Programs

Graduate Degree Programs

Accounting MS

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The master of science in accounting is a flexible program that allows students to design individualized courses of study including four designated specializations; auditing, corporate accounting, tax, and accounting and information systems audit and control.

The program provides students the opportunity to acquire a thorough understanding of financial and managerial accounting, auditing, accounting information systems, and taxation in preparation for successful careers in public or private accounting, as well as government or nonprofit accounting. Students have ample opportunity to choose coursework necessary to sit for the CPA exam, the CMA exam and other similar professional accounting certifications.

We offer a 4+1 program that allows our current undergraduate accounting students to pursue the master of science degree if they achieve a cumulative GPA of 3.25 or higher without taking the GMAT test. Students are also allowed to replace two undergraduate required accounting courses with two graduate accounting courses. Interested students please contact the Business School advising team.

The MS accounting degree consists of 30 required hours + 18 hours that may be waived based on prior coursework (9 hours of prerequisites + 9 hours of Common Body of Knowledge (CBK):

Accounting Prerequisites: (9 hours)

The MS in accounting requires completion of the following accounting prerequisites.

Required Prerequisite Courses (advisor will evaluate transcript for possible waivers, grades must be a C or better to be considered for possible waiver):

- ACCT 6031 - Intermediate Financial Accounting I
  (Equivalent undergraduate course: ACCT 3220: Intermediate Financial Accounting I)
- ACCT 6032 - Intermediate Financial Accounting II
  (Equivalent undergraduate course: ACCT 3230 Intermediate Financial Accounting II)

- ACCT 6070 - Intermediate Cost Accounting
  (Equivalent undergraduate course: ACCT 3320 Intermediate Cost Accounting)

Common Body of Knowledge (CBK): (9 hours)

Depending on prior coursework, students may be required to take up to three background courses (advisor will evaluate transcript for possible waivers in the CBK):

- BUSN 6530 - Data Analysis for Managers
- BUSN 6540 - Legal and Ethical Environment of Business
- BUSN 6620 - Applied Economics for Managers

Accounting Core: (12 hours)

Students may not receive graduate credit for undergraduate coursework and may not retake any course successfully completed at the undergraduate level with a grade of "C" or better. An advisor will evaluate prior coursework to determine possible substitutions.

- ACCT 6020 - Auditing Theory
- ACCT 6054 - Accounting Systems and Data Processing
- ACCT 6140 - Fundamentals of Federal Income Tax
- ACCT 6442 - Accounting: Professional Research and Communications

Accounting Capstone: (6 hours)

- ACCT 6250 - Seminar: Financial Accounting
- ACCT 6260 - Seminar: Managerial Accounting

Accounting Electives: (6 hours)

ACCT or MTAX courses numbered 6000 or higher excluding ACCT 6030, 6031, 6032, and ACCT 6070**.** Courses contributing to one of the specializations may be used to meet this elective requirement.

Free Electives: (6 hours)

Accounting careers are increasingly diverse, cutting across many industries, business functions and decisions. Accountants may eventually work as auditors, systems analysts and designers, financial planners, tax specialists, cost analysts, financial planning and budget officers, controllers, chief financial officers, or chief executive officers. Students will be better prepared for their careers if they develop additional competencies in a related field, which may be chosen from a single discipline such as finance, information systems, business analytics, entrepreneurship, international business, marketing, or management.

Free electives may consist of any course numbered 6800 or higher with BUSN prefix or any course numbered 6000 or higher with a prefix of ACCT, BANA, CMDT, ENTP, FNCE, INTB, ISMG, MGMT, MKTG, RISK, or MTAX excluding ACCT 6030, 6031, 6032, and ACCT 6070.

Total: 30 hours

Accounting Specializations

Students may use a combination of accounting and free electives to complete one or more of the following specialization options. Auditing, Corporate Accounting, or Tax. Students will follow the MS Accounting requirements above for the specializations. If students wish to pursue the Accounting and Information Systems Audit and Controll Specialization follow the requirements listed below that specialization.

Note: While we approve completing one or more specializations, due to variability in course scheduling, students may not be able to complete more than one specialization.

Auditing Specialization

Complete the required courses below:

- ACCT 6025 - Auditing Practice
- ACCT 6620 - Seminar: Auditing and Other Assurance Services

Complete one of the following:

- ACCT 6330 - Fraud Auditing
- ACCT 6510 - Accounting and Information Systems Processes and Controls

Corporate Accounting Specialization

Complete this required courses below:

- ACCT 6150 - Taxation of Business Entities
- ACCT 6220 - Controllership: Financial Strategy and Controls

Complete one of the following courses:

- ACCT 6024 - Advanced Financial Accounting
- ACCT 6340 - Financial Statement Analysis

Tax Specialization

Complete the required courses below:

- ACCT 6150 - Taxation of Business Entities
- MTAX 6450 - Research Problems and Business Communications in Taxation

Complete one of the following courses:

- MTAX 6400 - Taxation of C Corporations and Shareholders
- MTAX 6410 - Individual Income Tax
- MTAX 6480 - Partnership Taxation

Accounting and Information Systems Audit and Control (AISAAC) Specialization

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 specialization 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.

As you will note, this degree plan is 30 hours + 12 hours prerequisite hours + 9 hours in Common Body of Knowledge (CBK) as listed below.

Accounting Prerequisites: (12 hours)

Undergraduate course equivalents must be completed with a "C" or better. Undergraduate grades below a "C" will not be passing for the accounting prerequisites and the student will be required to retake the course or take the graduate equivalent below. Advisor will evaluate transcript for possible waivers.

- ACCT 6031 - Intermediate Financial Accounting I
- ACCT 6032 - Intermediate Financial Accounting II
- ACCT 6070 - Intermediate Cost Accounting
- ACCT 6054 - Accounting Systems and Data Processing

Common Body of Knowledge (CBK): (9 hours)

Advisor will evaluate transcript for possible waivers in the CBK.

- BUSN 6530 - Data Analysis for Managers
- BUSN 6620 - Applied Economics for Managers
- BUSN 6540 - Legal and Ethical Environment of Business

AISAAC Common Courses: (12 hours)

Complete the following required courses:

- ACCT 6020 - Auditing Theory
- ACCT 6510 - Accounting and Information Systems Processes and Controls
- ISMG 6040 - Business Process Management

- ISMG 6830 - IT Governance and Service Management

Accounting Core: (9 hours)

Complete the following required Core courses:

- ACCT 6250 - Seminar: Financial Accounting
- ACCT 6260 - Seminar: Managerial Accounting
- ACCT 6620 - Seminar: Auditing and Other Assurance Services

Additional Degree Requirements: (9 hours)

Select 3 of the following courses:

- ACCT 6340 - Financial Statement Analysis
- ACCT 6360 - Fraud Examination
- ACCT 6470 - Internal Auditing
- ISMG 6080 - Database Management Systems
- ISMG 6180 - Information Systems Management and Strategy
  ISMG 6180 is cross-listed with BUSN 6610. Students may not receive credit for both ISMG 6180 and BUSN 6610.
- ISMG 6220 - Business Intelligence Systems and Analytics
- ISMG 6430 - Information Systems Security and Privacy

Administrative Leadership and Policy Studies (non-licensure): Early Childhood Education Concentration

The ALPS-MA Concentration Area in Early Childhood Education was developed for alumni of the Buell Early Childhood Leadership Certificate and serves to prepare leaders for positions in early childhood education. Buell alumni will transfer 15 of the credits earned as part of the Buell Early Childhood Leadership Certificate to this master's degree, and will complete an additional 15 credit hours to obtain the ALPS MA: Early Childhood Education degree. The content of this concentration focuses on leadership for equity and social justice.

This 30 credit hour degree is designed to be completed in approximately one year after completion of the one year Buell Early Childhood Leadership Certificate program. Curriculum focuses on leadership for equity and social justice and consists of an additional 15 credit hours of coursework.

Administrative Leadership and Policy Studies (non-licensure): Higher Education Leadership Concentration

The ALPS-MA (non-licensure) concentration in Higher Education Leadership serves to prepare leaders for positions in Higher Education or community based settings with the knowledge and skills necessary to support student success in accessing and completing college. Related career paths include higher education administration, student affairs, or college access programs. Graduates of this program will possess the knowledge and skills to work as effective leaders and change agents for promoting diversity and inclusion in higher education and college access and success settings.

This 30 credit hour degree is designed to be completed in approximately two years. Students will complete four leadership courses, one research course and five courses within Higher Education and Student Affairs.

Administrative Leadership and Policy Studies (non-licensure): Urban Education Concentration

The ALPS-MA Concentration Area in Urban Education serves to prepare leaders for positions of advocacy, change, and leadership in critical areas in urban education. The content of the concentration focuses on the history of schooling, curriculum theory, educational policy, and school reform. Graduates of this program will be prepared for advocacy roles and leaders of change.

This 30 credit hour degree is designed to be completed in approximately two years. Curriculum focuses on the history of schooling, curriculum theory, educational policy and school reform. Students will complete four leadership courses, one research course and five courses within Urban Education.

Administrative Leadership and Policy Studies EdS with Principal Licensure

The EdS degree program affords the opportunity for advanced graduate study and is available to those who already hold a master's degree. For the specialist degree students will complete 9 semester hours of faculty advisor approved graduate-level coursework that constitute an area of focus, in addition to the 32 semester hours required in the Principal Licensure program. The EdS Administrative Leadership & Policy Studies requires a total of 41 semester hours of coursework. Candidates must also successfully complete a comprehensive exam paper in the final semester, reflecting on how the three additional EdS classes will help them in the role of principal.

Administrative Leadership and Policy Studies MA with Principal Licensure

The MA is designed for those who do not already hold a graduate degree. Master's students will complete 9 semester hours beyond the 32 semester hours required in the licensure program, for a total of 41 semester hours of coursework. Candidates must also successfully complete a comprehensive exam paper in the final semester, reflecting on how the three additional MA classes will help them in the role of principal.

For the MA degree, students must select at least one course in each of the following three areas plus complete the 32 semester hour principal license:

Section A

Educational Research - Choose one course:

- RSEM 5100 - Basic Statistics
- RSEM 5110 - Introduction to Measurement
- RSEM 5120 - Introduction to Research Methods

Section B

Families and Communities or *Language Literacy & Culture* **-** *Choose one course:*

- COUN 6140 - Counseling Children, Adolescents and Their Parents
- COUN 6170 - Issues In Family Studies

- ECED 5060 - Working with Families and Communities
- HDFR 5010 - Family and Cultural Diversity
- HDFR 5040 - Latino Families in School and Communities
- HDFR 5045 - Abuelos (Grandparents) Latino Families
- HDFR 5075 - Family Policy & Law
- HDFR 5080 - Global Family Resource Management
- HDFR 5180 - Family and Community-Centered Classroom Practice
- HDFR 6000 - Family Theories
- LCRT 5815 - Family Literacies in Diverse Communities
- SPED 5300 - Family, Professional, and Community Collaboration

Language, Literacy & Culture

- CLDE 5010 - Foundations of Language & Culture in Education
- CLDE 5070 - Linguistic Analysis of English
- CLDE 5140 - Language, Culture & Educational Equity
- CLDE 5160 - History & Law of Bilingual & Immigrant Education
- CLDE 5170 - Race, Class and Culture in Public Schools
- CLDE 5800 - Language Variation & Implications for Teaching
- LCRT 5020 - Reading Development, Instruction and Assessment
- LCRT 5810 - Oral & Written Language & Literacy
- SCHL 5200 - Promoting Literature in Schools
- SPED 5780 - Literacy Intervention for Exceptional Learners

Section C

Learning & Development or *Diversity & Inclusion - Choose one course:*

Learning & Development

- COUN 5130 - College Student Development
- COUN 5400 - Career Development
- COUN 6230 - Developmental Counseling in Schools: Prevention & Intervention
- ECED 5070 - Social Competence and Classroom Supports
- ECED 5102 - Introduction to Developmentally Appropriate Curriculum
- ECED 5104 - Advanced Developmentally Appropriate Curriculum
- ECED 5110 - Advanced Infant and Toddler Development:
- EDHD 5110 - Human Learning
- EDHD 5180 - Psychology of Gifted, Talented and Creative Children
- EDHD 5200 - Social Psychology of Learning
- EDHD 5240 - Cognition and Instruction
- EDHD 6100 - Advanced Child Growth and Development
- EDHD 6140 - Social Contexts of Adolescence and Schooling
- EDHD 6200 - Human Development Over the Life Span
- EDHD 6320 - Mind, Brain, and Education
- EDHD 6350 - Theories of Personality Development and Change
- EDHD 6600 - Motivation in Contexts

- EDHD 6750 - Designing Environment for Learning and Development
- INTE 5320 - Games and Learning
- INTE 5340 - Learning with Digital Stories
- SPED 5151 - Slashing Stigmas: Promoting Positive Behaviors
- SPSY 5600 - Behavior Analysis and Intervention

Diversity & Inclusion

- COUN 5500 - Diversity, Inclusion, Social Justice in Higher Education
- ECED 5210 - Overview of Infant Toddler Autism Services
- ECED 6100 - Medical and Physiological Aspects of Development
- SCED 5340 - Equity & Culture in Science Education: Local/Global
- SPED 5000 - Universal Design for Learning (UDL)
- SPED 5010 - Intentional Interventions for Exceptional Learners
- SPED 5030 - Understanding (dis)Ability in Contemporary Classrooms
- SPED 5050 - Assessment & Advocacy for Multilingual Learners
- SPED 5500 - Transition and Secondary Methods in Special Education

Anthropology MA

► Graduate School Policies and Procedures apply to this program.

Plans of Study

MA students may pursue the thesis or non-thesis option.

- **Thesis Option:** A thesis is characterized by three factors: 1) it is based in a research question or problem; 2) it involves original research; 3) there is a fully developed research proposal. A thesis can also encompass a range of format alternatives to the traditional thesis (e.g. article submitted for publication to a peer-reviewed journal, or a video production, internship or museum exhibit, each generally accompanied by a companion paper developing a theoretical or problem-oriented question). The thesis option requires 30 semester hours, including 4-6 hours of thesis.

- **Non-Thesis Option:** This track is defined by additional course work in lieu of a thesis. The non-thesis option requires 36 semester hours of course work.

Thesis Option

The thesis is a major requirement for those in the MA in anthropology thesis track. The thesis should demonstrate the student's ability to apply knowledge and skills gained from the anthropology department's curriculum. A desirable goal for an excellent thesis would

be a work of sufficient rigor and quality that it could be considered for publication. Original data collection ("fieldwork") is recommended but not required for the thesis. Analysis of secondary data-whether quantitative, qualitative, visual or other formats-is perfectly acceptable as long as the research is informed by a clearly articulated research question and under-girded by a research proposal.

The traditional thesis is a single document that often incorporates a literature review, definition of a problem, discussion of methods to address the problem, the subsequent research activity and results. However, the student may design a thesis with different emphases, in consultation with their advisor. For example, the goal may instead be a more compact paper submitted to a peer-reviewed journal. Other thesis plans may combine some research activity such as a video production, museum exhibit or an internship, with an accompanying paper. Students pursuing the thesis option must develop a topic and research proposal that specifies their plans in the semester after their completion of 18 credit hours.

The thesis must be defended before a committee of three faculty, at least two of whom need to be on the Department of Anthropology faculty (which includes senior instructors and research faculty). The structure of the thesis is largely determined by the THE GRADUATE SCHOOL POLICIES AND PROCEDURES; i.e., a thesis must conform to the rules.

1. For the thesis, students must prepare a full research proposal which must be approved by their thesis chair before beginning their research. This proposal must be completed by the semester after the student has completed 18 credit hours. Sections of the proposal should include, at a minimum:
    a. Introduction and statement of the problem: Should include a one sentence statement of the problem on the first page, and a discussion of its significance (i.e., why is it important that this topic be researched).
    b. Literature review covering theoretical and topical material.
    c. Research design and methods including a data analysis plan.

    Note: Wenner-Gren and National Science Foundation both provide good models and templates for the research proposal. Those in the medical anthropology track might want to consider following the NIH model, depending the nature of their research questions and career goals.

2. All students proposing to work with humans or data on modern humans must apply for and receive approval from the Human Subjects Research Committee before they begin their research. Note: most of the material for the application will be drawn from the research proposal.
3. The draft thesis must be reviewed and approved as "defensible" by the student's thesis committee faculty chair before a thesis defense date can be set. Defensible means the chair has reviewed the draft and suggested changes have been made.

a. The draft sent to the student's committee must be substantively complete: All references must be in the text and properly formatted in a references cited section; there should be no "track changes" comments in the text; the text should be formatted according to Graduate School requirements.
b. Given the complexity of faculty and student schedules, consultation on a defense date should be done as far in advance as possible.
c. There must be a minimum of three weeks between the agreed-upon date for the defense and distribution of the draft thesis defined as defensible by the student's chair. If you would like feedback from your committee members before the defense, you should plan to distribute the thesis at least 4 weeks before the defense date.

Note: If you intend to graduate the same semester you defend your thesis, you must schedule, successfully defend, and complete all recommended changes in accordance with CU Denver THESIS AND DISSERTATION GUIDELINES. This effectively translates to having the thesis completed and "defensible" before the middle of the semester.

Non-Thesis Option

The non-thesis option allows students to pursue their own educational goals through the selection of additional courses that fit their interests. We strongly encourage students who choose this option to consider an internship position arranged around an area of expertise or the development of a skill-set. The internship may be in a governmental agency or non-governmental organization in Colorado, the U.S. or internationally. Successful completion of an internship will be acknowledged on the transcript of the MA program. The decision to pursue the non-thesis option should be made by the semester following the completion of 18 credit hours.

Additional Information

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 Campus allows up to five years to complete a master's degree, but students are strongly discouraged from spending more than four years. While it is possible to finish the MA in two years, most of our students work part-time, which limits the time they can dedicate to the program; most finish within three years. Four semesters must be taken in residence at CU Denver. All students are required to pass a written comprehensive examination, taken after core course work has been completed.

Some students may benefit from adding a specific skills-based certificate program onto their graduate program. For example: archeology students may wish to gain expertise in Geographic Information Systems through the GIS certificate offered through the Department of Geography and Environmental Sciences, while medical anthropology students may benefit from the certificate in public health offered through the School of Public Health or the environmental health certificate through the Master of Science in

Environmental Sciences program. Graduate-level courses in certificate programs can often fulfill elective requirements in the anthropology program.

One doctoral program at the CU Denver campus that may be of particular interest to graduates of the anthropology MA program is the PhD in Health and Behavioral Sciences . It is highly interdisciplinary and a natural extension of a master's degree in medical anthropology.

Course Requirements

Your graduate anthropology education begins by taking ANTH 5810, Integrating Anthropology, plus two core courses each from two subdisciplines of Anthropology. After completing this core, you will select from among the specialized elective courses in the research 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.

Required core courses (18 semester hours)

Required in fall of first year:

- ANTH 5810 - Integrating Anthropology

All students must complete or demonstrate competence in the following:

- ANTH 5053 - Quantitative Methods in Anthropology

Choose two of the following three sets of core courses (Students are not required to take these courses sequentially)

Archaeology

- ANTH 6307 - Contemporary Perspectives in Archaeology
- ANTH 6317 - Archaeological Research Design and Analysis

Biological

- ANTH 6503 - Biological Anthropology Core: The Fossil Record
- ANTH 6513 - Biological Anthropology Core: Modern Human Variation

Cultural

- ANTH 6063 - Qualitative Research Design and Methods
- ANTH 6103 - Current Theory in Ethnography

Research Concentrations (8-18 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. 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

Our MA program in cultural anthropology offers a unique focus on 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 health care 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, health disparities, community-driven wellness practices, visual storytelling, social media designed to promote health equities, and language and communication in health care contexts.

Faculty members take a variety of theoretical approaches to the topic, but our program is distinguished by its applied and engaged perspectives. A particular strength of our program is its integration of theoretical knowledge with community- and field-based training opportunities and challenges. We prepare students for careers in nonprofit and community groups, non-governmental organizations, advocacy, public health, health care institutions, and health sciences research; our graduates also attend doctoral programs at selective institutions. Courses in the department are complemented by electives in other departments (sociology, biology, psychology, history, geography, political science) and programs on the CU Denver campus (public affairs, education, health administration) and at the Anschutz Medical Campus (Schools of Medicine, Public Health, Pharmacy and Nursing).

Courses

As part of the MA degree, students may take between 6 and 18 credits of electives in this track, choosing from:

- ANTH 5000 - Special Topics in Anthropology
- ANTH 5014 - Medical Anthropology: Global Health
- ANTH 5040 - Anthropology of Food and Nutrition
- ANTH 5060 - Evolutionary Medicine
- ANTH 5080 - Global Health Practice
- ANTH 5090 - Drug Syndemic
- ANTH 5150 - Human Biocultural Adaptability

- ANTH 5180 - The Nature of Power
- ANTH 5290 - Anthropology and Public Health
- ANTH 5300 - Migrant Health
- ANTH 5350 - Anthropology of Globalization
- ANTH 5450 - Development and Conservation: Contemporary Issues
- ANTH 5460 - Development and Conservation: Theory and Practice
- ANTH 5600 - Medical Anthropology
- ANTH 5800 - Special Topics in Medical Anthropology
- ANTH 5200 - Gender in Cross-Cultural Perspective

  Note: Students are encouraged to take elective courses in GIS mapping (geography), ecology (biology/anthropology), public policy, public health, epidemiology and biostatistics as it is relevant to their course of study.

