests as well as observe and participate in performing assessments. Prereq: IPTE 5000, 5001, 5020, MATH 3040, SPED 5112, 5021, 5320 and 5600 or permission of instructor.

SPED 5150-1. Individualizing Instruction for Learners with Challenging Behaviors. Serves as an introduction to the knowledge, skills and dispositions necessary for teachers to proactively and systematically address student needs that underlie the presence of problem behaviors in schools and class rooms. Course content consists of specific strategies to promote social and communication skill development and introduction to functional behavior assessment and intervention, including guidelines for the role of general educators as specified in federal and state regulations. Prereq: SPED 5111 or 5112, IPTE 5120 or 5121. Cross-listed with SPED 4150.

SPED 5151-2. Positive Behavior Support. Provides in-depth knowledge, skills and dispositions for special educators and other school professionals who lead systematic school renewal efforts to promote Positive Behavioral Support (PBS). The foci of this course are threefold: 1) to promote PBS at the level of the school and classroom; 2) to develop effective behavioral support teams; and 3) to lead the process of functional assessment and intervention for individual students whose problem behaviors are persistent and severe. Federal guidelines and Colorado regulations regarding functional assessment and intervention are addressed as well. Prereq: SPED 4150/5150 or concurrent enrollment in an internship, or permission of instructor required.

SPED 5160-1. Medical/Physical Challenges of Students with Special Needs. Provides an overview of the medical, sensory, communicative and physical issues for students with special needs. Specific competencies include: identifying, examining, evaluating and organizing a set of community resources to meet a wide range of medical and/or physical challenges.

SPED 5170-1. Individualizing Instruction for Diverse Learners. Provides frameworks for understanding and choosing from an array of instructional strategies that can be incorporated into the instructional design, assessment and implementation processes that meet the needs of diverse learners, particularly students with disabilities and students learning English. Prereq: SPED 4111/5111 or SPED 4112/5112.

SPED 5180-3. Curriculum Planning for Students with Special Needs. Designed to give teachers a framework for providing functional learning experiences in the domains of education, community access, employment, independent living and social/recreational skills of students in special education. Emphasis is placed on creating, implementing and evaluating educational placements for subsequent environments. Prereq: SPED 5010, 5600, IPTE 5000, 5120 and EPSY 5240 or permission of instructor.

SPED 5300-3. Collaborating in Schools and Communities. Focuses on the development of competencies in consultation and collaboration. The overall purpose is to encourage the development of understanding and skills that enhance a teachers ability to work and communicate effectively with school personnel, including paraprofessionals and parents. The goal of collaboration is to support and determine together the instructional scenarios that best meet the needs of students. Specific competencies include problem solving, conflict resolution, data collection or observation skills, conferencing, facilitating meetings and interacting with others while respecting diverse discourses and multicultural backgrounds.

SPED 5310-1. Collaboration with Families. Provides the school professional with the knowledge, skills and values that foster effective working relationships with parents and families of the students they serve.

SPED 5320-2. The use of Technology in Special Education. Specifically designed for the special educator, this course addresses the use of computers with students in special education. Issues in augmentative communication, adaptation of software authoring systems and adaptive hardware levels are addressed. Prereq: proficiency on the UCD Basic Skills Technology PBA.

SPED 5400-3. Seminar in Special Education. Designed to allow an opportunity for special educators to compare and contrast the service delivery, funding mechanisms, professional ethics and underlying assumptions of special and regular education. Trends in the field of special education are examined through review of current research. Prereq: EPSY 5240, IPTE 5000, 5020, 5120, SPED 5112, 5021, 5140, 5320, 5600, or permission of instructor.

SPED 5500-2. Transition and Secondary Issues in Special Education. Provides the practitioner with an understanding of the Special Education transition process as specified by federal and state guidelines. The content of this course focuses on the design and implementation of transition planning that meets students' physical, affective, cognitive and communicative needs across the contexts of school, community, family life, career and vocation and recreation/leisure.

SPED 5600-3. Special Education for School Professionals. Designed for school professionals to compare and contrast service delivery options and to understand special education laws and underlying assumptions of special education practices. Through extensive study of original sources and current texts, students gain a comprehensive knowledge base for use in school applications. Readings and lectures are supplemented with direct observation of special education processes and instruction.

SPED 5780-3. Literacy Intervention for Students with Disabilities. Provides the practitioner with an understanding of research-validated approaches, strategies, assessment tools and issues related to effective literacy instruction for students performing significantly below grade level. Practitioners can expect to be able to conduct thorough literacy assessments as well as be able to develop, implement and evaluate individual reading and writing programs for individual students with the most challenging literacy needs. Prereq: IPTE 4000/5000 and 4001/5001 or previous literacy course work with permission of instructor.

SPED 5800-1 to 4. Workshop: Topics in Special Education.

SPED 5840-1 to 4. Independent Study.

SPED 5910-2. Special Education Generalist Internship and Site Seminar I. Special education teacher candidates engage in systematic observation of, participation in, design of and reflection on inclusive curricular, instruction and management practices. Graduated learning activities for each internship and time requirements are specified in the School Internship handbook and the Special Education Guidelines. In partner school, the site coordinator and site professor are responsible for coaching, supervision and site seminars. In internship outside partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: completion of special education core or permission of instructor and advisor. Cross-listed with SPED 4910.

SPED 5911-2. Special Education Generalist Internship and Site Seminar II. Special education teacher candidates engage in systematic observation of, participation in, design of and reflection on inclusive curricular, instruction and management practices. Graduated learning activities for each internship and time requirements are specified in the School Internship handbook and the Special Education Guidelines. In partner school, the site coordinator and site professor are responsible for coaching, supervision and site seminars. In internship outside partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: SPED 5910.

SPED 5912-3. Special Education Generalist Internship and Site Seminar III. Special education teacher candidates engage in systematic

observation of, participation in, design of and reflection on inclusive curricular, instruction and management practices. Graduated learning activities for each internship and time requirements are specified in the School Internship handbook and the Special Education Guidelines. In partner school, the site coordinator and site professor are responsible for coaching, supervision and site seminars. In internship outside partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: SPED 5910 and 5911.

SPED 5913-1 to 6. Special Education Generalist Internship and Site Seminar IV. Special education teacher candidates engage in systematic observation of, participation in, design of and reflection on inclusive curricular, instruction and management practices. Graduated learning activities for each internship and time requirements are specified in the School Internship handbook and the Special Education Guidelines. In partner school, the site coordinator and site professor are responsible for coaching, supervision and site seminars. In internship outside partner school settings, cooperating teachers, district coordinators and/or university professors work with teachers and candidates in the classroom and in seminars. Prereq: SPED 5910, 5911, 5912 or permission of advisor.

SPED 6100-3. Communication Development for Students with Severe to Profound Needs. An in-depth analysis of the development of communicative competence in students with severe or profound needs. Prereq: completion of special education core or permission of instructor.

SPED 6300-3. Teaching Methods for Students with Severe Communication Needs. Offers training in defining and elaborating the needs of students identified as having severe communication needs. Students learn to expand and apply various theories of instruction. They will administer and interpret procedures for assessing speech and language skills. They will be able to plan for maintenance and generalization within the student's environment. Prereq: permission of instructor.

SPED 6950-4. Master's Thesis.

SPSY: School Psychology (Education)

SPSY 5600-3. Functional Behavior Assessment and Planning.

Prepares educational professionals in functional behavior assessment as it applies to the development of behavioral support plans. Students gain knowledge and experience in working collaboratively with others to design strategies that help students with challenging behaviors to be more successful in school. These strategies include the implementation of environmental supports and skills training, as well as behavioral interventions.

SPSY 5800-1 to 3. Workshop: Topics in School Psychology.

SPSY 5840-1 to 4. Independent Study: SPSY.

SPSY 6100-1 to 2. Seminar in Professional Issues in School Psychology. A course in current topics related to the practice of school psychology, both past and present, including timely ethical issues, strategies for the delivery of school psychological services, professional issues and advances that support effective school mental health programs. Observation in school and related settings is a requirement for two graduate credits.

SPSY 6150-4. Psychoeducational Assessment I. Focuses on psychoeducational assessment of children from infancy to adolescence. Primary emphasis is directed toward cognitive or intellectual evaluation in clinical and school settings. Topics include selection, administration and interpretation of individual ability tests; an introduction to psychological report writing and historical, theoretical and psychometric issues associated with cognitive ability and processing. Test administration is required. Prereq: EPSY 5240, REM 5300 and permission of instructor.

SPSY 6160-3. Psychoeducational Assessment II. An in-depth study of the major techniques of formal and informal assessment and their applicability to problems found in psychoeducational settings. Administration and interpretation of special ability, personality and achievement tests with attention to case study integration is required. Prereq: EPSY 5100/5140, REM 5300 and SPSY 6500.

SPSY 6200-3. Risk, Resilience and Prevention in School Mental Health. Examines sources of biological and social risk that prevent children from infancy through adolescence from reaching their full adult potential, the prevalence of these risk factors in North American communities and the wellness models of intervention that ameliorate the effects of risk factors before problems manifest themselves and become disabling.

SPSY 6300-3. Legal and Ethical Issues in School Psychology. Examines the legal and ethical issues in the practice of school psychology include current professional issues; national, state and local statutes; regulations and case law that govern the practice of school psychology; ethical standards; and ethical decision making of the profession.

SPSY 6350-4. School-Based Interventions: Children, Youth and Families. Provides theoretical and practice-oriented introduction to child therapy in schools. Weaves together skills and techniques essential to theory and implementation of psychotherapeutic techniques. Course activities compliment the systemic and group-based interventions examined in SPSY 6400. Prereq: EPSY 5100 or EPSY 5140.

SPSY 6400-3. School-Based Interventions: Groups, Classrooms and Systems. Provides students with advanced study of research on and techniques of classroom and small group interventions. Includes instruction on the evaluation of intervention effectiveness. Systemic, school-wide interventions are addressed.

SPSY 6410-3. Psychoeducational Services for Linguistically Diverse Students. Prepares students to provide current 'best practices' in cognitive assessment and psychotherapeutic services for students who are linguistically diverse. Attention will be paid to differentiating between students with language disorders and students in the process of acquiring English as a second language. Service recommendations will be grounded in an understanding of the unique psychological and educational needs of linguistically diverse students and the legal and ethical standards governing their education. Prereq: 30 graduate semester hours in the School Psychology program.

SPSY 6420-3. Crisis Prevention, Planning and Intervention. Introduces students to crisis theory, prevention research and intervention strategies. The course is designed for school mental health professionals interested in developing advanced crisis counseling and intervention skills sufficient for use in school settings. The course emphasizes the importance of practical hands-on opportunities for skills development. Prereq: SPSY 6350 and CPCE 5100 (or equivalent) and experience required.