ARCHAEOLOGY

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 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.

Courses

- ANTH 5320 - Archaeology of Mexico and Central America
- ANTH 5330 - Lithic Analysis
- ANTH 5380 - Archaeology of Hunters-Gatherers
- ANTH 5400 - Archaeology of Power and Inequality
- ANTH 5570 - Landscape Archaeology
- ANTH 5580 - Neanderthals and the Origin of Modern Humans
- ANTH 5910 - Field Experience in Archaeology
- GEOG 5060 - Remote Sensing I: Introduction to Environmental Remote Sensing
- GEOG 5080 - Introduction to GIS
- GEOG 5220 - Environmental Impact Assessment
- HIST 5231 - History in Museums
- HIST 5232 - Historic Preservation
- HIST 5234 - Introduction to Public History

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.

Courses

- ANTH 5014 - Medical Anthropology: Global Health
- ANTH 5030 - Ethnobiology
- ANTH 5040 - Anthropology of Food and Nutrition
- ANTH 5060 - Evolutionary Medicine
- ANTH 5150 - Human Biocultural Adaptability
- ANTH 5500 - Advanced Issues in Human Evolution
- ANTH 5530 - Anthropological Genetics
- ANTH 5550 - Primate Comparative Anatomy
- ANTH 5560 - Human Ecology
- ANTH 5580 - Neanderthals and the Origin of Modern Humans
- ANTH 5640 - Darwinian Approach to Human Behavior
- BIOL 5074 - Human Reproductive Biology
- BIOL 5134 - Human Genetics
- BIOL 5494 - Population and Evolutionary Genetics
- HBSC 7031 - Human Ecology and Environmental Adaptation
- HBSC 7310 - Environmental Epidemiology

DEGREE TOTAL HOURS

Thesis Option: 30 Hours (including 4-6 hours of thesis)

Non-Thesis Option: 36 Hours

Applied Geography & Geospatial Science MA

► Graduate School Policies and Procedures apply to this program

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Introduction

In the United States and around the world, balancing the preservation of the natural environment with the imperatives of economic development along with concerns for social well-being has led to a growing demand for broadly trained individuals who can identify and understand pressing social and environmental issues, collect and analyze relevant data, and develop and implement innovative solutions. Graduates of the M.A program in Applied Geography and Geospatial Science will have the knowledge, training, and tools to become leaders in this rapidly growing field.

The program's research focus is human-environment interaction, a longstanding hallmark of the discipline of Geography. Within this area of critical geographic inquiry, the program emphasizes geospatial science, a federally recognized STEM subject area that includes geographic information systems (GIS) as well as computer cartography, remotely sensed image analysis, and spatial statistics. Students apply their geospatial research skills in the context of hands-on, faculty-led research projects that stress professional development through community engagement and interactive service learning.

Requirements for Admission

Applicants must hold a Bachelor's degree from an accredited institution.

The University of Colorado Denver has a minimum requirement of 3.0 undergraduate grade point average (GPA) for applicants to the Graduate School. The number of applicants admitted to the MA in Applied Geography & Geospatial Science in any year depends, in part, on space availability. The program is competitive, and we generally discourage applicants whose undergraduate GPA is below 3.0. Notification of acceptance or refusal for admission into the program is mailed to the applicant approximately six weeks after the deadline for submission of applications.

Application Process

We accept applications once per year, **before or on March 1st**, for admission in the following fall. As part of the admission review process, applicants are required to submit: a graduate application, statement of purpose that articulates the goals of pursuing a

graduate degree in this program, a writing sample, a minimum of three letters of recommendation (academic references are preferred), and official transcripts from all institutions previously attended. GRE scores are also required from domestic students with an undergraduate GPA below 3.0 and all international students.

Financial Aid

There are three types of financial aid available: teaching assistant student hourly positions; 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 Denver campus. Incoming students will be automatically considered for program-distributed assistance at the time of admission to the program. Continuing students will be regularly apprised of available aid and positions. All other aid should be requested through the CU Denver Financial Aid Office, Student Commons Building 5th floor, Campus Box 125, P.O. Box 173364, Denver, CO 80217-3364. Telephone: 303-315-1850.

Internships

Students in the Applied Geography & Geospatial Science MA program are strongly encouraged to contact the Experiential Learning Center for internships and paid positions related to geographical sciences. The Experiential Learning Center is located in the Tivoli Student Union, Suite 260. Telephone: 303-556-2250. Many students have had internships in federal agencies, such as the U.S. Environmental Protection Agency and the U.S. Geological Survey.

Degree Requirements

The program is offered by the faculty of the Department of Geography and Environmental Sciences in the College of Liberal Arts and Sciences. Students undertake 36 credit hours over a two-year period. These 36 hours include required core classes (6-9 credit hours), a required service learning studio (3 credit hours), and required geo-spatial science coursework (12 credit hours). Students can elect to undertake either of two tracks: the first "coursework" track involves a further 15 hours of elective courses, whereas the second "thesis" track involves 9 hours of electives, and preparation of a written thesis (3 credits).

Thesis Option

Take **all** of the following:

- GEOG 6300 - Foundations Seminar in Human-Environmental Interaction (3 hours)
- GEOG 6750 - Research Design (3 hours)
- GEOG 6800 - Community-Based Research Practicum (3 hours)

Take 12 additional hours of Geospatial Science courses

Take 9 hours of Elective courses (up to 6 hours can be taken outside the Department of Geography & Environmental Sciences, as approved by advisor)

- GEOG 6950 - Master's Thesis (3 hours)

33 hours of coursework and 3 thesis hours

Non-thesis Option

Take **all** of the following:

- GEOG 6300 - Foundations Seminar in Human-Environmental Interaction (3 hours)
- GEOG 6800 - Community-Based Research Practicum (3 hours)

Take 12 hours of Geospatial Science courses

Take 15 hours of Elective courses (up to 6 hours can be taken outside the Department of Geography & Environmental Sciences, as approved by advisor)

36 hours of coursework

Notes

1. Many of the electives have prerequisites; students must have met these requirements in order to take the course.
2. Courses applied to either a certificate* or an MA degree may later be applied toward the other if all pertinent coursework is completed within a fiveyear time period.
3. Students should fill out and submit all relevant department forms for their files. Importantly, all petitions for course substitutions and identification of where courses fit as electives, with the subsequent approval/denial, should be submitted to this file.
4. By the end of the first semester, each student should identify and declare whether or not s/he is pursuing the thesis or non-thesis option. If intending to pursue the thesis option, the student should identify and gain agreement from a content advisor for guiding the thesis, filling out and submitting the appropriate departmental form.
5. Many of the electives have pre-requisites; students must have met these requirements in order to take the course.

6. Students may transfer up to 9 hours of approved graduate-level credit into the program. These courses must be approved by the Graduate Director and they may not replace core courses.
7. Students may count up to 6-credit hours of independent, with a maximum of 3-credit hours per independent study towards elective credit in the major as approved by the Graduate Director. No more than 3 credit hours of independent study may be taken with the same instructor and they may not be taken in the same term.
8. Students may count up to 6-credit hours of internship in total, but 3-credit hours per internship and per entity (sponsorship may be with same professor sponsor)
9. Students may not count 4000-level courses towards electives in the program; this may be petitioned to the Graduate Committee in exceptional cases.
10. Students may take a maximum of 2 online courses, or petition to the GES Graduate Committee beyond two.
11. Students may enroll in thesis preparation and writing hours only after submission of signed committee form, which requires approval of the thesis proposal.
12. Students will not receive a grade for thesis preparation and writing hours until the thesis is successfully defended.
13. Students must follow the graduate school deadlines for submission of paperwork for the graduation application, comprehensive exam, and any other deadlines. Links to these can be found on the GES/MS website.
14. Work submitted for the environmental sciences options must have a grade of *B* (3.0) or better.

    * GES offers Geospatial, Environmental Education, and Urban Agriculture independent graduate certificates. These certificates may be earned without entrance into the MS in environmental sciences program. (See the Geographic Information Science Graduate Certificate, Sustainable Urban Agriculture Graduate Certificate , and Environmental Science Education Graduate Certificate descriptions.)

Applied Mathematics MS

► Graduate School Policies and Procedures apply to this program.

Program Requirements

Students must present 30 hours of course work and maintain a 3.0 GPA or above 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 of prior course work may be transferred in (subject to approval); these must be at the 5000 level or above with a *B*- or better grade. Courses already applied toward another degree (graduate or undergraduate) cannot be used toward the MS degree in applied mathematics. Additionally, the following MATH courses will NOT count toward a graduate degree: MATH 5000-5009, 5010, 5012-5015, 5017, 5198, 5250, and 5830.

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, all candidates must make a one-hour oral presentation of a project or a thesis before a committee consisting of three graduate faculty members.

Students must take MATH 5070 Applied Analysis or MATH 6131 Real Analysis and MATH 5718 Applied Linear Algebra. Additionally, students must either complete the degree requirements for an MS without concentration area or must fulfill specific course work requirements for one of the following areas of specialization:

- Applied Probability
- Applied Statistics
- Discrete Mathematics
- Mathematics of Science and Engineering
- Numerical Analysis
- Operations Research

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.

For more detailed information about the applied mathematics MS, see www.math.ucdenver.edu/ms

Course Requirements for the M.S. Degree without a Concentration Area

Students must complete at least three courses chosen from the following list. Note that MATH 6131 (Real Analysis) can be used both to satisfy the analysis core requirement and as one of the three courses satisfying this requirement.

Additional course options may be added later at the discretion of the Department of Mathematical and Statistical Sciences, e.g., as new courses are introduced to the graduate program.

- MATH 5135 - Functions of a Complex Variable
- MATH 5310 - Probability
- MATH 5320 - Introduction to Mathematical Statistics
- MATH 5350 - Mathematical Theory of Interest
- MATH 5351 - Actuarial Models
- MATH 5410 - Modern Cryptology

- MATH 5432 - Computational Graph Theory
- MATH 5446 - Theory of Automata
- MATH 5490 - Network Flows
- MATH 5593 - Linear Programming
- MATH 5610 - Computational Biology

Take any MATH course at the 6000 level or above.

Concentration Area Requirements

Applied Statistics

Take all of the following courses:

- MATH 5310 - Probability
- MATH 5320 - Introduction to Mathematical Statistics
- MATH 5387 - Applied Regression Analysis
- MATH 6330 - Workshop in Statistical Consulting

Take one of the following courses:

- MATH 5394 - Experimental Designs
- MATH 6376 - Statistical Computing
- MATH 6380 - Stochastic Processes
- MATH 6384 - Spatial and Functional Data Analysis
- MATH 6388 - Advanced Statistical Methods for Research
- MATH 7384 - Mathematical Probability
- MATH 7826 - Topics in Probability and Statistics

Take an additional course given prior approval by the student's advisor and the Director of the Program in Statistics.

Applied Probability

Take all of the following courses:

- MATH 5310 - Probability
- MATH 5792 - Probabilistic Modeling
- MATH 6380 - Stochastic Processes

Take one of the following courses:

- MATH 6131 - Real Analysis
- MATH 7381 - Mathematical Statistics I

Discrete Mathematics

Take four of the following courses:

- MATH 5410 - Modern Cryptology

- MATH 5490 - Network Flows
- MATH 5793 - Discrete Math Modeling
- MATH 6404 - Applied Graph Theory
- MATH 7405 - Advanced Graph Theory
- MATH 7409 - Applied Combinatorics
- MATH 7410 - Combinatorial Structures
- MATH 7413 - Modern Algebra I
- MATH 7419 - Mathematical Coding Theory
- MATH 7421 - Projective Geometry
- MATH 7821 - Topics in Projective Geometry
- MATH 7823 - Topics in Discrete Math

Mathematics of Engineering and Science

Take three of the following courses:

- MATH 5387 - Applied Regression Analysis
- MATH 5779 - Math Clinic
- MATH 5791 - Continuous Modeling
- MATH 5792 - Probabilistic Modeling
- MATH 5793 - Discrete Math Modeling
- MATH 5794 - Optimization Modeling
- MATH 6735 - Continuum Mechanics

Take two of the following courses:

- MATH 5660 - Numerical Analysis I
- MATH 5661 - Numerical Analysis II
- MATH 5733 - Partial Differential Equations
- MATH 6653 - Introduction to Finite Element Methods
- MATH 7663 - Finite Difference Methods for Partial Differential Equations
- MATH 7665 - Numerical Linear Algebra

Numerical Analysis

Take all of the following courses:

- MATH 5660 - Numerical Analysis I
- MATH 5661 - Numerical Analysis II

Take three of the following courses:

- MATH 5593 - Linear Programming
- MATH 5733 - Partial Differential Equations
- MATH 6595 - Computational Methods in Nonlinear Programming
- MATH 6653 - Introduction to Finite Element Methods
- MATH 6735 - Continuum Mechanics
- MATH 7667 - Introduction to Approximation Theory
- MATH 7663 - Finite Difference Methods for Partial Differential Equations

- MATH 7665 - Numerical Linear Algebra
- MATH 8664 - Iterative Methods in Numerical Linear Algebra
- MATH 8660 - Mathematical Foundations of Finite Element Methods

Operations Research

Take all of the following courses:

- MATH 5593 - Linear Programming
- MATH 5390 - Game Theory
- MATH 5490 - Network Flows
- MATH 5779 - Math Clinic *(with prior advisor approval)*
- MATH 5792 - Probabilistic Modeling

  OR
- MATH 6380 - Stochastic Processes

Take two of the following courses:

- MATH 5794 - Optimization Modeling
- MATH 6595 - Computational Methods in Nonlinear Programming
- MATH 7593 - Advanced Linear Programming
- MATH 7594 - Integer Programming
- MATH 7595 - Advanced Nonlinear Programming
- MATH 7825 - Topics in Optimization

Architecture MArch

The Master of Architecture is offered to students who have completed a pre-professional architecture degree, as well as to students who have completed an unrelated undergraduate or graduate degree. Students holding a pre-professional degree from a foreign institution will be evaluated individually for advanced standing in the MArch program, commensurate with their previous educational experiences.

Our program prepares students for entry into the architecture profession and licensure. Our mission is to lead in the discovery, communication and application of knowledge in the discipline of architecture by integrating theory and practice. In this collaborative educational model, environmental, economic, social, cultural, aesthetic and ethical concerns are fundamental.

The curriculum responds to and aligns with the evolving nature of professional practice including collaborative work environments, critical thinkers, problem-solving team players, builders and leaders with excellent communication skills. Recognizing that the practice of architecture is global, we provide students with international perspectives and experiences giving them a competitive edge when they enter the profession.

Students whose undergraduate degree was not a design related degree will take a minimum of three years to complete the Master of Architecture. Students who have an undergraduate design related degree may receive credit for courses previously taken and can typically complete the program in two years depending on advanced standing given. The program provides the skills and bodies of knowledge nationally specified for graduate study in architecture and is fully accredited by the National Architectural Accrediting Board (NAAB).

Prerequisites

Students must complete the prerequisites of college-level trigonometry and physics before enrolling in the MArch program or must complete ARCH 5000 Math and Physics for Architects. This course is offered during the summer on a pass/fail basis and meets the prerequisite requirements. This class does not count toward the number of credits required for the MArch degree.

The architecture skills workshop is highly recommended for students who do not have a background in architectural drawing, model making or digital graphics work. This class is offered each year before the beginning of the fall semester.

Students are expected to have achieved a basic level of computer literacy and should be familiar with PC or Mac operating systems.

Program Tracks

There are two curriculum tracks leading to the MArch degree.

Four Studio Track - 60 Semester Hours

This course of study allows students with a pre-professional degree to pursue a professional Master of Architecture degree in a minimum of two years. The curriculum follows a prescribed sequence of core courses and four design studios. Applicants must hold a Bachelor of Science in Architecture, Bachelor of Art in Architecture or Bachelor of Environmental Design to be considered for this track.

Six Studio Track - 105 Semester Hours

This course of study allows students without a pre-professional degree to pursue a professional Master of Architecture degree in a minimum of three years. The curriculum follows a prescribed course of fundamental core courses and six design studios. Applicants must hold a baccalaureate degree from an accredited university in any field.

All degrees awarded by universities outside the United States will be reviewed on a case-by-case basis and the admissions committee will determine the appropriate track.

Four Studio Track

Curriculum Overview

The Four Studio Track curriculum for the Master of Architecture (MArch) program is divided into six major components, totaling 60 semester hours in residence at the University of Colorado Denver:

Design Studios and Seminars	27 semester hours
Representational Studies (required elective)	3 semester hours
Historical/Cultural Studies (required elective)	3 semester hours
Technological Studies (required elective)	3 semester hours
Professional Studies	9 semester hours
Open Electives	15 semester hours

A wide array of electives in these areas allows students to tailor their graduate studies to their own interests. Of 15 general elective semester hours, nine must be fulfilled with courses taken in the Architecture Department. Students may choose to take elective courses in the summer session. It is highly suggested that students use the summers to study abroad or participate in a professional internship.

In order for a student to complete the course of study within the 60 semester hours (two years of study) a student must have completed the following courses with a grade of B or better:

- 4 design studios (six credits each)
- 2-3 course sequence covering the history of architecture
- 1 course introduction to the theory of architecture
- 2 course sequence on sustainable environmental control systems
- 2 course sequence on structures addressing statics, material mechanics, structural analysis, and design of simple structural elements and systems
- 2 course sequence on building materials and construction
- 1 course on architectural visualization and representation
- 1 course on Building Information Modeling

Above courses not completed by the time the student enrolls in the program will be added onto the 60 semester hours and will need to be completed at the University of Colorado Denver prior to graduation. An official review of the student's previous course work will be conducted in the spring following admissions and will be sent to the student upon the receipt of the student's intent to attend.

Course Sequence

This schedule shows the recommended sequence of courses. To modify this schedule, students should consult their CAP academic advisor.

First Year

Fall

- ARCH 5130 - Design Studio III
- ARCH 5430 - Social Context of Design
- Required or Open Elective
- Required or Open Elective

Total: 15 Hours

Spring

- ARCH 5140 - Design Studio IV
- ARCH 5450 - Sustainable Design Practices
- Required or Open Elective
- Required or Open Elective

Total: 15 Hours

Summer (optional)

Second Year

Fall

- ARCH 6150 - Design Studio V
- ARCH 5410 - Professional Practice
- Required or Open Elective
- Required or Open Elective

Total: 15 Hours

Spring

- ARCH 6170 - Design Studio VI
- ARCH 6171 - Integration Seminar
- Required or Open Elective
- Required or Open Elective

Total: 15 Hours

Summer (optional)

Six Studio Track

Curriculum Overview

The curriculum for the Master of Architecture (MArch) program is divided into six major areas of study, totaling 105 semester hours:

Design Studios and Seminars	39 semester hours
Representational Studies (required elective)	6 semester hours
Historical/Cultural Studies (required elective)	12 semester hours
Technological Studies (required elective)	21 semester hours
Professional Studies	12 semester hours
Open Electives	15 semester hours

A wide array of electives in these areas allows students to tailor their graduate studies to their own interests. Of the 15 general elective semester hours, nine must be fulfilled with courses taken in the Architecture Department. Advanced standing in core course work can be given for prior architectural studies. Students may choose to take elective courses in the summer session. It is highly suggested that students use the summers to study abroad or participate in a professional internship.

Course Sequence

This schedule shows the recommended sequence of courses. To modify this schedule, students should consult their CAP academic advisor.

First Year

Fall

- ARCH 5110 - Design Studio I
- ARCH 5210 - Introduction to Architecture
- ARCH 5350 - Structures I
- ARCH 5510 - Architectural Graphics
- Professional Studies or Elective Requirement

Total: 18 Hours

Spring

- ARCH 5120 - Design Studio II
- ARCH 5220 - History and Theory Architecture I
- ARCH 5360 - Structures II
- Professional Studies or Elective Requirement
- Professional Studies or Elective Requirement

Total: 18 Hours

Second Year

Fall

- ARCH 5130 - Design Studio III
- ARCH 5230 - History and Theory Architecture II
- ARCH 5310 - Building Construction I
- Professional Studies or Elective Requirement
- Professional Studies or Elective Requirement

Total: 18 Hours

Spring

- ARCH 5140 - Design Studio IV
- ARCH 5320 - Building Construction II
- ARCH 5330 - Sustainable Systems I
- Professional Studies or Elective Requirement
- Professional Studies or Elective Requirement

Total: 18 Hours

Third Year

Fall

- ARCH 5340 - Sustainable Systems II
- ARCH 6150 - Design Studio V
- Professional Studies or Elective Requirement
- Professional Studies or Elective Requirement
- Professional Studies or Elective Requirement

Total: 18 Hours

Spring

- ARCH 6170 - Design Studio VI
- ARCH 6171 - Integration Seminar
- Professional Studies or Elective Requirement
- Professional Studies or Elective Requirement

Total: 15 Hours

Bioengineering MS

► Graduate School Policies and Procedures apply to this program.

Master of Science (MS) Degree Program

The master of science degree is offered to students with an undergraduate degree in the life sciences or engineering. Students complete the degree in one to two years with the choice of a project or thesis, either of which may be completed in academia or industry. Program details are available on the Department of Bioengineering website at ucdenver.edu/bioengineering.

Biology MS

► Graduate School Rules apply to this program.