SPSY 6450-3. School-Based Consultation for Mental Health Professionals. A wide range of traditional or emerging consultation models emphasizing practical application of empirically-based approaches to advance the social or academic competence of students, classrooms, schools and districts. Hands-on experience supplement course content as students develop, refine and practice their own eclectic consultation approach. Prereq: REM 5100, REM 5300 and SPSY 6350.

SPSY 6500-3. Identifying and Planning for the Mental Health Needs of Children and Adolescents. Provides students with advanced concentrated study of the etiology, diagnostic criteria, recommend intervention strategies and diagnostic procedures appropriate for the identification of children's mental health needs.

SPSY 6600-3. The Use of Projective Assessment for Intervention Planning. Prepares school mental health professionals to utilize a range of projective assessment techniques and to design appropriate interventions that address needs identified in the projective assessment process. Prereq: REM 5300, SPSY 6150 and SPSY 6160.

SPSY 6911-1 to 6. School Psychology Practicum. This 500 hour practicum allows students to integrate theory with school psychology practice under supervision of a licensed school psychologist. Consultation, psycho-educational assessment and other school psychological services are stressed. Prereq: SPSY 6150 and permission of instructor.

SPSY 6930-1 to 6. School Psychology Internship. The internship stresses the professional practice of school psychology in a psychoeducational facility. Field experiences will encompass an array of psychological services. Prereq: CPCE 5100, EPSY 5170, 6150, 6160, 6911 and consent of instructor.

S SC: Social Sciences (Liberal Arts and Sciences)

S SC 5013-3. Philosophical Problems in the Social Sciences and Humanities. Presents an overview of key theoretical issues currently emerging across academic disciplines. Examines questions about reality, knowledge, ethics that affect social research and writing in the humanities.

Readings explore how contemporary philosophical and cultural discourses have altered theory and method. Assignments include influential theoretical pieces by key historical and contemporary thinkers, examples of application in social research, and interpretations of thought and affect in cultural contexts. Cross-listed with HUM/PHIL 5013.

S SC 5020-3. Elements of Social Thought. Introduces students to the disciplines that comprise the social sciences (classical anthropology, sociology, sociology of religion, philosophy of history, political theory, classical psychology, etc.). Provides necessary tools for interdisciplinary students to understand the social infrastructure of contemporary society. Cross-listed with HUM 5020 and PHIL 5020.

S SC 5023-3. Research Perspectives in the Social Sciences. Introduces interdisciplinary social research through a critical examination of various methodological approaches. Each student formulates a research proposal which includes a research question, a review of the literature and methods of study.

S SC 5032-3. Twentieth Century World History. An interdisciplinary course on contemporary world history and globalization. While the course is historically structured, economic, political and sociological matters are also explored. Prereq: a course in world history and one in macroeconomics or permission of instructor. Cross-listed with HIST 4032/5032.

S SC 5050-1 to 3. Topics in Social Science. These topic seminars are concerned with specialized aspects of the social sciences from various theoretical and research perspectives. These courses are interdisciplinary and serve as a forum for discussion of individual projects and theses.

S SC 5400-3. Women and Violence. Analyzes the social, political, legal and psychological aspects of violence against women and addresses: definitions of the problem, demographics, survivors, perpetrators, children who witness, bystanders, strategies and tactics of abuse and survival, along with strategies for prevention, intervention, treatment and social change.

S SC 5520-3. The City Beautiful: Art, Architecture and Theory in Urban History. How did cities develop and what were the buildings that filled these spaces? Posing this question initially, this course takes a case-study approach to surveying the concerns confronting different cultures as they developed their urban environments sociologically, anthropologically, architecturally and spatially. Cross listed with HUM 5520.

S SC 5530-3. Social Construction of the Self. Investigates theories that address the construction of self and how that construction is constrained by culture, politics, society and historical moment.

S SC 5550-3. Paris 1910: Art, Philosophy and Psychology. Traces the influences of philosophy, psychology and art in the English, French and German-speaking worlds in the early twentieth century. This intellectual history is extended to broader cultural and political contexts. Key period is between 1910 and 1968, when modernity's key aspirations and tensions became explicit. Cross-listed with HUM 5550 and PHIL 5550.

S SC 5600-3. Philosophy of Religion. Nature of religion and methods of studying it. Cross-listed with HUM 5600, PHIL 4600, 5600, RLST 4060.

S SC 5650-3. Reflections on Modernity. Explores modernity as a historical epoch and a theoretical space, looking at the commentaries and reflections of influential 20th century thinkers including Adorno, Arendt, Levinas, Merleau-Ponty, Habermas and Foucault. Examines how the theoretical inclinations of modernity were influenced by politics, art, literature and culture. Cross-listed with HUM 5650 and PHIL 5650.

S SC 5720-3. Sexuality, Gender and Their Visual Representation.

Studies sexuality, gender and identity representation from classical antiquity through the present in the visual arts. Uses the literature of visuality, feminism, race and queer theory. Explores representations of femininity, masculinity and androgyny and their reinforcement and challenge to gender-identity norms. Cross listed with HUM 5720.

S SC 5750-3. Philosophical Psychology. Explores debates about psyche and body, mind and world, self and others and consciousness and nature. Examines the philosophical questions related to those debates that arise within theories of perception, affect and cognition offered by influential psychological models. Cross-listed with HUM 5750.

S SC 5830-3. Grant Writing for Nonprofits. Designed to help current and future professionals in the nonprofit sector understand the social, political, and economic context and mechanics of pursuing grants, government contracts and other funding for nonprofit organizations. Cross-listed with P SC 5830.

S SC 5840-1 to 3. Independent Study.