Graduate MS Program Director: Michael Greene
Office: Science, 4111
Telephone: 303-556-5610
E-mail: Michael.Greene@ucdenver.edu
Website: clas.ucdenver.edu/biology/grad.html

Requirements for Admission

- A BA/BS from an accredited institution awarded within the last 10 years (validation of current content may be required)
- Minimum undergraduate GPA: 3.0
- General GRE test: minimum 50% performance in each section (quantitative, verbal, and analytical writing)
- TOEFL: required for international applicants from countries in which English is not the official language
- 3 letters of recommendation
- Official transcripts from all attended institutions

- Students are required to contact faculty in advance. Prior to application, applicants must have identified and contacted an available Faculty Advisor to ensure availability of a position and appropriate research interests

Prerequisite courses required:

- One year of general biology (lecture and laboratory)
- One year of any combination of chemistry, physics or mathematics
- One course in applied or biological statistics (through regression and ANOVA)
- Additional prerequisite requirements may be set by individual faculty

Application deadline is January 15 for both domestic U.S. and international students. Application to the master's in biology program is through CU Denver Admissions.

Degree Requirements

Students matriculate into the research-based MS degree program. Under unusual circumstances, students and/or advisors may petition for a student to switch into the coursework-based MS degree program. The research-based MS program requires a minimum of 30 credits, and the coursework-based MS program requires a minimum of 32 credits. No double-counted courses will be applied to the degree. A maximum of 12 hours of graduate level courses may be transferred and counted toward the degree in either program. Both programs additionally require the student to meet minimum academic residency requirements, to form an advisory committee and to deliver and orally defend written work before the advisory committee, which constitutes the final exam for both programs as required by the Graduate School.

Research-based MS degree program **requires**

1. Completing 30 credits including 3-6 thesis (BIOL 6950)
2. Meeting minimum academic residency requirements
3. Forming and meeting regularly with an advisory committee
4. Writing and defending research proposal
5. Writing and defending research thesis (including a publishable paper)

Coursework-based MS degree program **requires**

1. Approved petition to transfer into coursework-based program
2. Completing a minimum of 32 credits
3. Meeting minimum academic residency requirements
4. Writing and defending publication-quality review paper (before advisory committee)

Required Courses:

- BIOL 6705 - Biological Research Workshop (4 credits total-take in 2 different years)
- BIOL 6655 - Seminar (2 credits total-take in 2 different years)
- BIOL 6764 - Biological Data Analysis (4 credits total-take in year 1)
- BIOL 6002 - Biology Skills Sets - Pedagogy (required only for students supported by a Graduate Teaching Assistantship)

Additional minimum requirements for research-based MS program

- BIOL 6950 - Master's Thesis (1-2 credits in first spring/summer to write proposal and 2-4 credits in final semester to write thesis)

Additional minimum requirements for the coursework-based MS program

- BIOL 5840 - Independent Study: BIOL (3 credits: advisor-guided review paper)

Business Administration -- Health Administration MBA

Program Director: Errol L. Biggs
Telephone: 303-315-8851
E-mail: errol.biggs@ucdenver.edu

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. 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 sub-units 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:

MBA Core: (27 hours)

- BUSN 6521 - Leading Individuals and Teams
- BUSN 6530 - Data Analysis for Managers
- BUSN 6541 - Legal and Ethical Environment of Business (Health Section)
- BUSN 6550 - Analyzing and Interpreting Accounting Information
- BUSN 6561 - Marketing Management (Health Section)
- BUSN 6621 - Applied Economics for Managers (Health Section)
- BUSN 6630 - Management of Operations
- BUSN 6640 - Financial Management
- BUSN 6711 - Strategic Management (Health Section) *This course is intended to be taken in your last Spring semester.

Health Administration Core: (12 hours)

- HLTH 6010 - Health Care Systems
- HLTH 6070 - International Health Policy and Management
- HLTH 6770 - Healthcare Quality and Outcomes
- HLTH 6911 - Health Field Studies *This course is intended to be taken in your last Spring semester. Prereq: HLTH 6010 or consent of instructor, minimum 3.0 cumulative GPA.

Health Administration Information Technology Elective: (3 hours)

Select 1 of the following courses:

- HLTH 6071 - Introduction To Health Information Technology
- HLTH 6072 - Management of Healthcare Information Technology

The 2nd Health Administration Information Technology Elective may be used as Health Administration Elective.

Health Adminstration Electives: (6 hours)

Select 2 of the following courses:

- ENTP 6801 - Building Biotechnology
- ENTP 6848 - Leadership in New Ventures
- HLTH 6075 - International Health Travel Study
- HLTH 6740 - Profiles in Health Care

*HLTH 6071 or HLTH 6072 can be selected if not used as Health Administration Information Technology Elective.

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 CU Denver, and other University of Colorado campuses.

- International Health Management and Policy Track
- Financial Management Track
- Health Information Technology Management Track

Notes and Restrictions

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. Information on the full range of local, regional, and national residencies is available from the program director.

Length of program. A maximum of five years and one semester is allowed to complete the Health Administration program.

Business Administration MBA

Program Director: Gary Colbert
Telephone: 303-315-8000
E-mail: Gary.Colbert@ucdenver.edu

The Master of Business Administration (MBA) program provides a general background in management and administration. This background enables the student to have the breadth and depth of knowledge required for an advanced-level management career. The program is designed to develop 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 accommodate work schedules. Students may combine on-campus courses at our Denver campus or take courses at our South Denver location in Parker, Colorado. For students planning to combine courses at both locations, it is important to work with the

advising team for planning purposes. 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 the 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: One Year MBA (full time, see relevant section), Health Administration and the Executive MBA (see relevant section). All MBAs have similar curriculum requirements; they differ principally in focus, the flexibility of course scheduling, and the time required to complete the program. The One Year and Executive MBAs are lockstep programs, where students form a cohort and complete all program requirements together. No course transfers, waivers or substitutions are permitted.

Program Requirements

Core Requirements: (30 hours)

- BUSN 6520 - Leading Individuals and Teams
- BUSN 6530 - Data Analysis for Managers
- BUSN 6540 - Legal and Ethical Environment of Business
- BUSN 6550 - Analyzing and Interpreting Accounting Information
- BUSN 6560 - Marketing Dynamics in the 21st Century
- BUSN 6610 - Information Systems Management and Strategy
- BUSN 6620 - Applied Economics for Managers
- BUSN 6630 - Management of Operations
- BUSN 6640 - Financial Management
- BUSN 6710 - Strategic Management
  Core Substitution: Students with extensive and comparable course work in a particular core subject area may petition to substitute a higher-level graduate 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: (3 hours)

Any course numbered 6000 or higher with INTB prefix or any graduate level business course that is cross-listed with an INTB prefix. May also include the following: MTAX 6430 International Taxation, ENTP 6826 International Entrepreneurship, ENTP 6800 Global Opportunity Identification, or RISK 6800 Cyber Risk Management and Cyber Warfare. Travel studies offered by the Business School will also apply.

Free Electives: (15 hours)

Any course numbered 6800 or higher with BUSN prefix or any course numbered 6000 or higher with prefix of ACCT, BANA, CMDT, ENTP, FNCE, INTB, ISMG, MGMT, MKTG, MTAX, or RISK. Students may also select a MBA Specialization.

Total: 48 Hours

MBA Specializations

Graduate students will have an opportunity to take specialized tracks within the professional MBA program by completing a pre-specified program of elective courses. The following 15 specializations are available:

Accounting
Bioinnovation and Entrepreneurship
Business Analytics
Business Intelligence
Business Strategy
Change Management
Commodities
Enterprise Technology Management
Entrepreneurship
Finance
Human Resources Management
Leadership
Information Systems
International Business
Managing for Sustainability
Marketing
Risk Management and Insurance
Sports and Entertainment Business
Taxation

Accounting

Acquire specialized knowledge of United States Generally Accepted Accounting Principles (GAAP) and financial reporting standards for publicly traded companies. Analyze the information in corporate annual reports, SEC filings, etc., to gain a better understanding of financial performance and trends.

This specialization includes in-depth knowledge of management accounting techniques for management of service and product oriented businesses. Acquire knowledge of tax compliance requirements and tax planning strategies for normal business operations and for the life-cycle of business start-up, expansion, and reorganizations.

Students should complete required and elective courses from the list below for a total of 4 courses. Your selection of courses is based upon any waivers that have been approved by an advisor. Please contact an advisor for course waiver options.

Required courses:

- ACCT 6031 - Intermediate Financial Accounting I
- ACCT 6032 - Intermediate Financial Accounting II

Elective Courses:

Select any ACCT 6000 level course or higher as electives, excluding ACCT 6031 or ACCT 6032.

It is not recommended to repeat any accounting coursework taken in undergraduate studies. Please see an advisor to assess undergraduate transcripts for repeat coursework. Students sitting for the CPA exam should be aware that the CPA will not allow repeat coursework for credit.

Bio-innovation and Entrepreneurship

The Jake Jabs Center for Entrepreneurship is pleased to offer a specialization in Bio-innovation and Entrepreneurship, which is the first of its kind in the country to be offered by an AACSB accredited graduate business school. Taking advantage of the Colorado's bio-cluster, in collaboration with faculty at Anschutz Medical Campus, this specialization is one-of-a-kind, and is geared to helping bio-entrepreneurs achieve commercial success. Additionally, you have opportunities to participate in a number of Jake Jabs Center programs; including the annual business plan competition, internships in area businesses, speaker programs with local entrepreneurs, and connections to many new Colorado ventures.

Select 1 of the following courses:

- ENTP 6801 - Building Biotechnology
- ENTP 6802 - Regulatory Environment of Life Science Innovation

Select 1 of the following courses:

- ENTP 6020 - Business Model Development & Planning
- ENTP 6022 - Digital Strategy for Entrepreneurs

Finally, select two other ENTP courses numbered 6000 or higher, excluding ENTP 6801 or ENTP 6802.

Business Analytics

Business analytics merges data, technology, and mathematical models to produce evidence-based information relevant for today's business and government decision-making.

This specialization in business analytics trains you to construct and interpret models of big data, forecasting, optimization, and simulation. Analytics touch every aspect of business, driving the way businesses understand not only their own processes, but also the way their customers behave.

Required courses:

- BANA 6610 - Statistics for Business Analytics
  Note: To enroll in BANA 6610 you must submit a petition that demonstrates your quantitative ability with either a GMAT quantitative score or other quantitative skills. Contact your advisor for the petition form.
- BANA 6620 - Computing for Business Analytics
- BANA 6670 - Prescriptive Analytics with Optimization
  Complete 1 additional BANA 6000 level course or 1 of the following:
- ECON 5030 - Data Analysis with SAS
- ISMG 6080 - Database Management Systems

Business Intelligence

Modern business runs on information. Success may depend on the quality of the collection and analysis. Business Intelligence (BI) systems combine operational data with analytical tools to present complex and competitive information for planning and decision making, and improves the timeliness and quality of inputs to the planning and decision process.

Select 4 of the following courses:

- ISMG 6080 - Database Management Systems
- ISMG 6220 - Business Intelligence Systems and Analytics
- ISMG 6430 - Information Systems Security and Privacy
- ISMG 6470 - Text Data Analytics and Predictive Modeling
- ISMG 6480 - Data Warehouse and Administration
- ISMG 6810 - Business Intelligence in Healthcare
- ISMG 6820 - Business Intelligence and Financial Modeling

Business Strategy

Business Strategy examines the development of firm strategic plans and implementation including careful resource allocation and leadership skills essential for organizations to effectively meet their objectives. With this specialization, you get the necessary skills and knowledge used to develop and implement business strategy.

Select 4 of the following courses:

- ENTP 6022 - Digital Strategy for Entrepreneurs
- ENTP 6826 - International Entrepreneurship
  OR
- INTB 6200 - International Business Policy

- INTB 6022 - International Business Negotiations
  OR
- INTB 6500 - International Business Consulting
- MGMT 6320 - Leading Organizational Change
- MGMT 6360 - Designing Effective Organizations
- MGMT 6610 - Business Strategy Lab
- MGMT 6730 - Human Resources Management: Performance Management
- MGMT 6803 - Visionary Leadership
- MKTG 6010 - Marketing Strategy

May select up to 2 of the following CMDT, FNCE, or RISK courses:

- CMDT 6682 - Trading in Commodity and Financial Markets
- FNCE 6310 - Financial Decisions and Policies
- FNCE 6340 - Business Firm Valuation
- FNCE 6382 - Survey of Financial Derivatives
- FNCE 6411 - International Corporate Governance
- FNCE 6420 - Mergers and Acquisitions
- FNCE 6480 - Financial Modeling
- RISK 6309 - Strategic Risk Management
- RISK 6909 - Corporate Risk Management

Change Management

Change is inevitable. Even when it is advantageous it can be difficult for organizations and people. Add the Change Management specialization to your degree and gain the necessary tools to help an organization understand the stages and benefits of change.

Required courses:

- MGMT 6320 - Leading Organizational Change
- MGMT 6360 - Designing Effective Organizations

Select 2 of the following courses:

- MGMT 6380 - Managing People for Competitive Advantage
- MGMT 6730 - Human Resources Management: Performance Management
- MGMT 6803 - Visionary Leadership
- MGMT 6804 - Bargaining and Negotiation
- MGMT 6808 - Leadership Development

Commodities

The specialization is a new offering from the J.P. Morgan Center for Commodities. MBA candidates and business professionals should take this specialization for a better understanding of the commodities market in its entirety, from both the physical and financial perspective, including trading operations, investment management, commodities and investment banking. With strong industry support, courses in this

specialization are catered to, and designed around, actual business problems in the commodities sector. Students will have an edge in competing for jobs in the commodity rich sectors of this state.

Complete the following 4 courses:

- CMDT 6582 - Commodity Supply Chain Management
- CMDT 6682 - Trading in Commodity and Financial Markets
- CMDT 6802 - Foundations of Commodities
- FNCE 6382 - Survey of Financial Derivatives

Enterprise Technology Management

Gain a better understanding of business driven technology management through focusing on Information Technology as a prime driver and enabler of business strategy. You do not have to have a background in business programming; however, you should take Information Systems Management (BUSN6610) from the core MBA prior to taking the courses in this specialization.

Select 4 of the following courses:

- ISMG 6040 - Business Process Management
- ISMG 6120 - Internet and Mobile Technologies
- ISMG 6430 - Information Systems Security and Privacy
- ISMG 6450 - IT Project Management
- ISMG 6460 - Emerging Technologies
- ISMG 6830 - IT Governance and Service Management

Entrepreneurship

The Entrepreneurship specialization provides a range of focused courses geared towards individuals looking to start their own business. Courses are taught at the Jake Jabs Center for Entrepreneurship located in the heart of downtown Denver or at the new South Denver location near I25 and Lincoln Avenue. Complete four entrepreneurship courses to receive a specialization in Entrepreneurship. Additionally, you have opportunities to participate in a number of Jake Jabs Center programs; including the annual business plan competition, internships in area businesses, speaker programs with local entrepreneurs, and connection with new ventures.

Complete four courses total.

Complete 3 courses with an ENTP 6000 or higher number, excluding ENTP 6801 and ENTP 6802.

Then select one of the following capstone courses:

- ENTP 6020 - Business Model Development & Planning
- ENTP 6022 - Digital Strategy for Entrepreneurs

Finance

Adding the finance specialization to your degree gives you skills relevant to different financial functional areas including corporate, investments, and financial institutions. You get the tools and skill sets you need for finance decision making and investment.

Required course:

- FNCE 6330 - Investment Management Analysis

Select 3 FNCE or CMDT or RISK 6000 level or higher courses.

Human Resources Management

The Human Resources Management specialization gives you advanced knowledge and tools and techniques you can use in recruiting, hiring, developing, motivating and rewarding managerial and non-managerial employees. Also learn about technology solutions such as designing and delivering online training and performance management programs.

Complete the following required course:

- MGMT 6380 - Managing People for Competitive Advantage

Select 3 of the following courses:

- MGMT 6040 - Managing Global Talent
- MGMT 6710 - HR: Talent MGT
- MGMT 6720 - Human Resources Management: Training
- MGMT 6730 - Human Resources Management: Performance Management
- MGMT 6740 - Human Resources Management: Compensation
- MGMT 6750 - HRM: Investing in People: HR Analytics
- MGMT 6760 - Employee Benefits and Workforce Risk Management
- MGMT 6808 - Leadership Development

Information Systems

You want to be sure you are learning skills relevant to business now. Information systems have become ubiquitous. Managers now understand the need for IS and the benefits that provide an edge on the competition. Information systems impact accounting, financing, marketing, management; in fact every area of business has been changed by technology.

Select 4 of the following courses:

- ISMG 6040 - Business Process Management
- ISMG 6060 - Analysis, Modeling and Design
- ISMG 6080 - Database Management Systems
- ISMG 6120 - Internet and Mobile Technologies

- ISMG 6450 - IT Project Management

International Business

International Business is quickly becoming simply business. Adding a specialization in International Business to your degree will help you to work internationally, and with international companies. From cross cultural management to legal aspects to marketing internationally. Prepare yourself for how business works today.

Required course:

- INTB 6000 - Introduction to International Business
  OR
- ENTP 6826 - International Entrepreneurship

Complete 3 of the following courses:
Any INTB 6*** course excluding INTB 6000 and INTB 6200. May include the following courses that are not INTB: BUSN 6870 (Global Climate Change); ENTP 6800 (Global Opportunity Identification; ENTP 6826 (International Entrepreneurship) -- if not chosen as the required course above; ENTP 6827 (Global Action Projects for International Entrepreneurship); MTAX 6430 (International Taxation); RISK 6800 (Special Topics in Risk Management and Insurance); or any travel study course offered by the Business School.

Leadership

Become a more effective leader with this specialization as you concentrate on developing key leadership skills.

Complete a total of 4 courses for the specialization.
Required courses.

Complete 2 or 3 of the following courses:

- MGMT 6803 - Visionary Leadership
- MGMT 6804 - Bargaining and Negotiation
- MGMT 6808 - Leadership Development

Then complete 1 or 2 of the following courses:

- BANA 6650 - Project Management
- ENTP 6848 - Leadership in New Ventures
- INTB 6000 - Introduction to International Business
- MGMT 6821 - Managing for Sustainability
- MGMT 6822 - Business Ethics and Corporate Social Responsibility
- MGMT 6823 - The Sustainable Business Opportunity
- MGMT 6824 - Sustainable Business/CSR Field Study

Managing for Sustainability

More than ever before, major companies and entrepreneurial ventures are seeking competitive advantage and success by embracing sustainability — social and environmental responsibility — as a core business strategy. Farsighted leaders recognize that this new way of doing business requires skills in sustainable management including social entrepreneurialism, eco-efficiency, inter-disciplinary problem solving and a triple bottom line approach of economics, environment and society. Make your degree a green MBA by adding the Managing for Sustainability specialization and learn what businesses are facing in a world where resources are scarce, social safety nets are declining, and customers and commentators are concerned about a company's investment in corporate responsibility.

Complete 4 of the following courses:

- ACCT 6285 - Accounting and Finance for Sustainability
- BANA 6730 - Supply Chain Management
- BUSN 6830 - Business and the Natural Environment
- BUSN 6870 - Global Climate Change
- ENTP 6644 - Impactful Social Innovation
- MGMT 6821 - Managing for Sustainability
- MGMT 6822 - Business Ethics and Corporate Social Responsibility
- MGMT 6823 - The Sustainable Business Opportunity
- MGMT 6824 - Sustainable Business/CSR Field Study
- MGMT 6825 - Sustainable Change Leadership: Turning Business Into a Force for Good
- MKTG 6830 - Marketing & Global Sustainability
- MGMT 6840 - Independent Study **(by petition only)**
- MGMT 5939 - Internship **(by petition only)**
  OR
- MKTG 5939 - Internship **(by petition only)**

By petition, students may take one (1) sustainability course outside the Business School from another CU Denver school/college/department.

Marketing

Marketing is about building long-term relationships between your firm and those who buy its offerings. Just how important is marketing to a firm's success? Well without it there would be no way to communicate with current or potential customers and no revenues. The Marketing specialization will give you the skills and confidence needed to effectively manage a firm and in particular those aspects associated with building profitable, long-term, business relationships.

To complete the specialization select 4 MKTG 6000 level or higher courses.

You may also petition to have a marketing internship count toward the specialization. (MKTG 5939)

Risk Management and Insurance

The specialization in Risk Management and Insurance is designed for students who are interested in pursuing or advancing a career in the insurance industry, or other areas of risk management.

Required courses:

- RISK 6809 - Principles of Risk Management & Insurance
- RISK 6909 - Corporate Risk Management

Complete one of the following courses:

- CMDT 6682 - Trading in Commodity and Financial Markets
- FNCE 6330 - Investment Management Analysis
- FNCE 6350 - Financial Innovations
- FNCE 6360 - Management of Financial Institutions
- FNCE 6382 - Survey of Financial Derivatives
- FNCE 6480 - Financial Modeling
- RISK 6129 - Practical Enterprise Risk Management
- RISK 6309 - Strategic Risk Management

Complete one of the following courses:

- BUSN 6830 - Business and the Natural Environment
- BUSN 6870 - Global Climate Change
- BANA 6650 - Project Management
- CMDT 6582 - Commodity Supply Chain Management
- CMDT 6802 - Foundations of Commodities
- ENTP 6824 - Entrepreneurial Financial Management
- ISMG 6430 - Information Systems Security and Privacy
- ISMG 6450 - IT Project Management
- MGMT 6823 - The Sustainable Business Opportunity
- RISK 6409 - Employee Benefits and Workforce Risk Management
- RISK 6509 - Global Risk Management
- RISK 6800 - Special Topics: Cyber Risk Management & Cyber Warfare

Sports and Entertainment Business

The Sports industry is the sixth largest industry in the United States and the Sports and Entertainment industries are converging. To become a professional in these industries, you need special skills. Through this specialization, you gain the tools to get ahead in both the sports and entertainment industries.

Complete 4 of the following courses:

- MKTG 6040 - Services Marketing for Traditional and Creative Industries
- MKTG 6820 - Sports & Entertainment Marketing
- MKTG 6822 - "Fan"tastical Consumers of American Sports and Entertainment
- MKTG 6824 - Sales and Negotiation for Consumer, Services, Sports, and Entertainment Industries
- MKTG 6826 - The Sports and Entertainment Industry
- MKTG 6834 - Global Sports & Entertainment Management
  Students may also petition to take a marketing internship (MKTG 5939).

Taxation

Gain an insight into one of the most important factors affecting entrepreneurs and businesses of all sizes - taxes.

Understand the fundamentals of federal income taxation and the role that taxes play in a business person's strategic investment and business decisions. Acquire knowledge of the various tax ramifications that influence how business ventures and enterprises are structured, organized, operated and eventually liquidated.

Students should complete required and elective courses from the lists below for a total of 4 courses. Your selection will be based upon any waivers that have been approved by an advisor.

Complete the following required courses:

- ACCT 6140 - Fundamentals of Federal Income Tax
  Please contact a graduate advisor for course waiver options for ACCT 6140.
- MTAX 6450 - Research Problems and Business Communications in Taxation
- MTAX 6400 - Taxation of C Corporations and Shareholders

For your elective, select one of the following MTAX courses or any other MTAX 6000 or higher course:

- MTAX 6430 - International Taxation
- MTAX 6440 - Tax Practice and Procedures
- MTAX 6475 - Accounting for Income Taxes
- MTAX 6480 - Partnership Taxation

Business Administration: One Year MBA

Program Director: Gary Colbert
Operations Assistant Director: Andrea Lipkin

E-mail: oneyearmba@ucdenver.edu
Telephone: 303-315-8800
Website:
http://www.ucdenver.edu/academics/colleges/business/degrees/mba/1yearMBA/Pages/default.aspx

The One Year 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 one year.

The One Year MBA consists of nine five-week terms, three courses per term, plus a two-week international business course abroad. Students should expect a minimum time commitment of 30 hours per week to successfully complete this program. In addition to approximately 10 hours of class time each week, One Year MBA students spend an average at least of 20 hours a week on homework and other school activities. Courses are delivered on Wednesday evenings, all-day Friday and occasionally Saturdays, affording four days per week to work. The program is structured to allow students to gain additional work experience through our competitive paid internships, assistantships, and consulting opportunities.

Admission and Application Process

The admissions committee considers each candidate's entire record of achievement demonstrated through academic transcripts, GMAT scores, essays, required letters of recommendation, personal interviews, work experience and/or extracurricular and community activities. Interviews will be scheduled at the discretion of the admission committee and can be conducted through a virtual platform, as necessary.

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 One Year MBA Program. Typical scores of successful applicants to the One Year MBA program has averaged about 600. Both verbal and quantitative scores on the GMAT are important indicators of potential for academic success. The GMAT website is www.mba.com. The GRE may be substituted for the GMAT on a case by case basis.

The One Year MBA also requires 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 90 (IBT) or 575 (PBT) TOEFL or 6.5 IELTS to be considered for admission to the One Year MBA Program. Information on taking the TOEFL or IELTS can be obtained by visiting www.ets.org and www.ielts.org.

Work Experience

The admissions committee does not require work experience to apply. Professional experience strengthens the application, as 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 time frame of the program.

Applications

The following are required for consideration of admission to the program.

- Application fee (domestic or international as appropriate)
- Online application for graduate admission
- 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 Business School admissions office from the Educational Testing Service. When registering for the GMAT, use code MPB-OG-65
- Official transcripts from each school, college or university previously attended past high school, sent directly to the Business School 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 90 (IBT) or 575 (PBT) TOEFL (TOEFL school code: 4875) or 6.5 IELTS is required to apply - test scores are valid for two years after test date
- A personal interview may also be required for admission to the 11-Month MBA.

Applications are available at:
http://www.ucdenver.edu/academics/colleges/business/apply-now/Pages/MBA-MS-Admissions.aspx

The One Year 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. It is preferred that applications are submitted prior to June 30; any application received after June 30 will be reviewed on a space-available basis. International

applicants should have their completed applications in by May 15, to allow sufficient time for visa and travel arrangements if one is admitted.

All of the required admission materials should be sent to:

University of Colorado Denver
The Business School
Graduate Admissions
Campus Box 165, P.O. Box 173364
Denver, CO 80127-3364

For further information, contact the One Year MBA Program by phone at: 303-315-8800 or by email at: oneyearmba@ucdenver.edu.

Financial Aid/Scholarships

General financial aid is available for qualified students. Students should apply directly through the CU Denver Office of Financial Aid. Students in the One Year MBA program can apply to any applicable Business School Scholarships. In addition, One Year MBA merit-based awards are available only to students in the One Year MBA program.

Degree Requirements

The 48 credit hour program consists of core courses, international business courses (conducted in Denver and abroad), career and professional development coursework, electives and either consulting coursework or competitive internships for credit. All courses require that students work in teams.

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.

MBA Core Classes (30 Credit hours)

The One Year MBA core classes include 30 credit hours of coverage in the following topical areas:

Leading Individuals and Teams
Data Analysis for Managers
Legal and Ethical Environment of Business
Analyzing and Interpreting Accounting Information
Marketing Management
Information Systems Management and Strategy
Applied Economics for Managers
Operations Management
Financial Management

Strategic Management

Global Business Course and International Course Abroad (4.5 Credit hours)

Students complete a Global Business course in Denver, which is followed by an International Course Abroad for two weeks.

Electives (4.5-7.5 Credit hours)

The elective courses, revised each year, are selected to create a broad understanding of the most current business issues. They offer the opportunities to seek greater specialization or breadth. Possible examples include: Predictive Analytics, Financial Modeling, Negotiation Skills, Project Management, Investments, Digital Marketing. These electives are subject to change each year.

Internship or Consulting Coursework (3 - 6 Credit hours)

Students in the One year MBA program may apply for competitively available paid internships. Internships may qualify for up to six academic credits. Students who are not pursuing an internship complete consulting coursework along with additional electives for a total of six credits.

Career and Professional Development Coursework (1.5 Credit Hours)

Career and Professional Development coursework is integrated into the One Year MBA degree. Topics include (but are not limited to): Resumes, Interview Skills, Career Exploration, Job Search Strategies, Business Etiquette, Executive Interactions, Business Writing, Compensation and Negotiations, etc.

Business Analytics MS

Program Director: Deborah Kellogg
Telephone: 303-315-8435
E-mail: Deborah.Kellogg@ucdenver.edu

The MS in Business Analytics focuses on modeling and applications which prepares you for a career as a business analyst in industry or government. Today, companies in every conceivable industry are reaping the benefits of using formal mathematical models to assist them in addressing complex business problems. Business Analytics graduates hold positions that bridge the gap between operations research/statistics specialists and management.

Learn to apply quantitative methods to real-world problems using modern methodologies adopted from statistics, operations research, and management science. The MS in Business Analytics focuses on applications of mathematical models in the workplace rather than the development of new research techniques. The managerial emphasis of our degree is accomplished through a comprehensive set of elective and required coursework such as data analysis, operations management, forecasting, project management, simulation, predictive analytics, and supply chain management. Students may elect to pursue a specialization in Big Data.

This degree is not designed to be completed in one year. Requirements for the MS degree in Business Analytics are met by the following courses and options:

Business Analytics Core I: (9 hours)

- BANA 6610 - Statistics for Business Analytics
- BANA 6620 - Computing for Business Analytics
- BANA 6670 - Prescriptive Analytics with Optimization

Business Analytics Core II: (9 hours)

Complete three of the following courses:

- BANA 6630 - Time-Series Forecasting
- BANA 6640 - Decision Analysis
- BANA 6660 - Predictive Analytics
- BANA 6720 - Simulation Modeling
- BANA 6680 - Optimization for Machine Learning

Business Analytics Electives: (12 hours)

Select any four courses which must include BANA courses numbered 6000 or higher or ISMG 6080 or ECON 5030.

Notes and Restrictions

Students are not required to take a comprehensive examination or complete a thesis in the major field.

Note: Business School MS degrees typically allow students to transfer in 9 semester hours from another university. However, the MS in Business Analytics (BANA) allows students to petition to have a maximum of 6 semester hours transfer from another university. The transfer of *required* courses must closely reflect the educational objectives of the Master's degree in Business Analytics. The evaluation of substitute courses will include syllabi evaluation and the accreditation of the transferring institution.

Total: 30 Hours

Chemistry MS

► Graduate School Rules apply to this program

Program Director: Scott Reed
Email: Scott.Reed@ucdenver.edu
Office: SI 4131
Phone: 303-556-6260

The MS program in chemistry focuses on providing students the skills and knowledge necessary to conduct specialized research in preparation for careers in chemistry and related disciplines. Completing an MS in Chemistry at CU Denver can provide valuable experience that can help students land a job in the pharmaceutical, biotechnological, or other industry or can serve as a stepping stone for admission to a competitive PhD or health sciences program. Our faculty serve as mentors and advisors and assist students on the path to a more satisfying career in science. Prospective students are encouraged to contact the Graduate Program Director visit the Department of Chemistry website for additional details concerning the chemistry program, admission procedures, financial assistance and faculty research interests.

Admission Requirements:

Applicants must meet the Downtown Campus Graduate School admission requirements according to Graduate School Policies and Procedures in addition to the following requirements of the Department of Chemistry:

An undergraduate major in Chemistry or a closely related discipline is required, including two semesters of organic chemistry as well as training in analytical chemistry, physical chemistry, and inorganic chemistry. Students missing more than one of these courses may be limited in the tracks that they are eligible to select. Students missing more than one of these courses may be provided a provisional admission. An undergraduate GPA of 3.0 (on a 4 point scale) is desired although each application is considered on its own merits.

- The GRE examination is recommended but not required.
- International students have additional admission requirements concerning immigration status, proof of financial responsibility and acceptable TOEFL or IELTS scores or completion of the CU Denver English as a Second Language Academy.

- Students currently in a BS program at CU Denver or elsewhere may want to consider the Chemistry BS/MS . This option includes the opportunity to enroll in graduate classes before enrolling at CU Denver. At least 20 credits must be earned on campus. However, for the remaining courses enrollment through CU ONLINE or on one of the other CU campuses is possible. Furthermore, the Chemistry Master's Program accepts transfer credits from accredited Universities with approval from the Graduate Program Director.

In addition to selecting Plan I or Plan II, all MS students must select a track for their degree

- Students interested in specializing within Chemistry must select from one of the tracks listed below. Each track has separate placement examinations. Therefore switching between tracks requires approval from the graduate program director

Study Plans:

Plan I: Plan I (Thesis) is a research oriented program involving a minimum of 30 semester hours with the following requirements:	**Plan II:** Plan II (Course Work) is a coursework oriented program involving a minimum of 30 semester hours with the following requirements:
Students interested in specializing within Chemistry must select from one of the tracks listed below. Each track has separate placement examinations. Therefore switching between tracks requires approval from the Graduate Program Director	
Tracks: Track 1: Biochemistry Track 2: Synthesis and Measurement Track 3: Molecular Modeling Track 4: Traditional Chemistry	

Completing an MS in Chemistry - Graduation Requirements

All Chemistry MS students must meet the following requirements for graduation:

- A cumulative GPA of 3.0 or better at the time of graduation
- A grade of *B* (2.7) or better in all courses to be counted toward the degree.
- Compliance with all Graduate School Policies and Procedures

- Every student must select to a thesis or non-thesis plan. As most of the requirements overlap, a student may switch between these plans with permission from the Graduate Program Director.
- Although degrees can be completed in as little as one year, all work must be completed within five years after enrolling in the first graduate class in the department.
- Students are eligible to apply for a research assistantship or a teaching assistantship positions. Students who are interested in improving teaching skills can enroll in CHEM 5655 Teaching Assistant Bootcamp. This course is required for all students who are interested in working as a teaching assistant in the department.
- A minimum of 20 semester hours must be earned in formal lecture courses in the Department of Chemistry. Other credits can be acquired through research, internships, thesis work, independent study, transfer credits, etc.

Plan I (Thesis) is a research oriented program involving a minimum of 30 semester hours with the following requirements:

- An acceptable formal thesis consistent with the Graduate School Policies and Procedures
- Successful oral defense of the master's thesis before a committee of at least three Regular Graduate Faculty, two of whom must be tenure track faculty members and have an appointment with the Graduate School through the Department of Chemistry.
- Completion of a high quality research project suitable for publication in a peer-reviewed journal.
- 3 semester hours of CHEM 6950 - Master's Thesis
- All thesis students must complete 1 credit of CHEM 5610 - Understanding & Presenting Chemical Research no later than the semester before they defend their thesis.

Plan II (Course Work) is a coursework oriented program involving a minimum of 30 semester hours with the following requirements:

- All Plan II students are required to take a final written examination about primary research articles in their discipline. This exam may be taken any semester after 20 semester hours of graduate course work have been completed. Students may attempt the exam once per semester a maximum of three times and must be registered during the semester that they attempt the final examination.
- All non-thesis students are encouraged to take 1 credit of CHEM 5610 - Understanding & Presenting Chemical Research
- Plan II students may arrange for an internship at a local company that employs Chemists and take up to 6 credits of CHEM 5939 - Internship Students must be in good academic standing and have completed 6 graduate semester hours

at CU Denver before starting an internship. Approval of the graduate program director is required prior to selecting an internship and enrolling for credit.

Track Options:

Track 1: Biochemistry

Understanding of biochemical principles governing metabolic diseases, cancer and neurodegenerative diseases.

Take the following required course:

- CHEM 5810 - Graduate Biochemistry I

Take **one** of the following required courses:

- CHEM 5310 - Advanced Organic Chemistry
- CHEM 5530 - Advanced Physical Chemistry

Take **two** of the following elective courses:

- CHEM 5815 - Structural Biology of Neurodegenerative Diseases
- CHEM 5825 - Biochemistry of Metabolic Disease
- CHEM 5830 - Graduate Biochemistry II
- CHEM 5835 - Biochemistry of Gene Regulation and Cancer
- CHEM 5600 - Graduate Topics in Chemistry (course topic must match to the topic area of the track and be preapproved by the Graduate Program Director)

CHEM 5310 or CHEM 5530 may be taken, if not used as a required course above. Additional courses within the department (a minimum of 20 semester hours must be in Chemistry) and in other departments can be used to complete the total of 30 credits required for the degree. Course selections outside of the department must be approved by the Graduate Program Director.

Track 2: Synthesis and Measurement

Students in this track will learn how to prepare and characterize molecules and materials and how to measure their properties.

Take **one** of the following required courses:

- CHEM 5010 - Advanced Inorganic Chemistry
- CHEM 5310 - Advanced Organic Chemistry

Take **one** of the following required courses:

- CHEM 5110 - Advanced Analytical Chemistry
- CHEM 5221 Practical Applications for Spectroscopy

Take **two** of the following elective courses:

- CHEM 5510 - Computational Chemistry
- CHEM 5530 - Advanced Physical Chemistry
- CHEM 5421 - Cannabis Chemistry
- CHEM 5600 - Graduate Topics in Chemistry (course topic must match to the topic area of the track and be preapproved by the Graduate Program Director)
- CHEM 5700 - Environmental Chemistry
- CHEM 5810 - Graduate Biochemistry I
- CHEM 5815 - Structural Biology of Neurodegenerative Diseases
- BIOE 5420 - Special Topics in Bioengineering (course topic must be preapproved by the Graduate Director)

CHEM 5010, CHEM 5110, CHEM 5221 or CHEM 5310 may be taken if not used as a required course above. Additional courses within the department (a minimum of 20 semester hours must be in Chemistry) and in other departments can be used to complete the total of 30 credits required for the degree. Course selections outside of the department must be approved by the Graduate Program Director.

Track 3: Molecular Modeling

Students in this track will learn fundamental principles and modern techniques in computer modeling and apply the acquired knowledge to solve practical problems in chemistry, biochemistry, biophysics, and material sciences.

Take all of the following required courses:

- CHEM 5510 - Computational Chemistry
- CHEM 5530 - Advanced Physical Chemistry

Take **two** of the following electives:

- CHEM 5010 - Advanced Inorganic Chemistry
- CHEM 5310 - Advanced Organic Chemistry
- CHEM 5600 - Graduate Topics in Chemistry (course topic must match to the topic area of the track and be preapproved by the Graduate Program Director)
- CHEM 5815 - Structural Biology of Neurodegenerative Diseases
- CHEM 5810 - Graduate Biochemistry I

Additionally, students are recommended to take one or two courses from other departments:

- MATH 3191 - Applied Linear Algebra
- MATH 4387 - Applied Regression Analysis
- MATH 5310 - Probability
- MATH 5387 - Applied Regression Analysis
- MATH 5660 - Numerical Analysis I
- CSCI 1410 - Fundamentals of Computing
- CSCI 2312 - Object Oriented Programming

- CSCI 4650 - Numerical Analysis I
- CSCI 5660 - Numerical Analysis I

Additional courses within the department (a minimum of 20 semester hours must be in Chemistry) and in other departments can be used to complete the total of 30 credits required for the degree. Course selections outside of the department and not on the above elective list must be approved by the Graduate Program Director.

Track 4: Traditional Chemistry

Students that are interested in gaining experience in a broad range of chemistry including the critical sub-disciplines of organic, inorganic, analytical, and physical chemistry are encouraged to consider the traditional track.

Traditional Chemistry MS degree students must complete **the following required courses and a thesis or a final written examination.**

- CHEM 5010 - Advanced Inorganic Chemistry
- CHEM 5110 - Advanced Analytical Chemistry
- CHEM 5310 - Advanced Organic Chemistry
- CHEM 5530 - Advanced Physical Chemistry

Additional courses within the department (a minimum of 20 credit hours must be in Chemistry) and in other departments can be used to complete the total of 30 credits required for the degree. Course selections outside of the department must be approved by the Graduate Program Director.

Civil Engineering MS and MEng

► Graduate School Policies and Procedures apply to these programs

Graduate Degree Programs

The civil engineering graduate program is designed for both full-time and part-time students who want to advance their academic and professional skills in civil engineering and related areas. Many students are full time, while many also work full-time jobs and complete evening classes. Depending on a student's pace, the master's program takes 2-4 years to complete (on average). All graduate courses are offered in the afternoons, evenings or on Saturdays. Some courses, including all GIS classes, are offered online.

Specialty Areas:

Master of Science (MS)

- Environmental and Sustainability Engineering
- Geographic Information Systems (GIS)
- Geotechnical Engineering
- Hydrologic and Hydraulic Engineering
- Structural Engineering
- Transportation Engineering

Master of Engineering (MEng)

- Construction Engineering and Management
- Geomatics Engineering and Geographic Information Systems (GIS)
- Sustainable Infrastructure
- Transportation Systems

Degree Requirements

Two MS degree programs are available.

Plan I - Master's Thesis: This plan requires 24 semester hours of graduate-level course work and 6 semester hours of master's thesis credit.

Plan II - Master's Report: This plan requires 27 semester hours of graduate-level course work and 3 semester hours master's report credits.

Master of engineering students must follow Plan 2 above. Additionally, of those 30 semester hours, at least 15 hours must be completed with CE classes, including the master's report. The remaining hours may be completed in related disciplines that supplement the chosen area of study. Both the MS 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 Denver campus, specified in the Information for Graduate Students chapter of this catalog. Both the MS and the MEng degree programs must be completed within seven years of the date the student begins the degree program.

Courses for both the MS and MEng degree programs are selected by mutual agreement of the student and his/her faculty advisor after admission to the degree program. The advisor may also specify undergraduate courses that must be completed before starting graduate course work, but these will not count toward the semester hour requirements for the degree. The student's thesis or report topic must also be approved by the faculty advisor.

Requirements for Admission

GPA and GRE Scores:

Applicants must submit evidence of adequate preparation for graduate study by either (a) submitting official GRE scores, or (b) documenting an earned bachelor's degree with a GPA of 3.00 or higher from an institution accredited by a U.S. accreditation body, or an earned master's degree with a GPA of 3.50 or higher from an institution accredited by a U.S. accreditation body.

Transfer Credit:

Master's students may transfer up to 9 semester hours from another institution toward their master's degree, if approved by their advisor.

Program Prerequisites:

Prerequisite classes are in addition to the 30 semester hours needed to complete a master's degree, as they are necessary background information that is usually included in an engineering bachelor's program. Students must receive a grade of C-minus or better for the prerequisite class to apply to the program.

Students may complete prerequisite classes either before or after being admitted to a degree program. However, applicants with too many prerequisites may not gain admission. For applicants completing prerequisites after admission, all prerequisite courses must be completed before 12 of the 30 master's semester hours are complete.

If prerequisites are taken while admitted to the master's program, students must maintain a 3.0 overall GPA, per Graduate School rules.

Requests for applications for graduate study in civil engineering should be addressed to

CU Denver Department of Civil Engineering
Campus Box 113
P.O. Box 173364
Denver, CO 80217-3364

Applicants who are not citizens or permanent residents of the United States must apply through the Office of International Admissions, Campus Box 185, P.O. Box 173364, Denver, CO 80217-3364. All applicants for admission must submit complete credentials as outlined in the instructions that accompany the application materials. Learn more in the International Students section of the catalog.