S SC 5933-3. Philosophy of Eros. Why is philosophy an erotic activity and what are the implications of this insight? We will explore these issues, first, by reading Plato's erotic dialogues: *Lysis*, *Symposium* and *Phaedrus*. Then we will focus on Freud's influential (and controversial) appropriation of Plato's thought in the writings that span his career, from *The Interpretation of Dreams* (1900) to *Civilization and its Discontents* (1930) and beyond. Finally, we will survey post-Freudian theories of eros, such as Michel Foucault's *History of Sexuality*, as well as the more recent contributions of thinkers such as Jonathan Lear, Thomas Nagel, Martha Nussbaum and Slavoj Žižek. Cross listed with PHIL 4933/5933 and HUM 5933.

S SC 5939-1 to 6. Internship/Cooperative Education.**S SC 6950-1 to 8. Master's Thesis.**

S SC 6960-1 to 6. Master's Project or Report. Research which may be based on field work.

STSK: Study Skills (Liberal Arts and Sciences)

STSK 0800-1. Research Process for ESL Students. Designed for students who are unfamiliar with the process of academic research. Covers the steps involved in producing a research paper, including resource evaluation skills. Grammar is covered as necessary according to student needs.

STSK 0801-1. Communication Skills for ESL Students. Meets twice a week to improve the oral communication skills of students whose first language is not English. Skills include use of idiomatic English, cross-cultural awareness, cross-cultural problems in communications and pronunciation.

STSK 0803-1. Speech Presentation for ESL. Follows STSK 0801 in the oral communication skills sequence. Focuses on the structure used in formal speech presentation along with continued improvement in pronunciation. Prereq: STSK 0801.

T ED: Teacher Education (Education)

T ED 4800-.5 to 4. Workshop: Teacher Education. This is a workshop course and the description varies each time the course is offered.

T ED 5000-.5-4. Special Topics: Teacher Education. This is a workshop course and the description will vary each time the course is offered.

THTR: Theatre (Arts & Media)

THTR 1001-3. Introduction to Theatre: GT-AH1. Discussion, workshops and lectures designed to discover, analyze and evaluate all aspects of the theatre experience: scripts, acting, directing, staging, history, criticism and theory. Play-going and field trips to several Denver-area theaters, demonstrations and participation in live productions. This course will not satisfy any degree requirements for Theatre or Film majors.

THTR 1050-4. Video Production/Post-Production I. Students gain a knowledge of single camera video techniques and are introduced to nonlinear digital editing. Course work is hands-on and collaborative, with several projects shot and edited. Learning centers on storytelling, including pacing and aesthetics. Prereq: THTR 1600 or permission of instructor. Cross-listed with FILM 1050.

THTR 1550-3. Scriptwriting I. Each student conceptualizes, designs and creates short dramatic scripts. These scripts are for stage and screen, with production lengths from one to ten minutes. Instruction includes story development through first draft and rewrites, incorporation of critical feedback and the merger of image and idea to convey dramatic concepts. Students compare theatrical and video performance realization. Cross-listed with FILM 1550.

THTR 1600-3. Performance Visualization I. The first half of the required integrated foundations class for all TFVP majors. Focuses on fundamentals of design, dramatic literature, film expression and film analysis and the fundamentals of acting for stage and camera. Prereq: TFVP major or permission of instructor. Cross-listed with FILM 1600.

THTR 1601-1. Scenery Laboratory I. This is one of three laboratories required as a co-requisite for THTR/FILM 1600. Students learn the skills needed for technical theatre and scenery construction for building theatre, television and film sets. Must be taken in the same semester with the other two co-requisite laboratories, THTR/FILM 1602 (Costume Laboratory I) and THTR/FILM 1603 (Camera Equipment and Techniques Laboratory I). Prereq: must be a TFVP major. Cross-listed with FILM 1601.

THTR 1602-1. Costume Laboratory I. This is one of three laboratories required as a co-requisite for THTR/FILM 1600. Students learn the skills needed for costume construction for theatre film and television. Must be taken in the same semester with the other two co-requisite laboratories, THTR/FILM 1601 (Scenery Laboratory I) and THTR/FILM 1603 (Camera Equipment and Techniques Laboratory I). Prereq: must be a TFVP major. Cross-listed with FILM 1602.

THTR 1603-1. Camera Equipment and Techniques Laboratory I. This is one of three laboratories required as a co-requisite for THTR/FILM 1600. Students learn the skills needed for using camera equipment for shooting footage for film and television. Must be taken in the same semester with the other two co-requisite laboratories, THTR/FILM 1601 (Scenery Laboratory I) and THTR/FILM 1602 (Costume Laboratory I). Prereq: must be a TFVP major. Cross-listed with FILM 1603.

THTR 1610-3. Performance Visualization II. The second half of the required integrated foundations class for all TFT majors. Emphasis is placed on the analysis of dramatic literature, the art of television and the continuation of design and development of acting skills for stage and camera. Prereq: Must be a TFVP major; THTR/FILM 1600, 1601, 1602, 1603 or permission from instructor. Cross-listed with FILM 1610.

THTR 1611-1. Acting Laboratory I. This is the co-requisite laboratory required for THTR/FILM 1610. Students develop the acting skills begun in THTR/FILM 1600. Note: All THTR/FILM students must register for THTR/ FILM 1611. Prereq: THTR 1600 or Film 1600. Cross-listed with FILM 1611.