Communication MA

► Graduate School Policies and Procedures apply to this program

Our vibrant community of scholars and teachers is committed to providing a real world, hands-on, and theoretically robust master's degree that will enrich students' communication knowledge and skills for the twenty-first century. Our program is a 33-credit generalist degree designed to enhance students' intellectual and professional growth through the understanding and practice of effective communication. Our faculty members are nationally and internationally recognized leaders in their field, and our students hail from all over the world.

Students who complete our program often receive offers to top-notch PhD programs or accept or continue in positions related to communication management, strategic communication, public relations, media relations, human relations, and corporate and non-profit communications.

Degree Requirements

The MA degree in communication requires the completion of 33 hours of graduate course work (5000 level or above). As explained below, students have the option of taking 6 hours of 4000-level courses outside of Communication. In this situation, a student will take 27 hours of graduate credit and 6 hours of 4000-level (undergraduate) course work. The requirements for course work are as follows:

Required Introduction Course

- COMM 6013 - Introduction to Graduate Work in Communication

Total: 3 Hours

Methods Course

Most methods courses are offered every other year. Students who wish to pursue a PhD may elect to take additional methods classes in or outside the department.

Choose one:

- COMM 5022 - Critical Analysis of Communication
- COMM 5205 - Empirical Research Methods for Communication
- COMM 5221 - Research Methods: Qualitative
- COMM 5700 - Writing Practicum
- COMM 5710 - Topics in Communication

Total: 3 Hours

Graduate Seminars*

In addition to the above core requirements, students must take five graduate seminars from the Department of Communication. Graduate seminars are 5000- or 6000-level courses. Seminars are often topics classes taught in faculty areas of expertise.

- COMM 5240 - Organizational Communication
- COMM 5250 - Difference Matters and Organizational Communication
- COMM 5265 - Gender and Communication
- COMM 5600 - Media Theory
- COMM 5710 - Topics in Communication
- COMM 5760 - New Media and Society
  *Graduate Seminars are courses that have a minimum enrollment of 7 or more graduate students.

Total: 15 Hours

Electives

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, provided the 4000 level classes are outside the department. At least two of the four electives must be communication courses; the remaining two electives may be taken from outside of the Department of Communication.

- COMM 5040 - Communication, Prisons, and Social Justice
- COMM 5051 - Advanced Strategic Communication
- COMM 5255 - Negotiations and Bargaining
- COMM 5265 - Gender and Communication
- COMM 5270 - Intercultural Communication
- COMM 5282 - Environmental Communication
- COMM 5500 - Health Communication
- COMM 5550 - Rhetorics of Medicine & Health
- COMM 5558 - Digital Health Narratives
- COMM 5620 - Health Risk Communication
- COMM 5621 - Visual Communication
- COMM 5665 - Principles of Advertising
- COMM 5710 - Topics in Communication
  Topics include but are not limited to: Media Criticism, Film Criticism, Critical Theory, Communication, Globalization, Social Justice, Communication, Democracy, Civil Engagement, Digital Health Narratives, Organizational Discourse and Communication and Security.
- COMM 5840 - Independent Study
- COMM 5939 - Internship
- COMM 5995 - Travel Study
- COMM 6950 - Master's Thesis

Total: 12 Hours

Thesis

Students wishing to complete a thesis must register for between 3-6 semester hours of thesis work, and will need 33 credits to graduate. Credit for a thesis may substitute for one or two elective course requirements.

Total: 3-6 Hours

Students must receive a grade of *B* or higher in all courses that are applied to the MA degree.

All students must pass a comprehensive examination at the end of course work.

Students must comply with all rules of the CU Denver Graduate School.

Degree Total: 33 Hours

Computer Science MS

► Graduate School Policies and Procedures apply to this program

The Department of Computer Science and Engineering requires master's degree candidates to complete a program of study consisting of at least 30 semester hours of graduate level computer science courses while maintaining a grade point average of at least 3.0. According to the Graduate School Rules, graduate courses with grades below B- cannot be applied toward the completion of the graduate degree. With prior approval by the Graduate Committee a student may substitute up to nine semester hours with graduate mathematics or other engineering courses.

Students need to submit an approved Plan of Study to the department during the first semester of their admission. An academic advisor will consult with students to develop a Plan of Study. Students may choose **Plan I** (Thesis), **Plan II** (MS Project), or **Plan III** (Course Only). Both Plan I and II require successful defense of thesis or project in student's graduating semester.

- **Plan I-Thesis:** Students take 24 hours of graduate course work, and additionally write and defend a thesis, which counts for 6 hours of graduate thesis work. In this plan students will take three "category A" courses, a minimum of four "category B" courses, and six hours of MS thesis.
- **Plan II-MS Project:** Students take 27 hours of graduate course work, and additionally write and defend a MS project report, which counts for 3 hours of

graduate MS project work. In this plan, students will take four "category A" courses, a minimum of four "category B" courses, and three hours of MS project.

- **Plan III-Course Only:** Students must take 30 hours of graduate course work and, additionally, complete the final assessment during the student's graduating semester. In this plan, students will take four "category A" courses and a minimum of four "category B" courses. One of the "category B" courses must be from a designated list of courses that will satisfy a final MS project.

Students are allowed a maximum of 3 credit hours of CS Independent Study (except in Plan III, course-only option).

Students may only take graduate engineering or graduate mathematics courses that are offered toward an MS degree in a degree-granting department, while at least 21 hours must be CS. It is advisable that students get prior approval of a graduate CS advisor before taking any course that does not have a CSCI prefix. For example, courses offered through Continuing Education are not counted toward an MS degree in Computer Science.

The only exception for a student to take a graduate course from any other department is when the course satisfies all of the following conditions:

1. It appears in a graduate program.
2. It is taken instead of 3 hours of CS Independent Study.
3. It is approved by the CS Graduate Committee.

No more than 6 credit hours may be in the form of online courses.

Data Science in Biomedicine Track

The Data Science in Biomedicine Track is offered under the Computer Science Master of Science degree program for students who choose Plan I - Thesis.

With this new track, students will adopt biomedical applications of data science (as a sample data science application domain) to learn data science methodologies and technologies. Upon successful graduation from the Computer Science MS program under the Data Science in Biomedicine track, students will have an official designation of data science training within their degree, which will help with employment and other opportunities.

The Data Science in Biomedicine Track requires master's degree candidates to complete a program of study consisting of at least 36 semester hours of graduate level computer science courses while maintaining a grade point average of at least 3.0. According to the Graduate School Rules, graduate courses with grades below B- cannot be applied toward the completion of the graduate degree. In this plan students will take will take three "category A" courses, a minimum of four "category B" courses, six hours of MS thesis and an additional 3 courses of electives from a list of courses related to Biomedical Computing and Informatics, Bioinformatics, Health Informatics, etc.

Adequate Progress toward MS in Computer Science Degree

Students are expected to finish the MS degree program within five years. Candidates for the MS degree may not get credit for a course taken longer than five years before the date on which the degree is to be granted.

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 reason for the inactivity. Students who are inactive for three consecutive semesters (summer semesters excluded) will be removed from the program, and must re-apply for admission.

Certificate Programs

Graduate Certificate in Software Engineering

This certificate is designed for working professionals, or computer science students beginning careers, in the fields of software engineering and software development. This certificate requires a previous computer science or systems engineering degree. At the start of the certificate program students are expected to have a strong understanding of software development in terms of software construction, software coding and basic software design.

Students will complete a sequence of three separate graduate-level courses: Software Architecture, Software Project Management Support and Operating Systems or Advanced Computer Architecture.

Graduate Certificate in Cyber Security & Defense

This certificate is designed for working professionals in the field of computer science, network and/or security operations. This certificate will require a previous Computer Science or similar Bachelor Degree. It consists of graduate-level courses in cyber security, operating systems, and computer networks or cloud computing. The certificate program in Cyber Security and Defense will prepare Computer Science professionals to identify, analyze, and mitigate technical cybersecurity related vulnerabilities, exploits and attacks against network and critical cyber infrastructure. The coursework emphasizes practical technical skills, analysis and research focused on current cybersecurity issues.

Students will complete a sequence of four separate graduate-level courses: Cybersecurity Programming and Analysis, Cyber and Infrastructure Defense, and two of the following- Operating Systems, Computer Networks or Cloud Computing.

For up-to-date information, please refer to the current graduate handbook from the CSE department website at engineering.ucdenver.edu/cse > Degree Programs.

Counseling MA

Return to: School of Education & Human Development

- Degree
- Admission Requirements
- Program Requirements

Office: Lawrence Street Center, 701
Telephone: 303-315-6300
Fax: 303-315-6311
E-mail: education@ucdenver.edu
Website: www.ucdenver.edu/counseling

Faculty

Information about faculty in the Counseling program is available online at http://www.ucdenver.edu/academics/colleges/SchoolOfEducation/FacultyandResearch/Pages/Our-Faculty.aspx.

Degree

The Master of Arts degree in Counseling program prepares professionals for community/mental health agencies, private practice, public schools, and institutions of higher education. Students should obtain faculty advising regarding professional requirements. Students accepted into the Counseling program follow one of the five concentration areas. The clinical mental health and clinical mental health-multicultural counseling tracks follow state licensure requirements for licensed professional counselor; the couple and family therapy track follows licensure requirements designated by the state of Colorado of licensure as a marriage and family therapist and state licensure requirements for licensed professional counselor; the school track follows both the licensed professional counselor licensure and Colorado Department of Education license as a school counselor requirements; and the higher education and student affairs track follows the Counsel for the Advancement of Standards in Higher Education standards but does not lead to any counseling license.

The clinical mental health, couple and family therapy, and school counselor tracks consist of 63 semester hours. The clinical mental health-multicultural track consists of 66 semester hours. Core requirements that are common to all areas of study are followed by courses specific to each program. The clinical mental health and clinical mental health-multicultural, couple and family counseling/therapy, and school counselor tracks require a practicum (150 clock hours) and an internship (600 clock hours). For students in these tracks, the master's degree is a three to three and a half-year program with

course work for two-two and a half years followed by a 12-16 months of practicum and internship.

The higher education and student affairs track consists of 39 semester hours. Students in this track are required to complete a 600 hour internship.

The clinical mental health and clinical mental health-multicultural, couple and family counseling/therapy, and school counselor tracks are nationally accredited by CACREP, the Council for the Accreditation of Counseling and Related Educational Programs. The program is currently working on getting the couple and family track accredited by COAMFTE, the Commission on Accreditation for Marriage and Family Therapy Education.

Admission Requirements

Successful applicants to the Counseling program will have obtained a minimum 2.75 undergraduate GPA. Also, applicants will submit a current resume, a letter of intent, three letters of recommendation and additional required materials. Applicants meeting these minimum standards may be invited to a half-day group interview that involves program orientation, small group interviews, a writing assignment, and a group exercise.

A prerequisite course in basic statistics (undergraduate or graduate level) is required prior to enrollment in the program or may be completed during the first semester in the program.

Application materials are available here. All materials must be submitted online by the appropriate deadline: September 15 for spring semester and January 15 for fall semester.

Program Requirements

Counseling students must earn at least a B in skills-oriented courses (COUN 5100, 5160, 6140, 7100, 5910, 5930) or must repeat these courses until they do so. Students in clinical mental health and clinical mental health-multicultural, couple and family counseling/therapy, and school counselor tracks must also take a national comprehensive examination (after all core courses). Students in the higher education and student affairs track must complete a comprehensive examination in the last semester of study. Students may choose to conduct research and submit a thesis (research conducted under faculty advisement) instead of taking a comprehensive examination.

Counseling Core

COUN 5010 - Counseling Theories
COUN 5100 - Techniques of Counseling

COUN 5110 - Group Counseling*
COUN 5150 - Family Counseling/Therapy*
COUN 5330 - Counseling Issues and Ethics*
COUN 5400 - Career Development
COUN 5810 - Multicultural Counseling Issues for Individuals and Families
EDHD 6200 - Human Development Over the Life Span*
RSEM 5110 - Introduction to Measurement
RSEM 5120 - Introduction to Research Methods

National Comprehensive Exam to be taken after all Counseling core classes are completed.

*not required for students in the higher education and student affairs track

Total: 30 Hours

Additional Requirements for Clinical Mental Health Counseling (MA)

COUN 5160 - Techniques in Family Therapy
COUN 5280 - Addictions Counseling
COUN 5820 - Strategies of Agency Counseling
COUN 6250 - Mental Health Diagnosis
COUN 7100 - Advanced Theories and Techniques in Psychotherapy
Two Additional Electives (6 semester hours)
COUN 5910 - Practicum in COUN
COUN 5930 - Internship in Counseling

Total: 33 Hours

Additional Requirements for Clinical Mental Health Counseling-Multicultural

COUN 5160 - Techniques in Family Therapy
COUN 5280 - Addictions Counseling
COUN 5820 - Strategies of Agency Counseling
COUN 5830 - Special Topics Gender & Sexual Orientation
COUN 6100 - Spiritual Dimensions of Counseling
COUN 6250 - Mental Health Diagnosis
COUN 6810 - Advanced Multicultural Counseling
COUN 7100 - Advanced Theories and Techniques in Psychotherapy
COUN 5910 - Practicum in COUN
COUN 5930 - Internship in Counseling

Total: 36 Hours

Additional Requirements for School Counselor License (MA)*

COUN 5280 - Addictions Counseling
COUN 5425 - Developing & Implementing a School Counseling Program: ASCA
COUN 5815 - Introduction to School Counseling
COUN 5915 - Practicum in School Counseling
COUN 6140 - Counseling Children, Adolescents and Their Parents
COUN 6230 - Developmental Counseling in Schools: Prevention & Intervention
COUN 6250 - Mental Health Diagnosis
COUN 5910 - Practicum in COUN
COUN 5930 - Internship in Counseling

The Professional School Counselor Praxis exam (5421) is required for the Colorado Department of Education license for school counselors.

Total: 33 Hours

*100 hour practicum is required in the schools (COUN 5915). 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 internship in their primary employment (agency or school setting). For school counseling, three hundred (300) hours of internship are needed at the middle and secondary level for a K-12 program. COUN 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.

Additional Requirements for Couple and Family Counseling/Therapy (MA)

COUN 5160 - Techniques in Family Therapy
COUN 6170 - Issues In Family Studies
COUN 5180 - Counseling Couples
COUN 6000 - Introduction to Sex Therapy
COUN 6140 - Counseling Children, Adolescents and Their Parents
COUN 6160 - Advanced Assessment: Theory and Treatment in Family Systems
COUN 6250 - Mental Health Diagnosis
COUN 5910 - Practicum in COUN
COUN 5930 - Internship in Counseling

Total: 33 Hours

Additional Requirements for Higher Education and Student Affairs*

COUN 5050 - Foundations of Student Affairs
COUN 5500 - Diversity in Higher Education
COUN 5130 - Student Development Theory
HDFR 5003 - Leadership and Organizations
COUN 5070 - Higher Education Law and Ethics
COUN 5940 - Internship in Higher Education and Student Affairs
Comprehensive Exam

Total: 21 Hours

*Students who have completed higher education and student affairs courses as part of the Human Development and Family Relations undergraduate major or minor at CU Denver, will be allowed to use these courses to satisfy program requirements; but, they will not receive graduate credit for these courses. As such, these students will be required to take elective courses to reach the 39 credit hour requirement.

Criminal Justice MCJ

Introduction

► Graduate School Policies and Procedures apply to this program

Program Director: Lorine Hughes, PhD

The Master of Criminal Justice (MCJ) program is designed for students interested in comprehensive professional graduate education in criminology and criminal justice. It is intended to provide in-depth understanding of existing structures, practices, and challenges within this field of study.

Part of an academic and professional field of study, the MCJ program prepares students to administer, analyze, evaluate, and facilitate improvements in the rationality and responsiveness of the criminal and juvenile justice systems. Research design capability is emphasized alongside skills required for analyzing empirical data and innovating in crime control and prevention. Students who advance through the program acquire strategies and skills necessary for promoting individual, organizational, and social change.

Faculty

Professors:

Mary Dodge, PhD, University of California Irvine
Angela Gover, PhD, University of Maryland
Mark Pogrebin, PhD, University of Iowa
Eric Poole, PhD, Washington State University
Callie Marie Rennison, PhD, University of Houston

Associate Professors:

Lorine Hughes, PhD, Washington State University
Lonnie Schaible, PhD, Washington State University

Senior Instructors:

Lucy Dwight, PhD, Pennsylvania State University
Sheila Huss, PhD, University of Colorado Denver

MPA AND MCJ-General Information

Admission Requirements

1. Applicants must have 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. Applicants must provide 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. Standard graduate admission test scores are normally waived when the candidate already has a graduate degree in another field from an accredited institution. Other applicants may have test scores waived if they have an undergraduate GPA of 3.0 or better *and* they have *significant* post-baccalaureate professional employment in management or policymaking positions for a minimum of 7 years or the equivalent.
4. A current resume highlighting professional accomplishments and community involvement, a short essay stating educational and career goals, a declaration of program form, and an application fee are also required.
5. International applicants may have different admission requirements and should check with the Office of International Affairs. In particular, international students whose first language is not English are required to take the TOEFL or IELTS. A composite score of 6.5 on the IELTS, or a composite score of 80 on the TOEFL, with accompanying minimum IELTS or TOEFL subscores of 20 or greater, is required.

All application material and test scores should be sent to SPA, University of Colorado Denver, Campus Box 142, P.O. Box 173364, Denver, CO 80217-3364.

SPA will review applications as soon as they are complete. 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.*

Preferred Application Deadline

Fall - March 1
Spring - October 15
Summer - March 1

*Final Deadline**

Fall - August 1
Spring - December 1
Summer - May 1

*Final deadline does not apply to international students who should contact the Office of International Affairs for deadline information.

Provisional Admission

In exceptional cases, a student who does not otherwise meet the minimum requirements for admission may be admitted on provisional status if elements of their application suggest they may be able to succeed in the program. Students admitted on a provisional basis take two core courses in their first semester, and must earn at least a B in each course.

MCJ students may select two of the following for their first semester:

- CRJU 5001
- CRJU 5003
- 5002 or 5005

Based on their performance in these courses, a formal decision will be made concerning their admission into the program. Provisionally-admitted students may not take any other courses at SPA until they have been formally admitted to the program.

Nondegree Admissions

Students may register as nondegree students while developing their application packet. However, students are discouraged from taking multiple courses as a nondegree student if they hope to pursue a degree. No more than 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. Taking courses as a nondegree student does not guarantee later admittance into the MCJ program. Nondegree student application forms are available in the Office of Admissions or online.

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.

Limitation of Course Load

The normal course load for a full-time MCJ student is 6 to 9 graduate credit hours per semester; full-time status for MCJ graduate students is 5 graduate credit hours per semester for financial aid determination. A student who is employed full-time is strongly advised not to carry more than 6 graduate semester hours in the MCJ program. Students who wish to carry a graduate course load above 9 hours per semester must consult their advisor and/or student service coordinator first.

Financial Assistance

Students in the master's degree programs are eligible for several types of financial assistance. Educational loans require application to the CU Denver Office of Financial Aid 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 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.

Persons interested in applying for financial assistance should inquire in the SPA office. The deadline for current students is March 1 for the fall term. Prospective students seeking scholarship funds should have complete scholarship applications on file at the SPA office by the preferred application deadline for the semester they are requesting funds.

The Internship Program

An internship for the MPA and MCJ programs is required for students who have not had the equivalent of at least one year of professional full-time experiencein the field, following the awarding of their Bachelor degree. The purpose of the internship is to continue the linkage between theory and practice that is the philosophical basis of SPA. Internships generally involve substantive part-time work undertaken during the course of one semester. A maximum of three semester hours will be awarded for internship

service. Placements have included the Governor's Office, Colorado General Assembly, 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.

Time Limit for Master's Degree

Master's degree students must complete all coursework and degree requirements within seven years of registration in their first course.

MCJ Degree Requirements

The minimum requirements for the basic MCJ degree are outlined below. Occasionally, changes are made; students may graduate under the requirements that were in effect at the time of admission.

1. Graduate Course Work

The program leading to the MCJ degree requires a minimum of 36 semester hours of appropriate graduate study with an average of B (3.0) or better. No grade below B- will be accepted for graduate credit. No more than 6 semester hours of independent study can be applied toward the degree.

2. Core Courses

The completion of the following core courses is required with a grade of B- or better:

- CRJU 5001 - Criminal Justice Systems, Policies, and Practice
- CRJU 5002 - Criminological Theory
- CRJU 5003 - Research Methods
- CRJU 5004 - Statistics for Criminal Justice
- CRJU 5005 - Law & Society

3. Course Work

Students must complete a minimum of 27 semester hours of coursework in criminal justice.

4. Criminal Justice Internship

Students who have not had one year of criminal justice experience following the awarding of their Bachelor degree are required to complete CRJU 6910 (field study). A

minimum of 240 hours of supervised work is required to earn 3 hours of credit. Students must have completed 18 credit hours with a GPA of 3.0 prior to enrolling in the internship course.

5. Capstone

All MCJ students, except those pursuing the thesis option, must complete the capstone course (CRJU 5361) during the last semester of their degree program. All core classes must be completed before taking the capstone. The capstone cannot be taken during the summer semester.

- CRJU 5361 - Capstone Seminar

  Students must receive the approval of both a faculty advisor and the director of the criminal justice program to complete a thesis for 3-6 semester hours in lieu of the advanced seminar.
  *Students admitted before spring 2009 may opt to take a written comprehensive exam in lieu of CRJU 5361.