THTR 1612-2. Scenery Laboratory II. This is one of three laboratories required as a co-requisite for THTR/FILM 1610. Students learn advanced skills of scenery and technical theatre needed for theatre production. Note: All THTR/FILM STUDENTS MUST REGISTER FOR THTR/FILM 1611. Prereq: must be a Theatre, Film and Television Major; THTR/FILM 1600, 1601, 1602, 1603 or permission of instructor.

THTR 1613-2. Costume Laboratory II. This is one of two laboratories required as a co-requisite for THTR/FILM 1610. Students learn advanced skills of costume construction needed for theatre production. Note: All THTR/FILM STUDENTS MUST REGISTER FOR THTR/FILM 1611. Prereq: must be a theatre, film and television major; THTR/FILM 1600, 1601, 1602, 1603 or permission of instructor.

THTR 2450-3. Introduction To Performing Arts and Events Management. Offers students the ability to learn about stage managing events in the performing arts, in a nonpressure environment where

leadership and organizational skills may develop and the student can gain a general understanding of the profession. Cross-listed with MUS 2450.

THTR 2520-3. Voice and Movement I. Designed to introduce the physiology, theory, techniques and skills of vocal production, articulation and basic movement skills for the actor. Coreq: Performance Visualization I for BFA Performance Emphasis.

THTR 2521-3. Voice and Movement II. Further investigates advanced problems of vocal production, diction, text and movement applications for the actor. Prereq: Voice and Movement I (or equivalent) and Performance Visualization I and II (or equivalent).

THTR 2530-3. Acting: Character and Staging. Fully prepared scene studies leading to advance work in characterization and staging. Methods of discovering and utilizing the range of creative potential play scripts from the current production season are emphasized. Prereq: Voice and Movement I (or equivalent) and Performance and Visualization I and II (or equivalent).

THTR 2560-1 to 6. Topics in Theatre. Introductory acting course which focuses on the skills comprising the actor's art and their direct application to all disciplines of study outside of the theatre major. Students investigate interpersonal skills such as collaboration, communicating, risk-taking, listening and creative problem solving.

THTR 2560-1 to 6. Topics in Theatre.

THTR 2600-3. Studio I: Dynamics of Content Creation. Investigates the process of creating performance texts for live, recorded and mixed presentation as well as the methods of selecting, transforming and scoring material for performance. Prereq: Performance Visualization I & II or permission of instructor.

THTR 2610-3. Studio II: Dynamics of Production and Style. Examines the discrete properties of the media utilized in theater production and the dynamics of these media in context of how they create meaning, reflect the artists' world view and, in context of each other, define production style. Prereq: Performance Visualization I & II or permission of instructor.

THTR 2700-3. Art for The Theatre. Studies drawing, sketching, drafting and rendering with practical application towards theatre, film and video design techniques. Includes a study of dramatic literature interpretation and of visual research techniques towards application of theatrical design. Prereq: THTR/FILM 1600 and 1610 or permission of instructor.

THTR 2840-1 to 3. Independent Study. Prereq: written permission of the supervising instructor.

THTR 3010-3. Stage and Production Management. This is a course that addresses aspects of planning and managing various theatrical events and live performances. Emphasizes maximum results, given the complexity of live performance and the resource pool. Prereq: THTR/FILM 1600 or THTR/FILM 1610 or instructor permission.

THTR 3530-3. Acting: Character and Text. Fully prepared scene studies leading to advance work in characterization and text. Methods of discovering and utilizing the range of creative potential play scripts from the current production program are emphasized. Prereq: Voice and Movement I (or equivalent) and Performance Visualization I and II (or equivalent); coreq: Voice and Diction II.

THTR 3531-3. Theatre of Social Responsibility. The research and development of a one-act interactive theatre piece based on a selected social, political, or community concern, (peer pressure, gender identification and substance abuse) which are toured to appropriate locales for performances and follow-up workshops and discussions. Prereq: at least one Arts and Media class or permission of instructor following an interview.

THTR 3540-3. Directing: Text and Analysis. Explores the director's analytical processes and interpretative choices in preparing a script for production with primary focus on representational theater. Prereq: Performance Visualization I & II or permission of instructor.

THTR 3560-1 to 3. Topics in Theatre. Various topics in the study of the theatre of special interest to majors with an emphasis in theatre.

THTR 3610-3. Performance: Theory/History/Criticism I. Part one of two semester course sequence exploring questions of dramatic theory

and dramaturgy in context of the development of Western Theater before 1850 and an analysis of historical modes of production, dramatic text and artistic creation in relation to contemporary theatrical practice. Prereq: Studio II or permission of instructor.

THTR 3611-3. Drama of Diversity. Investigates the creation and reinforcement of gender, ethnic and racial stereotypes in theatre, film and television in the United States. The course explores how popular images are created by writers, directors and performers and become "reality" for the audiences for which they are intended.

THTR 3720-3. Lighting Design. A practical introduction to the history, theory, practice and equipment for lighting performing arts productions. Course emphasizes textual analysis for lighting design, basic electricity, lighting equipment and control, safety practices and lighting graphics. Requirements include related experiences with departmental productions. Prereq: THTR/FILM 1600, 1610 and THTR 2700 or permission of instructor.

THTR 3730-3. Scene Design. Introduces the principles and practices of scenic design for the theatre. Emphasizes textual analysis, the aesthetic and practical elements of design, design development and theatrical graphics. Requirements include related experiences with departmental production, Theatre Buffs or directing productions. Prereq: THTR/FILM 1600, 1610 and THTR 2700 or permission of instructor.