Elective Courses

- CRJU 5220 - The American Jury System
- CRJU 5250 - Criminal Offenders
- CRJU 5260 - Crime and Literature
- CRJU 5270 - Case Studies in Criminal Justice
- CRJU 5301 - Crime and the Media
- CRJU 5320 - Police Administration
- CRJU 5331 - Crime Analysis and GIS
- CRJU 5391 - Sex Offenders and Offenses
- CRJU 5410 - Victimology
- CRJU 5420 - Violence in Society
- CRJU 5430 - Drugs, Alcohol, and Crime
- CRJU 5510 - Contemporary Issues in Law Enforcement
- CRJU 5520 - Corrections
- CRJU 5530 - Community Corrections
- CRJU 5540 - Juvenile Justice
- CRJU 5550 - Criminal Justice Policy and Planning
- CRJU 5551 - Courts, Law & Justice
- CRJU 5552 - Criminal Justice Ethics
- CRJU 5553 - Women, Crime, and Justice
- CRJU 5555 - Profiling Criminal Behavior
- CRJU 5571 - The Social Organization of Crime
- CRJU 5572 - Race, Crime, and Justice
- CRJU 5574 - White Collar Crime
- CRJU 5575 - The Mentally Disordered Offender

- CRJU 5576 - Social Science in the Criminal Justice System
- CRJU 6600 - Special Topics in Criminal Justice

MCJ Options

Concentrations and Graduate Certificates

Crime Analyst Concentration

A student may choose to complete a concentration in crime analysis studies as part of the MCJ degree, or the crime analyst program can be completed by non-degree students as a stand-alone graduate certificate. The certificate emphasizes criminal justice and criminology related subjects. Nonetheless, the analytic skills learned in this concentration or certificate are not industry-specific and easily can be transferred to non-criminal justice and criminology related fields.

Students seeking a crime analyst concentration must complete 15 semester hours in the following required courses.

Requirements:

CRJU 5003 - Criminal Justice Research Methods
CRJU 5004 - Criminal Justice Statistics
CRJU 5325 - Qualitative Research Methods
CRJU 6600 - Intelligence Writing and Briefing
CRJU 5331 - Law Enforcement Analysis

Total: 15 Hours

Gender-Based Violence Concentration/Graduate Certificate

A student may choose to complete a concentration in gender-based violence studies as part of the MCJ or MPA degree, or the gender-based violence program can be completed by non-degree students as a stand-alone graduate certificate. The gender-based violence program of study provides an interdisciplinary perspective on crime, the formulation of laws and codes, and the criminal legal system and its intersection with gender and violence. Students pursuing the gender-based violence concentration must complete a total of 15 semester hours via intensive in-person and online hybrid courses that meet periodically throughout a two-year period.

Requirements

Students take the four specified courses below and one elective.

- PUAD 5910 - Nature and Scope of Interpersonal Violence
- PUAD 5920 - The Psychology of Interpersonal Violence
- PUAD 5930 - Interpersonal Violence Law and Policy
- PUAD 5940 - Interpersonal Violence Leadership, Advocacy, and Social Change

Total: 15 Hours

Emergency Management and Homeland Security Concentration

The EMHS program can be taken as either a stand-alone graduate certification program or as a concentration within the school's Master of Public Administration curriculum.

Non-degree students can earn the Certificate in EMHS by successfully completing 15 credit hours from courses offered and approved by the faculty of the Program Concentration.

The graduate concentration in Emergency Management and Homeland Security (EMHS) provides advanced education in the management of emergencies, hazards, disasters, and homeland security. The EMHS program is designed to meet the needs of students who wish to work, or are currently working, in the field of emergency management and homeland security.

The EMHS program applies an interdisciplinary approach to education that:

1. Emphasizes high-level skills of critical thinking, learning, adaptation and policy analysis
2. Focuses on the all-hazards emergency management model (encompassing natural hazards, technological hazards, and terrorism).

Students completing the EMHS concentration program will have the knowledge and skills necessary to assess and manage a broad range of hazards and disasters, and to understand the policy environment in which emergency management occurs.

Students interested in obtaining a concentration in EMHS within a Master of Public Administration (MPA) or Master of Criminal Justice program must apply and enroll in the MPA or MCJ program within the School of Public Affairs (SPA) and must adhere to all master degree program requirements.

* For more information on the Emergency Management and Homeland Security concentration, please complete a request for more information form on our website.

MCJ EMHS Degree Plan

MPA EMHS Degree Plan

Requirements

Students take two of the following three required courses as well as three elective courses approved by their advisor. The three elective courses may be drawn from the student's particular area of interest, such as policy and management, spatial analysis and quantitative assessment, or public safety.

- PUAD 5655 - Principles of Emergency Management
- GEOG 5230 - Hazard Mitigation and Vulnerability Assessment
- PUAD 5650 - Public Service in Emergency Management and Homeland Security

Online Option

The MCJ degree is offered in an online format. Students who are looking for a high-quality education but need an alternative to traditional classroom instruction may elect to complete one or all of their courses online. This option allows students to complete the entire degree at a distance or elect to take some courses in person while using an interactive online format for others.

Curriculum and Instruction MA

The Curriculum and Instruction (C&I) program offers a Personalized Professional MA degree, a MA degree plus endorsement, and endorsements in a variety of areas. The program is intended to provide licensed K-12 teachers the skills and understanding necessary for an ever-increasing diverse student body and to prepare them for curriculum development, implementation, and assessment. The program is also beneficial for those individuals who work in community colleges, professional development, or other ancillary services in education and beyond. This is not a licensure program. No teacher license will be issued upon successful completion of the program.

MA C&I Degree, MA C&I Degree + Endorsement, and Endorsement Areas

Personalized Professional C&I MA Degree with Concentration in: no license or endorsement)	C&I MA Degree + Endorsement	Endorsement Only
Culturally and Linguistically Diverse Education	C&I MA: Culturally and Linguistically Diverse Education with K-12 endorsement	Culturally and Linguistically Diverse Education (K-12)
Reading and Writing	C&I MA: Reading and Writing with Reading Teacher K-12 Endorsement	Reading Teacher (K-12)
English Education		
Math Education		
Science Education		
Math and Science Education		
Special Education	C&I MA: Special Education with Generalist Endorsement, Ages 5-21	Special Education Generalist Endorsement, Ages 5-21

The Master of Arts (MA) in Curriculum and Instruction offers two degree paths:

1. Personalized Professional: The customizable 30 credit hour MA path provides the opportunity for you to tailor your coursework to your specific needs as an Educator. Students choose from one of several concentration areas in which to focus, while having the flexibility to choose courses outside the concentration area for additional learning from the Thematic Course Categories. This MA does NOT lead to a license or an endorsement.
2. MA plus endorsement: The MA plus endorsement allows students to add an endorsement to their current teaching license in a variety of areas. In this program, students receive a MA and an endorsement. Recommendation for endorsement(s) is made by the C&I Program, but endorsement is granted by the State of Colorado. Individual State requirements vary and may include teaching

experience and examinations in addition to a valid teaching credential. Students should consult with the Colorado Department of Education http://www.cde.state.co.us/cdeprof/licensure_authorization_landing or another state in which they wish to be endorsed for the most updated endorsement requirements.

Concentration Areas

Culturally and Linguistically Diverse Education Concentration

This concentration helps licensed teachers enhance their skills and credentials to support diverse languages, cultures, and abilities in the classroom Graduates are prepared to become leaders to serve multilingual learners in K-12 classrooms. This concentration emphasizes a socio-cultural 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. 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. Course work includes language teaching methodology, language acquisition, linguistic analysis of English, multicultural foundations, assessment, literacy, and other areas.

Literacy, Language and Culturally Responsive Teaching Concentration

Reading and Writing

This concentration will enhance your literacy instruction skills and credentials while providing advanced knowledge and training to work with diverse student populations as they develop reading, writing, and oral language skills. Course work includes literacy and language acquisition, culturally relevant teaching practices, literature, literacy assessment and informed instruction, hands-on practice, and practicum in your own classroom. The program requires access to students in order to complete the methods courses. We stress the importance of recognizing a variety of literacies - home, school, community, and mainstream - in both first and second languages, and the meaningful use of literacy and language to improve students' quality of life.

English Education

This concentration prepares licensed Secondary English or secondary language arts teachers to work with diverse adolescents as they develop an appreciation for literature and composition. Course work includes theory and methods of English education, linking assessment and instruction, and practicum experience. The study of contemporary, ethnic, and classic literature, reading, and writing are woven together,

along with speaking, listening, and viewing. We stress the importance of recognizing a variety of literacies - home, school, community, and mainstream - in both first and second languages, and the meaningful use of literacy and language to improve students' quality of life.

Mathematics Education Concentration

This concentration promotes elementary and secondary mathematics teachers' passion, confidence, and competence in providing mathematics teaching-learning processes informed by insightful theories, effective learning activities, and innovative teaching strategies, as well as by international perspectives. This concentration area focuses on integration of theory, research, and practice to enable teachers to make instructional decisions and implement mathematics lessons that promote students' conceptual understandings and problem solving, including opportunities for doing research.

Science Education Concentration

This concentration promotes elementary and secondary science teachers' passion, confidence, and competence in providing science teaching-learning processes informed by insightful theories, effective learning activities, and innovative teaching strategies, as well as by international perspectives. This concentration area focuses on integration of theory, research, and practice to enable teachers to make instructional decisions and implement science lessons that promote students' conceptual understandings and problem solving, including opportunities for doing research.

Mathematics and Science Education Concentration

This concentration area combines the mathematics education and science education fields to prepare teachers who can bridge these disciplines into exciting and innovative programming for students. It draws on the learning activities and experiences provided in the mathematics education and science education concentration areas.

Special Education Concentration

This concentration emphasizes the development of reflective practitioners through trans-disciplinary training, fosters reflective inquiry about teaching and learning, as well as the development of the skills, knowledge, and dispositions necessary to teach in elementary and secondary classrooms serving students with exceptionalities. Reflection and inquiry provide an informed and integrated basis for advocating for all learners.

Early Childhood Education MA

Early Childhood Education Program

The Early Childhood Education (ECE) program leads to a master's degree in early childhood education and/or Colorado teacher license in early childhood special education (ECSE) specialist. The program prepares leaders who will enrich the life experience of young children (ages birth to 8 years) and their families through a variety of professional roles.

The ECE program focuses on building and supporting learning and development of all children across inclusive settings in the natural environments where they live, grow and learn. The program draws on university resources and the clinical expertise of various professionals and early childhood partners in the community. 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. Fieldwork experiences are designed for students to apply knowledge and practice skills in a closely supervised learning environment.

Curriculum and Program Requirements

Semester Hour Requirements

Personalized Professional Master's degree in ECE: 30 semester hours
Concentration areas in Teaching and Learning, Administration and Leadership, and Diversity and Inclusion

The early childhood education program provides potential preparation in:

- language and literacy development,
- child growth and development,
- teaching and learning approaches with young children,
- learning, development and education grounded in culture, context, and identity of young children,
- research methods for education,
- early childhood curriculum and program development for inclusive classrooms,
- collaborative program development and supports for children with families and communities at the center,
- leadership of programs and early childhood professionals for practice, advocacy and social change,
- screening and assessment of young children,
- inclusive intervention strategies with infants, preschoolers, and primary aged children,

- social emotional competence and classroom supports including for children with severe and persistent challenging behavior,
- working as a participatory member of a transdisciplinary team,
- learning and development for a variety of learning styles and abilities,
- inclusive services for children diagnosed with low incidence disabilities including autism, developmental delay and chronic illness

Specific course selection for the Personalized Professional Masters degree allows candidates to work closely with faculty advisors to select content that is most relevant for them and their desired professional path, including courses outside the ECE program area.

For more information on coursework and plans of study, please contact an academic advisor in the School of Education and Human Development.

Capstone Requirement

The intent of the Capstone is to help candidates synthesize learning through a final project that speaks to academic and professional development in the ECE Program. The capstone should tell the story of what was learned, specific areas of interest, and address ongoing barriers experienced in the field. All ECE MA completers must do a Capstone project, and register for 3 credits of Capstone Administrators (CCECEA).

Economics MA

► Graduate School Policies and Procedures apply to this program

Graduate Advisors: Brian Duncan and Hani Mansour

The MA program in economics is designed to train students in the quantitative and applied economic skills that will best enhance their future employment opportunities in the private and public sectors, or their pursuit of PhD studies in economics or related fields.

Our MA program emphasizes extensive training in mathematical and quantitative analysis, including the provision of substantial exposure to applied econometrics, working with large and diverse data sets, and a wide range of statistical software. The program gives students the applied skills that employers demand, provides those pursuing advanced degrees an edge in gaining admission to top-flight PhD programs-and enhances the likelihood of the student's ultimate success.

Admission Requirements

- Meet all general admission requirements of the Graduate School (including a 2.50 undergraduate grade-point average).
- Submit three letters of recommendation (at least two letters should come from individuals who are familiar with your scholarly record. The third can be an additional academic reference or professional reference from someone who knows you well and can comment on your potential as a graduate student).
- Submit official transcripts from all colleges attended.
- Have completed 15 credit hours of undergraduate economics, including intermediate microeconomic theory and intermediate macroeconomic theory (upper division courses).
- Have completed courses in calculus and statistics (preferably a year of calculus and a course in econometrics or similar upper division statistics course. A course in linear algebra and/or differential equations is recommended).
- Submit GRE scores. All applicants, international and domestic, must submit GRE scores regardless of prior degrees, course work, or work experience. The institution code for CU Denver is 4875. Most students admitted to the MA program in economics score 154 or above (690 or above using the prior test scale) on the quantitative section of the GRE. However, this is not a minimum GRE cutoff score, nor is it a score above which admission is guaranteed. GRE scores are used in conjunction with other indicators of academic success at the Master's level. Applicants must show strong evidence of quantitative ability either through high grades in math, statistics, and economic courses, a high quant score on the GRE, or preferably both.
- International students must submit TOEFL scores. The minimum required score is 203 (computer-based TOEFL), 75 (IBT-based TOEFL), 537 (paper-based TOEFL), or 6.5 (IELTS). The institution code for CU Denver is 4875. The minimum TOEFL scores are a requirement of the Graduate School and cannot be waived by the department of economics. The Graduate School may waive the TOEFL requirement for applicants who have attended a college or university in the United States as a full-time student and have completed two semesters of academic work with a "B" average (3.0 GPA or higher). Please contact the International Admissions office if you have questions about this requirement.

Application Deadlines:

Fall - June 1

Spring - December 1

The Department of Economics accepts late applications after these official deadlines. However, there is no guarantee that a late application will be processed in time for the start of the semester. Students are encouraged to apply well in advance the application deadline.

International students who apply after the June 1 or December 1 deadline may not have time to obtain a student visa. Being admitted to the MA program in economics does not

guarantee that a student will receive a student visa in time for the start of the semester. International students who are admitted to the MA program, but fail to obtain a visa in time, may defer admission for up to one year. All questions about student visas should be directed to the Office of International Admissions.

Degree Requirements

The MA degree requires the completion of 30 semester hours of coursework, of which 21 hours are core requirements. Each student's plan will be worked out in conjunction with the graduate advisor.

Students are expected to meet all course prerequisites. A grade of B- or better is required in all courses, with a cumulative grade point average of B (3.0) or above. No course may be taken more than twice.

Core Courses

- ECON 5073 - Microeconomic Theory
- ECON 5083 - Macroeconomic Theory
- ECON 5803 - Mathematical Economics
- ECON 5813 - Econometrics I
- ECON 5823 - Econometrics II
- ECON 6053 - Seminar In Applied Economics
- ECON 6054 - Seminar In Applied Economics II
- ECON 6073 - Research Seminar

Total: 21 Credits

Electives

Three courses numbered 5000 or higher with an ECON subject code. After completing 6 credit hours of ECON 6053/6054 as part of the economics core, additional ECON 6053/6054 courses may be counted as electives.

Total: 9 Credits

Degree Total: 30 Credits

Education & Human Development (EDHD) MA

Office: Lawrence Street Center, 701
Telephone: 303-315-6300
Fax: 303-315-6311
E-mail: education@ucdenver.edu
Website: www.ucdenver.edu/education

Faculty

Information about EDHD faculty is available online at http://www.ucdenver.edu/academics/colleges/SchoolOfEducation/FacultyandResearch/Pages/Our-Faculty.aspx.

Master's Degree

The MA program in education and human development prepares students to facilitate the teaching/learning process and to lead and work in community-based environments. Thus, many students pursue the degree to enhance their skills as professional classroom teachers or lead in the community. The degree also provides skills necessary for a variety of roles in educational and teaching settings or community environments where knowledge of learning, development, understanding family and community systems, motivation, and research is essential such as teaching at the community college and teaching-based colleges and universities levels, teaching adults, consulting, developing assessments, community-based leadership, and conducting program development and evaluation. Other students seek the MA as preparation for advanced study in educational psychology, family science and human development, research, or related fields.

Areas of Study

Four major areas of concentration are available- learning, human development and family relations, research and evaluation, and assessment:

- Regardless of the concentration area selected, all students must demonstrate competence in education and human development by successfully completing 30 semester hours of relevant course work;
- Students in the learning and human development and family relations concentrations complete a capstone experience either an applied project or a master's thesis in consultation with their faculty advisor based on the students' professional and academic goals; and
- Students in the research and evaluation and assessment concentrations complete a capstone experience either a practicum, independent study, or a master's thesis in consultation with their faculty advisor based on the students' professional and academic goals; and

Learning

This program prepares students to apply research-based knowledge and to develop culturally relevant knowledge and skills that inform a wide range of practices and issues within the field of education and innovative learning environments. This program concentration provides opportunities for the student to develop an in-depth understanding about human learning across age groups, in formal and informal educational and community contexts. Courses will focus on the learning process including cognition, instructional design, motivation and developmentally appropriate practices to support learning for children, adolescents and adults within a sociocultural framework.

Human Development and Family Relations (HDFR)

Students will engage in developing their skills to work in and lead community-based organizations including, but not limited to secular, faith-based, for profit, nonprofit, school-based, and local, state, federal and international organizations. The importance of family diversity and social justice is stressed throughout the HDFR curriculum through its courses and experiences. Students can also develop their knowledge in family relations in preparation for doctorate studies in family science and human development or related areas.

The EDHD program does provide a pathway for MA students (HDFR and Learning areas) to pursue their PhD in EDHD with a Family Science and Human Development concentration. For more information please visit our School of Education and Human Development.

Students who complete the MA in EDHD with a HDFR emphasis will also be eligible to complete the bilingual (Spanish) Family and Community Services concentration area in preparation to work with Spanish speaking families and communities. Advisor approval is required for this concentration.

The HDFR area also provides classes to all School of Education and Human Development (SEHD) graduate programs, offering courses in family theories, family dynamics, and diverse family systems, Latino family, school and community systems, family resource management, leadership and organizations, grant writing and fund raising, program development and other family relations based courses.

Research and Evaluation Methods (RSEM)

RSEM students will acquire skills necessary for a variety of roles that involve data driven decisions. Students who complete the MA will be better prepared to facilitate decision making based on evidence. Some students pursue the degree to enhance their skills as

classroom teachers; others move out of the classroom and work in environments where information and data from different sources can be used to make informed decisions.

The RSEM area also provides classes to all education graduate programs, offering courses in research methods, evaluation, statistics, analysis, assessment, and measurement.

Assessment

This program concentration provides opportunities for you to develop an in-depth understanding about educational psychology as it relates to learning-related assessment. You'll address issues in both classroom and large-scale assessment and focus on other forms of assessment, such as portfolios and performance assessments. You also may specialize in assessment in a content area like literacy or mathematics.

Electrical Engineering MEng

A minimum of 30 credit semester hour of academic work acceptable to the Advisory Committee (within the rules established by the College of Engineering and Applied Science) will be required for the Master of Engineering degree. In compliance with the Graduate School rules, the minimum grade required for a unit to count toward the 30 semester hours is a B minus (2.7). To couple this degree with electrical engineering, at least 15 of these hours must be 5000-level or above in electrical engineering courses, and must be taken in the CU Denver Department of Electrical Engineering. As many as 15 hours can be taken outside of electrical engineering, included 3 credit hours for the master of engineering project. The project should cover some area of creative investigation performed by the student and may relate directly to his/her professional work. The project must be defended orally before the Advisory Committee.

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.

Electrical Engineering MS

To fulfill the requirements for the master of science in electrical engineering (MSEE), the Electrical Engineering Department at CU Denver requires that within a seven-year period, the candidate completes and approved program in one of two options: (a) a **thesis option** consisting of at least 30 semester hours, including 6 credit hours of MS

thesis, or (b) a **course-only option** consisting of at least 30 semester hours. It is also required the the MSEE candidate maintain a grade point average of 3.0 or higher. In compliance with the Graduate School rules, the *minimum* grade required for a unit to count toward the required semester hours is B minus (2.7).

For both thesis and course-only master of science in electrical engineering options, the student must select a primary area of concentration and a secondary area of concentration, among the six areas listed below. The areas should be chosen a priori with the student's graduate advisor. The student must take at least four 3-hour graduate courses (12 credit hours) in his/her primary area of concentration, and at least two 3-hour graduate courses (6 credit hours) in his/her secondary area. All of these courses must be taken through the CU Denver EE Department. The remaining courses may be taken from any area of concentration. A student may also take one 3-credit independent study course with a graduate faculty member of the CU Denver EE department. At least 21 graduate credit hours must be taken from the CU Denver EE Department. At the discretion of the EE graduate committee, a maximum of nine graduate credits may be transferred from other programs.