THTR 3740-3. Costume Design. Introduces the principles and practices of costume and make-up design for the theatre. Costume design focuses on basic figure drawing, practical elements of design, design development and different costume rendering techniques. Make-up design encompasses basic and specialty make-up application along with creating life masks. Prereq: THTR/FILM 1600, 1610 and THTR 2700 or permission of instructor.

THTR 3760-3. Sound Design for the Theater. Studies sound design with practical application towards usage in the theatrical discipline. Includes studio techniques, live playback, script analysis, graphic techniques for sound plots and selection and recording techniques to amplify or otherwise manipulate the performer's voice, recreate sounds as they naturally occur and influence the emotional content of the drama. Prereq: THTR/FILM 1600 and 1610 or permission of instructor.

THTR 3820-1 to 3. Production Process. Sequence of structured experiences in performance, management and technical designed to explore various facets of theater production. Prereq: THTR/FILM 1600, 1610 and THTR 2700 or permission of instructor.

THTR 3838-1 to 3. Applications Seminar. Reflection on the intellectual competencies, artistic capabilities and skill sets gained throughout students academic career. Coursework in this seminar includes investigation of career opportunities and trends in theatre. This course is designed to be an alternative if THTR 3939-Internship, is not appropriate or available. Prereq: senior standing.

THTR 3840-1 to 3. Independent Study. Prereq: written permission of supervising instructor.

THTR 3939-1 to 3. Internship/Cooperative Education. Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: junior standing and 2.75 GPA.

THTR 4530-3. Acting: Character and Media. Provides the study, skill development and workshop experience for the actor in media work-film, television, video and voice over. Prereq: Voice and Movement I (or equivalent) and Performance Visualization I and II (or equivalent). Cross-listed with THTR 5530.

THTR 4540-3. Directing: Staging and Process. Explores the Director's contemporary staging options, rehearsal processes and production development of text and non-text-based work in the context of traditional as well as experimental approaches to theatricality. Prereq: Performance Visualization I & II or permission of instructor. Cross-listed with THTR 5540.

THTR 4550-3. Playwriting: The Short Form. Writing workshop in one-act plays, with special emphasis on the demands of production: space, acting, staging conventions and techniques. Cross-listed with THTR 5550.

THTR 4560-1 to 3. Topics in Theatre. Various topics in the study of the theatre of special interest to acting majors, with an emphasis in theatre.

THTR 4610-3. Performance: Theory/History/Criticism II. Part two of two semester course sequence exploring questions of dramatic theory and dramaturgy in context of the development of Western Theater after 1850 and an analysis of historical modes of production, dramatic text and artistic creation in relation to contemporary theatrical practice.

Prereq: Studio II or permission of instructor.

THTR 4730-3. Advanced Scenic Design. Class projects stress development of graphic techniques, exploration of design styles and the integration of related theatrical design areas. Concentration is on scenic design for various theatre forms and performing arts. Requirements may include related experiences with departmental production, Theatre Buffs, affiliated off-campus theatres and directing class productions.

Prereq: THTR 3730 or equivalent.

THTR 4760-3. Topics in Design. A special topics investigation of trends in production design and experimental practices in traditional and nontraditional endeavors. Prereq: THTR 3730 and 4730 or permission of instructor.

THTR 4840-1 to 3. Independent Study. Prereq: written permission of supervising instructor.

THTR 4999-3. Senior Seminar and Project. A two semester seminar integrating the development of four capstone projects (research, creative work, collaborative process and service/outreach) with a continuing forum focused on current issues in professional practice. Prereq: Senior status in Theater.

THTR 5530-3. Acting: Character and Media. Provides the study, skill development and workshop experience for the actor in media work-film, television, video and voice over. Prereq: Voice and Movement I (or equivalent) and Performance Visualization I and II (or equivalent). Cross-listed with THTR 4530.

THTR 5540-3. Directing: Staging and Process. Explores the Director's contemporary staging options, rehearsal processes and production development of text and non-text-based work in the context of traditional as well as experimental approaches to theatricality. Prereq: Performance Visualization I & II or permission of instructor. Cross-listed with THTR 4540.

THTR 5550-3. Playwriting: The Short Form. Writing workshop in one-act plays, with special emphasis on the demands of production: space, acting, staging conventions and techniques. Cross-listed with THTR 4550.

THTR 5560-1 to 3. Topics in Theatre. Covers different areas of theatre. Can be taken more than once for credit when topics vary. Prereq: permission of instructor.

THTR 5840-1 to 3. Independent Study. Prereq: written permission of supervising instructor.

U D: Urban Design (Architecture and Planning)

U D 5500-6. Urban Experience Studio. This studio is the central component of an interdisciplinary course sequence that introduces the process of urban design through analysis of landscape and infrastructure as elements of the city. Prereq: Faculty approval.

U D 6600-6. Transformation Decomposition Studio. The first studio of a two-studio sequence introduces the process of urban design in urban structure through analysis of landscape and structures as elements of the city. The studio then is an attempt to restore immanent conditions—the suspension between origin and effect, between positive and negative elements of urban structure.

U D 6601-6. Composition Studio. This studio builds upon the analytical investigations conducted in the previous semester and explores the process of composition or recomposition in the architecture of the city. Drawing upon deconstructionist theory, the studio presents a challenge to the hegemony of traditional design studios and is a search for authenticity. Considering architecture as text, the studio is a means to represent an invention, an invited speculation on the conditions of architecture of the city.

U D 6602-6. City of Exploration and Experimentation Studio.

This is an optional independent studio where individual students pursue their individual interests with an emphasis on interaction between architecture and other disciplines. This studio is structured as a cumulative synthesis of knowledge and skills into an original proposal for the betterment of city conditions.