The CU Denver EE Department offers six areas of concentration at the master's level:

1. Communications and Signal Processing
2. Computer Engineering and Embedded System Design
3. Controls and Signal Processing
4. Electromagnetic Fields, Waves and Optics
5. Energy and Power Systems
6. Microelectronics and VLSI

English MA

► Graduate School Policies and Procedures apply to this program

Program Director: Philip Joseph
Telephone: 303-315-7847
E-mail: philip.joseph@ucdenver.edu

The department offers an English MA degree focused around five core courses with specializations available in literature, rhetoric and the teaching of writing, and applied linguistics.

Contact the graduate program director for more information on these programs.

Requirements for Admission

The deadline for summer or fall admission is April 1; the deadline for spring is October 1. Complete applications must include the following:

- a completed University of Colorado graduate application
- one copy of all graduate and undergraduate transcripts, and for any nondegree courses previously taken
- three letters of recommendation in which the recommender specifically addresses the candidate's ability to pursue successfully the program chosen
- recent scores on the GRE general test, which includes the analytical, verbal and quantitative portions. GRE score average should be 155 or higher. Analytical writing score should be 4 or higher.
- evidence of a 3.0 GPA in previous courses
- a one-page statement of purpose
- 10-page critical writing sample

In addition to these requirements, applicants for the program must have successfully completed 24 semester hours in English courses (graduate or undergraduate), excluding courses in composition, creative writing or speech. At least 15 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 CU Denver. Up to 9 semester hours (total) may be transferred from the University of Colorado Boulder, University of Colorado Colorado Springs or other graduate program; however, such transfer requires the written approval of the graduate advisor. Only 9 semester hours of courses taken at CU Denver before acceptance into the program can be counted toward the degree. 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 CU Denver. (For other rules concerning transfer of graduate credits, see the Graduate School Policies and Procedures.) For more information, contact the graduate program director at 303-315-7847.

Degree Requirements

GENERAL REQUIREMENTS

- Satisfactory completion of all required course work
- Demonstrated fourth-semester proficiency in a foreign language. Old English or Latin will also satisfy this requirement
- Compliance with all graduate school policies and requirements

COURSE REQUIREMENTS (30 SEMESTER HOURS MINIMUM)

Total Hours Required: 30-33 hours

All courses are 3 credit hours unless otherwise noted.

Students must receive a *B*- or above in all courses counted toward the MA degree.

REQUIRED COURSES

- ENGL 5100 - Introduction to Graduate Studies
- ENGL 5135 - English Language Study
- ENGL 5145 - Theory *(Literary and Rhethorical Theory)*
- ENGL 5155 - Genres of Writing
- ENGL 5165 - Literacy and Technology

Total: 15 Hours

AREA REQUIREMENTS

Students may choose to concentrate 12 hours of English graduate courses in a particular area of study that meets the student's goals in the program.

Total: 12 Hours

THESIS OR PORTFOLIO OPTIONS

- ENGL 6950 - Master's Thesis

  Students must consult with and submit a proposal to the graduate committee for approval. **(4-6 credit hours)**

  OR take

- ENGL 6970 - Portfolio Exam
  (3 hours)

Total: 3-6 Hours

Additional Information

Candidate for Degree: Graduate students must be registered for at least one credit hour during the semester that they graduate. Those who have completed all required courses and requirements may register for Candidate for Degree: CAND 5940 section 900.

Teaching Assistantships: Graduate students who receive a teaching assistantship must take ENGL 5913 - Practicum in Language and Rhetoric in the fall during their first semester as a teaching assistant. ENGL 5913 may also be counted as an elective.

Independent Study: Graduate students may only count 6 credit hours of Independent Study toward the English MA degree.

Environmental Sciences MS

► Graduate School Policies and Procedures apply to this program

Program Director: Anne Chin
Office: North Classroom, 3522
Telephone: 303-315-7525
Fax: 303-315-7526
E-mail: anne.chin@ucdenver.edu
Web site: MS in Environmental Sciences website

Core Faculty of the M.S. in Environmental Sciences Program

Professors:
Anne Chin, Geography and Environmental Science
Pamela Jansma, Geography and Environmental Science
Deborah S.K. Thomas, Geography and Environmental Science

Associate Professors:
Peter Anthamatten, Geography and Environmental Science
Frederick B. Chambers, Geography and Environmental Science
Rafael Moreno-Sanchez, Geography and Environmental Science
Brian Page, Geography and Environmental Science
Gregory Simon, Geography and Environmental Science
Brian S. Wee, Geography and Environmental Science
John W. Wyckoff, Geography and Environmental Science

Assistant Professors:
Christy Briles, Geography and Environmental Science

Senior Instructors:
Amanda Weaver, Geography and Environmental Science
Daniel Liptzin, Geography and Environmental Science

Instructors:
Matthew Cross, Geography and Environmental Science

Lecturers:
Richard DeGrandchamp, Geography and Environmental Science

Faculty Affiliates to the M.S. in Environmental Sciences Program

Professors:
N. Y. Chang, Civil Engineering
Diana F. Tomback, Integrative Biology

Associate Professors:
Leo P. Bruederle, Integrative Biology
Greg Cronin, Integrative Biology
Michael J. Green, Integrative Biology
David Mays, Civil Engineering
Timberly M. Roane, Integrative Biology
Michael Wunder, Integrative Biology

Assistant Professors:
Annika Mosier, Integrative Biology
Alan Vajda, Integrative Biology

Environmental Sciences is a multidisciplinary study of the natural/physical environment. 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 the natural/physical sciences or engineering and completed several other prerequisites (see the following graduate information).

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 path to follow. At CU Denver, 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 social sciences. The goals of the program are (1) to enhance the interdisciplinary communication and analytical skills of the student, and (2) to 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 MS in 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 have 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 ENVS 5600, Applied Statistics, or an approved statistics course as an elective before receiving the MS in Environmental Sciences degree)*
- either two semesters of general chemistry with lab or two semesters of general biology with lab
- one semester of physics

If only two semesters of the 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 in 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 and transcripts from all institutions previously attended. CU Denver has a minimum requirement of a 3.0 undergraduate GPA for applicants to the Graduate School. The program admits new students for the fall semester only, and the number of students admitted to the program depends, in part, on space availability. **Applicants must submit all materials by the March 1st deadline.**

Financial Aid

There are three types of financial aid available: student hourly teaching assistantship; 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 Denver campus. Incoming students will be automatically considered for program-distributed assistance at the time of admission to the program. Continuing students will be regularly apprised of available aid and positions. All other aid should be requested through the CU Denver Financial Aid Office, Student Commons Building 5th floor, Campus Box 125, P.O. Box 173364, Denver, CO 80217-3364. Telephone: 303-315-1850.

Internships

Students in the MS in Environmental Sciences program are strongly encouraged to contact the Experiential Learning Center for internships and paid positions related to environmental sciences. The Experiential Learning Center is located in the Tivoli Student Union, Suite 260. Telephone: 303-556-2250. Many students have had internships in federal agencies, such as the U.S. Environmental Protection Agency and the U.S. Geological Survey.

Program Requirements

The MS in Environmental Sciences is a 39-hour program that provides students with two alternate plans: Plan I requires a thesis, while Plan II is a non-thesis program. General requirements for the program include a set of core courses (9-12 semester hours) and elective courses (24-27 semester hours minimum). Students choosing to complete the thesis option must also complete 3 hours of thesis credit, while those choosing the non-thesis option must complete 3 hours of additional elective coursework.

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.

Thesis Option

Take **all** of the following:

- ENVS 6002 - Research Topics in Environmental Sciences (3 hours)
- ENVS 6100 - Research Topics in Environmental Management (3 hours)

OR

- GEOG 6750 - Research Design (3 hours)
- ENVS 6800 - Community-Based Research Practicum (3 hours)

Take 24 hours of elective courses

- GEOG 6950 - Master's Thesis (3 hours)

36 hours of coursework and 3 thesis hours

Non-thesis Option

Take **all** of the following:

- ENVS 6002 - Research Topics in Environmental Sciences (3 hours)
- ENVS 6100 - Research Topics in Environmental Management (3 hours)

OR

- GEOG 5440 - Science, Policy and the Environment (3 hours)
- ENVS 6800 - Community-Based Research Practicum (3 hours)

Take 30 hours of elective courses

39 hours of coursework

Elective Courses

(See the MS in Environmental Sciences website 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 24-30 semester 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, environmental science education, geospatial analysis, hazardous waste or 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: Frederick Chambers
E-mail: Frederick.Chambers@ucdenver.edu

Required Courses

- CHEM 5710 - Air Pollution Chemistry
- ENVS 5730 - Air Quality Modeling and Analysis

Total: 6 Hours

Electives

Choose two:

- CHEM 5720 - Atmospheric Sampling and Analysis
- CVEN 5800 - Special Topics
  (when Air Pollution Control is the topic)
- URPL 6800 - Special Topics: Urban and Regional Planning
  (when Air Quality Planning and Policy is the topic)

Total: 6 Hours

Option Total: 12 Hours

ECOSYSTEMS OPTION*

Option Advisor: Christy Briles
E-mail: Christy.Briles@ucdenver.edu

Required Courses

- BIOL 5415 - Microbial Ecology
- ENVS 5010 - Landscape Geochemistry

Total: 6 Hours

Electives

Choose two:

- ENVS 5731 - Mountain Biogeography
- ENVS 6220 - Toxicology (see Note 2)
- BIOL 5050 - Advanced Biology Topics
  (when Seminar in Aquatic Ecology is the topic)
- BIOL 5154 - Conservation Biology
- GEOG 5060 - Remote Sensing I: Introduction to Environmental Remote Sensing

Total: 6 Hours

Option Total: 12 Hours

* BIOL 5445, Applied Environmental Biology, is required as a prerequisite for the ecosystems option.

ENVIRONMENTAL HEALTH OPTION*

Option Advisor: Deborah Thomas
E-mail: Deborah.Thomas@ucdenver.edu

Required Courses

- ENVS 6220 - Toxicology (See Note 2)
  (fall, even years)
- ENVS 6230 - Environmental Epidemiology
  (spring, even years)

Total: 6 Hours

Electives

Choose two:

- ANTH 4010 - Medical Anthropology: Global Health
- ENVS 5500 - Topics in Environmental Sciences (when Ecological Risk Assessment is the topic)
  (See Note 2)
- ENVS 6210 - Human Health and Environmental Pollution
  (spring, odd years)
- GEOG 5710 - Disasters, Climate Change, and Health

Total: 6 Hours

Option Total: 12 Hours

* ENVS 6200, Risk Assessment, is required as a prerequisite for the environmental health option.

ENVIRONMENTAL SCIENCE EDUCATION OPTION

Option Advisor: Bryan Wee
E-mail: bryan.wee@ucdenver.edu

Required Courses

- ENVS 5340 - Equity & Culture in Science Education: Local/Global
- ENVS 5650 - Environmental Education

Total: 6 Hours

Electives

Choose two:

- ANTH 5170 - Culture and the Environment
- BIOL 5154 - Conservation Biology
- COMM 5282 - Environmental Communication
- ENVS 5020 - Earth Environments and Human Impacts
- ENVS 5470 - Sustainable Urban Agriculture Field Study II
- GEOG 5265 - Sustainability in Resources Management
- GEOG 5335 - Contemporary Environmental Issues
- GEOG 5440 - Science, Policy and the Environment

Total: 6 Hours

Option Total: 12 Hours

GEOSPATIAL ANALYSIS OPTION*

Option Advisor: Rafael Moreno
E-mail: Rafael.Moreno@ucdenver.edu

Required Courses

- GEOG 5080 - Introduction to GIS
- GEOG 5090 - Environmental Modeling with Geographic Information Systems

Total: 6 Hours

Electives

Choose two:

- GEOG 5050 - Applied Spatial Statistics
- GEOG 5086 - FOSS4G Systems Integration
- GEOG 5091 - Open Source Software for Geospatial Applications
- GEOG 5092 - GIS Programming and Automation
- CVEN 5382 - Geospatial Data Development
- CVEN 5385 - GIS Relational Database Systems

Total: 6 Hours

Option Total: 12 Hours

* GEOG 3080, Introduction to Mapping and Map Analysis, is required as a prerequisite of the geospatial analysis option.

URBAN AGRICULTURE OPTION

Option Advisor: Amanda Weaver
E-mail: amanda.weaver@ucdenver.edu

Required Courses

- ENVS 5450 - Urban Food and Agriculture: Perspectives and Research
- ENVS 5460 - Sustainable Urban Agriculture Field Study I

Total: 6 Hours

Electives

Choose two:

- ENVS 5340 - Equity & Culture in Science Education: Local/Global
- ENVS 5470 - Sustainable Urban Agriculture Field Study II
- GEOG 5060 - Remote Sensing I: Introduction to Environmental Remote Sensing
- GEOG 5085 - GIS Applications for the Urban Environment
- GEOG 5235 - GIS Applications in the Health Sciences
- GEOG 5640 - Urban Geography: Denver and the U.S.
- GEOG 5680 - Urban Sustainability: Perspectives and Practice

Total: 6 Hours

Option Total: 12 Hours

WATER QUALITY OPTION*

Option Advisor: Anne Chin
E-mail: anne.chin@ucdenver.edu

Required Courses

- BIOL 5416 - Aquatic Ecology
- ENVS 5280 - Environmental Hydrology

Total: 6 Hours

Electives

Choose two:

- ENVS 5410 - Aquatic Chemistry
- CVEN 5333 - Surface Water Hydrology
- CVEN 5334 - Groundwater Hydrology
- CVEN 5335 - Vadose Zone Hydrology
- CVEN 5336 - Urban Runoff Quality and Quantity Modeling
- CVEN 5393 - Water Resources Development and Management

Total: 6 Hours

Option Total: 12 Hours

*CHEM 5700, Environmental Chemistry, or appropriate chemistry background is required as a prerequisite of the water quality option.

Notes:

1. Many of the elective courses have prerequisites; student must have met these requirements in order to take the course.
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. Courses applied to either a certificate* or an MS degree may later be applied toward the other if all pertinent coursework is completed within a fiveyear time period.
4. Students should fill out and submit all relevant department forms for their files. Importantly, all petitions for course substitutions and identification of where courses fit as electives, with the subsequent approval/denial, should be submitted to this file.
5. By the end of the first semester, each student should identify and declare whether or not s/he is pursuing the thesis or non-thesis option. If intending to pursue the thesis option, the student should identify and gain agreement from a content advisor for guiding the thesis, filling out and submitting the appropriate departmental form.
6. Many of the electives have pre-requisites; students must have met these requirements in order to take the course.
7. Students may transfer up to 9 hours of approved graduate-level credit into the program. These courses must be approved by the Graduate Director and they may not replace core courses
8. Students may count up to 6-credit hours of independent, with a maximum of 3-credit hours per independent study towards elective credit in the major as approved by the Graduate Director. No more than 3 credit hours of independent study may be taken with the same instructor and they may not be taken in the same term.
9. Students may count up to 6-credit hours of internship in total, but 3-credit hours per internship and per entity (sponsorship may be with same professor sponsor)
10. Students may not count 4000-level courses towards electives in the program; this may be petitioned to the Graduate Committee in exceptional cases.
11. Students may take a maximum of 2 online courses, or petition to the GES Graduate Committee beyond two.
12. Students may enroll in thesis preparation and writing hours only after submission of signed committee form, which requires approval of the thesis proposal.
13. Students will not receive a grade for thesis preparation and writing hours until the thesis is successfully defended.
14. Students must follow the graduate school deadlines for submission of paperwork for the graduation application, comprehensive exam, and any other deadlines. Links to these can be found on the GES/MS website.
15. Work submitted for the environmental sciences options must have a grade of *B* (3.0) or better.

* The Geospatial, Environmental Education, and Urban Agriculture options of the program lead towards independent graduate certificates. These certificates may be earned without entrance into the MS in environmental sciences program. (See the Geographic Information Science Graduate Certificate, Sustainable Urban Agriculture Graduate Certificate, and Environmental Science Education Graduate Certificate descriptions.)

Executive MBA in Health Administration

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 Denver
P.O. Box 480006
Denver, CO 80248-0006
www.colorado.edu/execed

Finance and Risk Management MS

Program Director: Jian Yang
Email: Jian.Yang@ucdenver.edu
Telephone: 303.315.8423

The master of science in finance and risk management provides the necessary depth and specialized expertise to meet the needs of businesses for financial managers, investment analysts and other finance 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. Admission standards for the MS finance and risk management program are unique to the program. Therefore, admission to other graduate business programs does not guarantee admission into the MS finance and risk management program.

The MS in finance and risk management offers flexibility with on-campus and online courses. The MS finance and risk management degree requirements are met by the following courses and options:

Prerequisites

Prerequisites: BUSN 6550, Analyzing and Interpreting Accounting Information, or the equivalent of a financial accounting course taken within the last ten years with a "B-" grade or higher. Students are also expected to be knowledgeable in spreadsheet software.

Finance and Risk Management Core: (18 hours)

- FNCE 6290 - Quantitative Methods for Finance
- BUSN 6620 - Applied Economics for Managers
- BUSN 6640 - Financial Management
- FNCE 6300 - Macroeconomics and Financial Markets
- FNCE 6330 - Investment Management Analysis
- FNCE 6382 - Survey of Financial Derivatives

Specializations: (12 hours)

Students must complete one of the following specializations**:**

Commodities Specialization

Required Courses:

- CMDT 6582 - Commodity Supply Chain Management
- CMDT 6682 - Trading in Commodity and Financial Markets
- CMDT 6802 - Foundations of Commodities

Complete one of the following courses:

- CMDT 6782 - Commodity Data Analysis
- ECON 5823 - Econometrics II
- FNCE 6360 - Management of Financial Institutions
- FNCE 6370 - International Financial Management
- FNCE 6460 - Emerging Market Finance
- FNCE 6480 - Financial Modeling
- MATH 5792 - Probabilistic Modeling
- RISK 6129 - Practical Enterprise Risk Management
- RISK 6509 - Global Risk Management
- RISK 6809 - Principles of Risk Management & Insurance
- RISK 6909 - Corporate Risk Management

Economics Specialization

Finance and Risk Management Core (9 hours)

- BUSN 6640 - Financial Management
- FNCE 6330 - Investment Management Analysis
- FNCE 6382 - Survey of Financial Derivatives

Finance and Risk Management Electives (6 hours)

Select any two FNCE/RISK/CMDT courses numbered 6000 or higher.

Economics Core (12 hours)

- ECON 5073 - Microeconomic Theory
- ECON 5083 - Macroeconomic Theory
- ECON 5803 - Mathematical Economics
- ECON 5813 - Econometrics I

Quantitative Elective (3 hours)

Select one of the following courses:

- ECON 5823 - Econometrics II
- ECON 6801 - Advanced Mathematical Economics
- MATH 5351 - Actuarial Models
- MATH 5390 - Game Theory
- MATH 5792 - Probabilistic Modeling

The Economics Specialization is a stand alone program which requires 30 credit hours

Finance Specialization

Students must select at least 3 courses with **FNCE/CMDT/RISK** prefix, numbered 6000 or higher. Remaining Finance Elective may be any of the following courses: **FNCE/CMDT/RISK** course numbered 6000 or higher, **ACCT 6140** Tax Planning for Mangers, **ACCT 6340** Financial Statement Analysis, **ENTP 6824** Entrepreneurial Financial Management, **ECON 5813** Econometrics I, **ECON 5823** Econometrics II, **MATH 5792** Probabilistic Modeling, or **MATH 5390** Game Theory.

Financial Analysis and Management Specialization

Select three or four of the following courses:

- FNCE 6310 - Financial Decisions and Policies
- FNCE 6340 - Business Firm Valuation
- FNCE 6360 - Management of Financial Institutions
- FNCE 6411 - International Corporate Governance
- FNCE 6420 - Mergers and Acquisitions
- FNCE 6450 - Short-Term Financial Management
- FNCE 6460 - Emerging Market Finance
- FNCE 6480 - Financial Modeling

If 3 courses completed from list above, select 1 course from the list below:

- ACCT 6140 - Fundamentals of Federal Income Tax
- ACCT 6340 - Financial Statement Analysis
- CMDT 6582 - Commodity Supply Chain Management
- CMDT 6682 - Trading in Commodity and Financial Markets
- CMDT 6802 - Foundations of Commodities
- ENTP 6824 - Entrepreneurial Financial Management
- MATH 5390 - Game Theory
- RISK 6129 - Practical Enterprise Risk Management
- RISK 6509 - Global Risk Management
- RISK 6809 - Principles of Risk Management & Insurance
- RISK 6909 - Corporate Risk Management
- CMDT 6782 - Commodity Data Analysis

Risk Management and Insurance Specialization

Required Courses:

- RISK 6129 - Practical Enterprise Risk Management
- RISK 6809 - Principles of Risk Management & Insurance
- RISK 6909 - Corporate Risk Management

Quantitative Elective

Select 1 of the following:

- CMDT 6582 - Commodity Supply Chain Management

- CMDT 6682 - Trading in Commodity and Financial Markets
- CMDT 6782 - Commodity Data Analysis
- CMDT 6802 - Foundations of Commodities
- ECON 5823 - Econometrics II
- ENTP 6824 - Entrepreneurial Financial Management
- FNCE 6340 - Business Firm Valuation
- FNCE 6360 - Management of Financial Institutions
- FNCE 6411 - International Corporate Governance
- FNCE 6420 - Mergers and Acquisitions
- FNCE 6480 - Financial Modeling
- MATH 5792 - Probabilistic Modeling
- RISK 6309 - Strategic Risk Management
- RISK 6409 - Employee Benefits and Workforce Risk Management
- RISK 6509 - Global Risk Management
- RISK 6800 - Special Topics: Cyber Risk Management & Cyber Warfare
  There may be additional prerequiste courses for the ECON and/or MATH selections. Please check with those departments or the graduate adivsors.