U D 6620-3. Architecture of the City. Focuses on interpretation of architecture of the city and its landscape, articulation and disarticulation, discontinuity of order, immanence and memory. Drawing from contemporary writers such as Derrida, Barthes, Adorno, Habermas, Heidegger, Husserl and others. Examines the questions of replication, representation and signification in the city.

U D 6621-3. The City as an Artifact. Focuses on the study of original and nonoriginal architecture and its implications to urban context. Beginning with examination of classical representation and refutation, the course attempts to present denial and possibility in architecture by investigating tradition and metaphysics of origins and presence.

U D 6686-1 to 6. Special Topics in Urban Design. Various topical concerns are offered in urban design history, theory, elements, concepts, methods, implementation strategies and other related areas.

U D 6840-1 to 3. Independent Study. Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to urban design.

U D 6930-3. Urban Design Internship.

U D 6951-6. Urban Design Thesis.

URP: Urban and Regional Planning (Architecture and Planning)

URP 5501-3. Planning Issues and Processes. Provides an overview of planning history and theory. The philosophical, political and economic roots of the various theories are discussed. Ideas are placed in the context of the planning profession's history and its present aims, interests and ethics.

URP 5510-3. Planning Methods I. Focuses on the application of statistical, quantitative and mathematical techniques and computer applications for urban and regional planning and policy development. Major topics include types of data, sampling, basic probability distributions, hypothesis testing, regression and correlation and an introduction to multivariate and cluster analysis. Applications in planning and development are emphasized. Cross-listed with GEOG 4000.

URP 5511-3. Planning Methods II. Addresses advanced models associated with the estimation, prediction and prescription of conditions and trends in population, employment, land use and transportation. Considers means for program scheduling and evaluation. Introduces essential software. Examines the means for orchestrating analytic studies that inform all phases of project, comprehensive and strategic urban and regional planning.

URP 5520-3. Urban Spatial Analysis. Examines the spatial patterns and spatial processes associated with urban areas. Considers the city as a system and the system cities. Major topics include: defining urban/spatial/analysis; economic theory of origin of city; urban land market and land value; urban social space; urban industrial and retail structure; economic base and urban growth; city of the mind and ethnic minority small business in the city.

URP 5530-3. Planning Law. Focuses on the legal setting for urban and regional planning in the United States and major constitutional issues in the effectuation of planning policy. Contemporary controversies are put into the larger context of attempts by the judicial system to redefine the balance between individual rights and governmental power in an increasingly weakened society.

URP 6612-3. Geographic Information Systems for Planners. Introduces the use of geographic information systems for environmental, economic and physical planning. Focuses on what a GIS is and how it works, data issues and using a GIS to improve planning and decision making.

URP 6630-6. Planning Studio I. Focuses on plan design in urban and regional planning and explores basic concepts, techniques and issues related to urban planning, urban design, site planning and environmental awareness.

URP 6631-6. Planning Studio II. Focuses on plan-making related to urban and regional planning. An understanding of the plan-making process is emphasized. Students have direct experience with the various steps in planning, including data-gathering, goal-setting, identification of alternatives, analysis, synthesis and presentation of the plan. The plan may be for a city sector, a neighborhood, an entire community, a region, or it may be a policy plan. Where possible, students work with an actual client. Prereq: URP 6630.

URP 6632-3. City Design Policy. Evaluation of the qualities of urban form and ways of intervening in its production. Implementation of urban design policy for planners and design professionals.

URP 6633-3. Urban Form Theory. A description and analysis of contemporary schools of thought on urban physical form. Theories are evaluated according to the accuracy of their explanations of present urban form, the quality of their images of future form and the practicality of their strategies for implementing their ideal using a slide/lecture/discussion format.

URP 6634-3. Preservation Theory and Practice. Philosophical questions in preservation practice; balancing significance in the environment with natural decay and demands for change. Policy issues as well as preservation and adaptation design.

URP 6635-3. History of American City Building. Planning and design history often focuses on utopias, reforms and precedents and the superlative and Avant-Garde. This course looks at changing norms: how the ordinary environment was produced and by whom, in the United States from 1800 to the present. Prereq: graduate students - none; undergraduate students - permission of instructor.

URP 6640-3. Community Development Process. Introduces community development, a field closely allied with planning, in its devotion to working with people to strengthen their communities in accordance with locally-determined goals. Emphasis is placed on understanding groups, organizations and communities and on developing skills in such areas as community analysis, goal setting, group facilitation and problem solving.

URP 6641-3. Social Planning. An increasingly important specialty in contemporary planning practice is social planning. This course covers the process of formulating public policies and designing, implementing and evaluating programs in such areas as social services, housing, health care, employment and education. Attention is given to the historical perspective and the present-day social and political context within which social policy formation and social planning occurs.

URP 6649-3. Environmental Planning I: Ecology. Studies the physiography, cultural factors and aesthetic criteria in relation to landscape and spatial organization and structure. Covers data sources and interpretation and looks at environmental factors in development and site analysis. Prereq: URP 5510 or permission of instructor.

URP 6650-3. Environmental Planning II: Policy and Law. Provides a comprehensive perspective on environmental planning policy. Focuses on major environmental issues and problems, methods of evaluation and legislative responses. Prereq: URP 5530 or permission of instructor.

URP 6651-3. Environmental Impact Assessment. The objective of this course is to provide the foundation for understanding the environmental impact assessment process, its legal context and the criteria and methods for procedural and substantive compliance. Prereq: URP 5530 or permission of instructor. Cross-listed with GEOG 4220, 5220.

URP 6652-3. Growth Management. Examines environmental and land regulations such as zoning, subdivision controls and growth management systems in the context of public policy. Emphasis is placed on case studies, the analysis of past and present practices, improvement of existing systems and the design of new regulatory systems. Prereq: URP 5530 or permission of instructor.

URP 6653-3. Natural Resource Planning and Management. Considers methods for managing renewable and nonrenewable resources using both legislative and economic controls. The role of technology, ideologies and equity are discussed. Decision making techniques are applied to problems of resource and environmental

management. The ability to allocate and control resource usage to ensure sustainability are discussed. Cross-listed with GEOG 4260.

URP 6656-3. Regional Land Use Analysis and Planning. Considers the means for documenting land use, appraising environmental constraints, establishing developmental options, directing growth and preserving natural, agricultural and other open space in both metropolitan and rural regional settings. Stresses spatial analysis, policy prescription, regulatory constraint and institutional development for subnational regional strategic growth management.

URP 6660-3. Real Estate Development Process. A detailed analysis of components of real estate process and its relationship to the design profession and other key participants. Students learn what variables are within the real estate development business, how they interrelate and why projects succeed or fail.

URP 6661-3. Real Estate Development Finance. Focuses on financial analysis of real estate investments. Covers topics including measures of value, capitalization rate, capital budgeting, debt and equity markets and taxation. Cash flow and appraisal techniques, complex deal structuring, innovations in debt financing, syndications, tax shelters, tax-exempt financing and micro-computer applications also are covered.

URP 6665-3. Urban Market Analysis. Considers how markets for land and real estate, labor, capital and private and public goods and services deploy resources and shape both social and spatial outcomes in urban settings. Posits models of policy intervention whose effects are transmitted by private actions orchestrated within the interlocking markets that form the economy of cities. Provides selected examples of the analysis of markets in such policy venues as land development, public transit, urban housing and regional labor markets. Prereq: URP 5510 and 5520.

URP 6670-3. Urban Economic Development. Examines the process of local economic development and seeks from the theory of economic change essential modes of policy intervention. Local economies are seen to serve these central functions: employment, fiscal betterment and growth enabling certain efficiencies of public and private goods and services, and a greater diversity of opportunities. Weighs the merits of indigenous development versus external recruitment and both in relation to regional carrying capacities that ultimately define growth's limits. Addresses tools needed to analyze, induce and regulate change. Posits economic development in relation to physical planning via strategic policy.

URP 6671-3. Regional Economic Development. Examines the economies of metropolitan, rural, state and national regions, placing each within the fabric of global relations that direct capital, manage productive activities and govern prosperity's geography. Organized both sectorally and spatially, the course addresses key sectors of the emerging global economy, as well as the rationale of the "entrepreneurial" state at the public-private interface. Posits institutional approaches and professional roles in the management of regional economies. Seeks in theory a template of regional change and both the means and purpose of policy intervention. Finds in strategic planning an integration of developmental and environmental perspectives. Prereq: URP 5520 or permission of instructor. Cross-listed with GEOG 4400.

URP 6673-3. Transportation Planning I: Transport Network Analysis. Examines several important aspects of the transport network: accessibility and connectivity of nodes and linkages and the volume and direction of the flow of a transport network. Descriptive, predictive and planning methods and models discussed include graph theoretical measures, connectivity matrices, gravity model, abstract mode model, entropy-maximization, trip generation model and flow allocation models. Prereq: URP 5510 or permission of instructor. Cross-listed with GEOG 4630.

URP 6674-3. Transportation Planning II: Urban Transportation Planning. Examines major issues of transportation in urban development, the urban transportation system, the relationship between land use planning and transportation planning, urban transportation planning processes and selected issues. Introduces the use of two state-of-the-art

multi-modal transportation computer programs - EMME2 and TransCAD. Prereq: URP 6673. Cross-listed with GEOG 4670.

URP 6676-3. Urban Housing. Examines planning and other aspects of urban housing, focusing primarily on U. S. urban housing conditions with some references to international conditions and comparisons.

Major topics of the course include aggregate trends and patterns, housing in spatial context, the allocation process of housing markets and submarkets (supply/finance, demand/mobility/demographic change), housing problems and failures), (substandardness, inequitable distribution, special group needs, segregation and discrimination, market problems), the role of government and alternative approaches.

URP 6680-3. Urbanization in Developing Countries. A description, analysis and evaluation of urbanization and planning in less developed countries. The special problems of planning, housing, transportation, environmental quality and economic development in cities of these countries are addressed. Comparisons are made among cities of third-world countries and between third-world countries and first-world countries.

URP 6686-1 to 6. Special Topics in Urban and Regional Planning. Various topical concerns are offered in urban and regional planning, theory, concepts, methods, case studies and practice.

URP 6840-1 to 3. Independent Study. Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to urban and regional planning.

URP 6910-6. Planning in Other Cultures II: Field Experience. Students travel to their respective cities and undertake agreed-upon study proposals. Intends not only to help students consider their own design and planning attitudes, but also to help them see the world from a more balanced perspective.

URP 6930-3. Planning Internship. Designed to provide professional practice experience in urban and regional planning. The emphasis is on actual work experience in settings with client groups as the students assist them in determining solutions to their problems. Program directors approval is required.

URP 6950-3. Thesis Research and Programming. Prereq: minimum of 24 credit hours earned toward completion of Master of Urban and Regional Planning degree.

URP 6951-3. Urban and Regional Planning Thesis.