Total 30 credit hours

Global Energy Management MS

Program Advisor: Sarah Derdowski
Telephone: 303-315-8065
E-mail: Sarah.Derdowski@ucdenver.edu

Faculty

Professors/Instructors

Timothy Antoniuk, MDes, University of Alberta
William Ascher, PhD, Yale University
Stephen Brown, PhD, University of Maryland
Matthew Clarke, PhD, University of Calgary
William Fox, JD, Catholic University of America
Mean Husein, PhD, McGill University
Merrily Kaut, PhD, University of Colorado Denver
L. Ann Martin, PhD, University of Minnesota

The master of science in global energy management (GEM) prepares individuals for leadership careers in the energy industry. This degree is particularly appropriate for

individuals seeking to advance their existing careers in the energy field. Prior work experience within the field is preferred, but not required. The program consists of two components: the core curriculum and the more advanced and specialized elective courses. The MS GEM program requires the completion of the following core classes as well as four elective courses from the selection listed below.

Required Courses

- GEMM 6000 - 21st Century Global Energy Issues and Realities
- GEMM 6100 - Global Energy Economics
- GEMM 6200 - Environmental, Regulatory, Legal & Political Environment in the Energy Industry
- GEMM 6300 - Technical Aspects of Energy Science
- GEMM 6400 - Leadership and Decision Making in the Global Energy Environment
- GEMM 6500 - Energy Accounting in the Global Markets
- GEMM 6600 - Introduction To Financial Management In The Energy Industry
- GEMM 6410 - People Management in the Global Energy Environment

Choose four

Choose four of the following courses. These courses are taken during the last two terms of the program and are offered based on enrollment.

- GEMM 6210 - Energy and the Law: Property and Contracts
- GEMM 6430 - Organizational Behavior in the Energy Industry
- GEMM 6450 - Strategic Management of the Energy Industry
- GEMM 6460 - Integrated Information Management for Energy Firms
- GEMM 6470 - Energy Marketing and Communications
- GEMM 6610 - Advanced Financial Management in the Energy Industry
- GEMM 6620 - Energy Asset & Production Management for the Energy Industry
- GEMM 6630 - Commercialization Management of Renewable Energies

Prerequisites

Applicants that do not have a science- or energy-related field undergraduate degree or three-plus years experience in the industry are required to take two prerequisite courses as well as the GMAT.

The prerequisite courses include physical geology and introduction to physical engineering. These courses can be taken at any accredited university, but must be approved by a GEM team staff member before registering. Also the prerequisites may be taken prior or concurrently with GEMM 6000 and GEMM 6100.

Notes and Restrictions

The program is a cohort group, hybrid online, 18-month master of science degree program. As a cohort program, all students start together, progress together and graduate together. Students cannot take time out from the program once it starts and need to plan on remaining in the program for the full 18 months. If it becomes necessary to take a term off, students may not re-enroll until the next cohort group catches up to the point where the student originally dropped out, which is 6 months later. As a hybrid online program, professors and students meet in class face to face for four days (Fridays through Mondays) at the start of each 3-month term with the rest of the term completed online. Please note that the GEM degree program runs on a completely separate schedule from the normal semester terms of the Business School. Please check the Business School Website for deadlines and dates of each GEM term. All GEMM courses are restricted to those students who have been admitted to the MS GEM program.

Dual Degrees

In order to participate in the dual degree options offered by the Business School, students in the GEM program must first complete their entire GEM degree before they can begin their second degree.

Graduate Teacher Education Program: Master of Arts in Education and Human Development with a concentration in Teaching in Diverse Contexts

Return to: School of Education & Human Development

Lawrence Street Center, 701
Campus Box 106
P.O. Box 173364
Denver, CO 80217-3364

Telephone: 303-315-6300
Fax: 303-315-6311
E-mail: education@ucdenver.edu
Website: www.ucdenver.edu/education

Graduate Teacher Education Program Overview

The Graduate Teacher Education is housed within the Education and Human Development Master of Arts degree with a concentration in Teaching in Diverse Contexts. The Graduate Teacher Education program prepares educators who are culturally affirming and responsive, collaborate closely with families and communities, and have the knowledge and skills to create engaging, relevant, and rigorous classroom communities where all students can achieve and grow. We work alongside our P-12 partner educators throughout the CU Denver Professional Development School Network comprised of over 20 urban schools across numerous districts in the Denver metro region. Teacher education students live the life of a teacher for an entire academic year

while enrolled in the program through a series of residency internships in a professional development school. Ultimately our goal is that all teacher candidates-whether their emphasis is elementary, secondary, or special education- have the unique knowledge and skills to positively impact urban and diverse schools and act with a sense of urgency to support equity in education for all children. The Graduate Teacher Education Program is a nationally accredited program that exceeds expectations.

Education Pathways

The graduate teacher education program at CU Denver is designed to allow individuals with a minimum of a bachelor's degree to seek a master's degree along with an initial Colorado teacher's license in the following areas:

- **Elementary Education** (K-6) (48 semester hours)
- **Secondary Education** (7-12) (39 semester hours)
    - English
    - mathematics
    - science (general science, biology, earth science, physics, chemistry)
    - social studies
    - foreign language (Spanish, French)
- **Special Education Generalist** (Ages 5-21) (54 semester hours)
- **Dual General Education/Special Education** (63-72 semester hours)

Program Structure

The program admits teacher candidates in cohort groups that begin either in the summer or fall. The cohort model provides a unique learning community for candidates and engenders significant support for success. The program includes full time 1 - 1.5 year licensure plans for regular education and a 1.5 - 2 year full time option for initial special education and dual special education. Students enroll in course work at the university and clinical internships in one of CU Denver's professional development schools throughout the program. By enrolling in several courses and internships together, elementary, secondary, and special education teacher candidates are well prepared to support K-12 students with a wide range of diverse needs.

Once teacher candidates complete the licensure portion of the program, they are eligible to begin teaching. Candidates then complete the MA in Education and Human Development by taking one final three credit hour course. In addition, students have the option of pursing an MA in Curriculum and Instruction in their choice of specialization (see MA Options below).

Clinical Experience in Professional Development Schools

While in the licensure portion of the program, teacher candidates intern in a professional development school for an entire academic year, gradually beginning with two days a week early on and increasing over time to five days per week by the end of the program. University courses are closely integrated with the sequence of clinical internship experiences providing teacher candidates with multiple opportunities to engage in the authentic work of teachers. Teacher candidates co-teach closely with practicing teachers in the school and gradually assume full responsibility for teaching by the end of the program. Elementary teacher candidates generally spend an entire academic year in a single partner elementary school, whereas secondary teacher candidates spend their internships in one of the partner middle schools and one of the partner high schools. Special education teacher candidates complete internships at multiple levels, P-12 due to the wide-span of their license that enables them to support students with special needs ages 5-21. The schools are located in several Denver metropolitan districts 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 school is supported by a site professor from the university one day per week and by a master teacher, called a site coordinator, who supports teacher candidates through their academic year of internships.

Assessment

Both the coursework and the internship experiences have been created to align with the Colorado Teacher Quality Standards, as well as frameworks for culturally and linguistically responsive instruction and Universal Design for Learning. Students in all programs engage in a common set of learning opportunities and internship assessments. They also engage in Program Level Assessments at different stages of the program. Colorado mandates that all teacher education programs be "performance based" in order to recommend candidates completing the program for licensure; thus all candidates in the Urban Community Teacher Education program must demonstrate proficiency in both the university-based coursework and their internships.

Programs of Study

Due to the complex nature of teacher preparation that is governed by state and national accreditation and legislative mandates that can change from year to year, please see current programs of study in the teacher education handbook.

Master's Degree Options

The Graduate Teacher Education Program views 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 complete the MA in Education and Human Development with a concentration in Teaching in Diverse Contexts by taking one final three credit hour course.

Students may also pursue an MA in Curriculum & Instruction with multiple options to obtain specialized knowledge in specific areas of curriculum & instruction like Literacy & Language, Culturally & Linguistically Diverse Education, STEM, Special Education, and others. These options typically require 12-15 additional credits and can also be coupled with added endorsements from the Colorado Department of Education. Students should refer to the information for the Curriculum and Instruction program for specifics.

Requirements for Admission

Admission Deadline: February 15 for summer and April 1 for fall start dates.

Graduate Teacher Education Information Sessions

All prospective teacher candidates are strongly encouraged to attend an information session before applying to the program. Information sessions are held through online webinars lasting approximately 60-90 minutes (check the SEHD website for exact dates and times). An advisor will be available to review prospective students' transcript and provide pre-admission advising. To more effectively facilitate this process, copies of all transcripts are uploaded prior to the information session.

Prerequisite Content Review

Teacher licensure requires that all initial licensure candidates hold a degree or have sufficient content knowledge obtained through university coursework aligned to the licensure area the candidate will be teaching. A prerequisite content review of a candidate's bachelor's degree transcript using Colorado Department of Education's requirements is required to determine if the candidate meets the minimum requirements or will have to take additional prerequisite content courses.

Graduate Teacher Education Admission Requirements

Competitive undergraduate cumulative GPA of 3.0 (Students with a lower GPA may be considered under certain conditions. Please see SEHD website.)

- Completion of any outstanding prerequisite content courses that are needed per a transcript evaluation.
- A complete application which can be obtained online at http://www.ucdenver.edu/academics/colleges/SchoolOfEducation/Apply/Pages/ApplyNow.aspx which includes transcripts, essays, recommendations, and an interview.

Health Administration MS

Program Director: Errol L. Biggs
Telephone: 303-315-8851
E-mail: errol.biggs@ucdenver.edu

The goal of the master of science in health administration degree is to prepare students, who, after appropriate practical experience in responsible managerial positions, are capable of assuming positions as chief executive officers or senior administrators in complex, multi-service healthcare organizations or in organizations' purchasing 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 health care organizations. The faculty guide the students in their mastery of theoretical, conceptual and quantitative topics.

The program has enjoyed continuous accreditation by the Commission on Accreditation of Healthcare Management Education since 1970.

A. Common Body of Knowledge (CBK): (18 hours)

Advisor will evaluate transcript for possible waivers in the CBK.

- BUSN 6521 - Leading Individuals and Teams
- BUSN 6530 - Data Analysis for Managers
- BUSN 6550 - Analyzing and Interpreting Accounting Information
- BUSN 6630 - Management of Operations
- BUSN 6640 - Financial Management

B. Health Administration Core: (21 hours)

- BUSN 6541 - Legal and Ethical Environment of Business (Health Section)
- BUSN 6561 - Marketing Management (Health Section)
- BUSN 6621 - Applied Economics for Managers (Health Section)
- BUSN 6711 - Strategic Management (Health Section) *This course is intended to be taken in your last Spring semester.
- HLTH 6010 - Health Care Systems
- HLTH 6770 - Healthcare Quality and Outcomes

- HLTH 6911 - Health Field Studies *This course is intended to be taken in your last Spring semester. Pre-req: HLTH 6010 or consent of instructor, minimum 3.0 cumulative GPA.

C. Health Administration Information Technology Elective: (3 hours)

Select one of the following courses:

- HLTH 6071 - Introduction To Health Information Technology
- HLTH 6072 - Management of Healthcare Information Technology
  Please note: 2nd Health Administration Information Technology course may be used as Health Administration elective

D. Health Administration Electives: (6 hours)

Select two of the following courses:

- ENTP 6801 - Building Biotechnology
- ENTP 6848 - Leadership in New Ventures
- HLTH 6740 - Profiles in Health Care
- HLTH 6070 - International Health Policy and Management
- HLTH 6075 - International Health Travel Study
  * Students can also select HLTH 6071 or HLTH 6072 if not used as a Health Administration Information Technology Elective.

Notes and Restrictions

Management Residency. A management residency is optional, but recommended for all students, especially those with limited health care 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 from the program director.

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.

Health Economics MS

► Graduate School Policies and Procedures apply to this program

Program Director: Brian Duncan, Ph.D.

Graduate Advisor: Daniel Rees, Ph.D.

The M.S. program in Health Economics provides graduate-level training in economics, specifically in the economics of the health care industry. Our M.S. program emphasizes extensive training in mathematical and quantitative analysis, including substantial exposure to applied econometrics, working with large and diverse data sets, and a wide range of statistical software. The M.S. in Health Economics builds off the strengths of the Economics Department, which is housed in the College of Liberal Arts and Sciences, and the Department of Health Systems, Management and Policy (HSMP), which is housed in the Colorado School of Public Health, allowing students to take courses on both the downtown Denver and Anschutz Medical campuses. The program gives students the applied skills that employers demand, provides those pursuing advanced degrees an edge in gaining admission to top-flight Ph.D. programs, enhancing the student's career and professional development.

Admission Requirements

· Meet all general admission requirements of the Graduate School (including a 3.0 undergraduate grade-point average).

· Submit three letters of recommendation (at least two letters should come from individuals who are familiar with your scholarly record. The third can be an additional academic reference or professional reference from someone who knows you well and can comment on your potential as a graduate student).

· Submit official transcripts from all colleges attended.

· Have completed 15 credit hours of undergraduate economics, including intermediate microeconomic theory and econometrics (upper division courses).

· Have completed courses in calculus and statistics (preferably a year of calculus. A course in linear algebra and/or differential equations is recommended).

· Submit GRE scores. All applicants, international and domestic, must submit GRE scores regardless of prior degrees, course work, or work experience. The institution code for CU Denver is 4875. GRE scores are used in conjunction with other indicators of academic success at the Master's level. Applicants must show strong evidence of quantitative ability either through high grades in math, statistics, and economic courses, a high quant score on the GRE, or preferably both.

· International students must submit TOEFL, IELTS, or PTE Academic scores. The institution code for CU Denver is 4875. The minimum required score is 203 (computer-based TOEFL), 75 (IBT-based TOEFL), 537 (paper-based TOEFL), 6.5 (IELTS), or 51

(PTE). Minimum subscores also apply. More information about TOEFL, IELTS, or PTE waiver requirements can be found on the International Admission's website. Please contact the International Admissions office if you have questions about this requirement.

Application Deadlines:

Fall: June 1 Spring: December 1

The Department of Economics accepts late applications after these official deadlines. However, there is no guarantee that a late application will be processed in time for the start of the semester. Students are encouraged to apply well in advance the application deadline.

International students who apply after the June 1 or December 1 deadline may not have time to obtain a student visa. Being admitted to the M.S. program in Health Economics does not guarantee that a student will receive a student visa in time for the start of the semester. International students who are admitted to the MS program, but fail to obtain a visa in time, may defer admission for up to one year. All questions about student visas should be directed to the Office of International Education.

Degree Requirements

Core Courses

The MS degree requires the completion of 30 semester hours of coursework, of which 21 hours are core requirements. Each student's plan will be worked out in conjunction with the graduate advisor.

Students are expected to meet all course prerequisites. A grade of B- or better is required in all courses, with a cumulative grade point average of B (3.0) or above. No course may be taken more than twice.

- ECON 5073 - Microeconomic Theory
- ECON 5803 - Mathematical Economics
- ECON 5813 - Econometrics I
- ECON 5823 - Econometrics II
- ECON 7073 - Advanced Microeconomic Theory II
- ECON 7661 - Health Economics I

Total: 21 Credits

Electives

Three courses numbered 5000 or higher with an ECON or HSMP subject code. Courses numbered 6611 or higher with a BIOS subject code may be taken with the graduate advisor's approval.

Total: 9 Credits

Degree Total: 30 Credits

Graduate Examination

Students must successfully complete a capstone project in which proficiency in the knowledge and skills comprising the MS degree in Health Economics is demonstrated.

Historic Preservation MS

► Graduate School Rules apply to this program

Program Director: Christopher Koziol
Office: CU Denver Building, 320O
Telephone: 303-315-5874
E-mail: christopher.koziol@ucdenver.edu

The Master of Science in Historic Preservation (MS HP) is a 45 semester-hour program, usually completed in 15 or 18 months (three regular semesters and possibly part or all of one summer). It is designed to accommodate the background and needs of both those students with substantial experience and those new to the field. The course of study is for students seeking training in spatial, technical and design aspects of the broader field; it encompasses architecture, cultural landscapes, preservation, planning, building technology, project management, documentation, interpretation and representation.

In a rapidly changing cultural, economic and professional environment, it is valuable to have an understanding of what is worth saving of the built environment. However, appreciation for the past alone is insufficient for making the informed and creative decisions expected and required of cutting-edge professionals. The practice of historic preservation is very different today than it was when graduate programs first were developing some 40 years ago. The CU Denver MS HP is among a new generation of studies that looks to historical resources as they relate to a more desirable future.

As global economies change fewer resources are available for new buildings and we must adaptively reuse our existing structures. This trend will continue beyond short-term economic conditions, because it will always be a more sustainable practice to reuse existing buildings than to tear them down and harvest or manufacture new materials.

The College of Architecture and Planning, and the professional community that it serves, foresee a significant and permanent shift towards more adaptive reuse of existing buildings. The Master of Science in Historic Preservation is a program designed to prepare students for a true 21st Century career.

Historic preservationists come from a variety of backgrounds. Some are well-educated in the humanities and desire to increase their technical understanding. Those familiar with the social sciences might be seeking "real world" applications for their expertise. Many already with "first professional degrees" in design and planning disciplines, as well as the law and business, seek to deepen their competence in the vibrant and interesting professional niche of historic preservation.

Prerequisites

The Master of Science in Historic Preservation program is fully integrated into a college emphasizing design and graphic excellence. While HP students need not have fully developed skills in advance of matriculation we have found that students have benefited from some previous exposure to basic graphic skills. Elective courses in the College of Architecture and Planning may also be used to develop these skills.

Admissions

Application to the Master of Science in Historic Preservation program is open to all students holding the bachelor's (undergraduate) degree from an accredited college (or its equivalent from a foreign institution).

Materials Required

- A brief statement of interest (500 word max.)
- A compact portfolio (max. 15 pages 8.5" X 11") of writing samples, and optionally, graphic work and professional resume is recommended.
- Submission of Graduate Record Exam (GRE) scores is optional. [There is an expedited application procedure for current CU Denver students in another CAP master's program. Please inquire to the MS in Historic Preservation program director.]

Transfer Credit

Transfer credit of up to 12 semester hours (up to 15 semester hours for those seeking/holding a related master's degree from CU Denver) may be awarded for equivalent graduate (post-bachelor's) course work at the discretion of the program director and in keeping with CU Denver Graduate School rules. Students holding a master's degree in Architecture, Urban Planning or Landscape Architecture are typically awarded 12 to 15 semester hours of advanced standing. Additional advanced standing may be considered in accordance with the rules of the Graduate School.

Undergraduate Course Work

Undergraduate course work substantively equivalent to a MS HP required course may be accepted as a substitution for that course at the program director's discretion, but such substitution will not reduce the total number of semester hours required for the degree.

Program Requirements

The course of study is designed to accommodate the background and needs of both those students with substantial experience, and those new to the field. The curriculum is flexible but rigorous, requiring:

- 15 semester hours of core courses in preservation
- 6 semester hours in approved Design History courses
- 15 semester hours of electives
- 9 semester hours capstone requirement

Students enrolling full-time in the 45 semester hour curriculum typically complete the program in three or four semesters, or 18 months. However, course work other than the completion of the capstone requirement may be accomplished in a period of residency as short as 15 months. Students receiving significant transfer credit and those with a related degree may further reduce the time required for the MS degree in Historic Preservation.

Our program is compliant with National Council of Preservation Education Standards.

Required Core Courses

Core Preservation courses (choose at least 5):

- HIPR 6010 - Preservation Theory and Practice
- HIPR 6210 - Historic Buildings in Context
- HIPR 6220 - Adaptive Reuse: Business and Practice
- HIPR 6310 - Documentation, Analysis, Representation
- HIPR 6410 - Urban Conservation: Context for Reuse
- HIPR 6510 - Building Conservation
- HIST 5232 - Historic Preservation

Choose at least 2 approved Design History courses (offerings vary). Some examples are:

- HIPR 6110 - Regionalisms & the Vernacular
- HIPR 6610 - Reading the City
- LDAR 5521 - History of Landscape Architecture
- URPL 6350 - Form and Formation of Cities
- Several other CAP and History Department courses may also qualify.

Total: 21 Hours

Electives

Up to 15 elective semester hours.

Total: 15 Hours

Capstone Work

Choose either 1. Professional Project or 2. Thesis.

1. HIPR 6851 - Professional Project (3 semester hours)
   Preceded by 6 credits from the following:

- HIPR 6930 Internship
- Pre-approved travel education
- Pre-approved related elective

2. HIPR 6951 - Thesis (6 semester hours)
   Preceded by LDAR 6949 - Research Tools & Methods (3 semester hours)

Total: 9 hours

History MA

► Graduate School Policies and Procedures apply to this program

The master of arts in history requires 37 semester hours (12 courses plus enrollment for one-credit hour in preparation for the Comprehensive Examination). Students who entered the program before fall 2015 have a 36-semester hour requirement and need only enroll for the additional one-credit hour Comprehensive Examination if they are not enrolled in anything else when they take that examination. Students applying for admission to the program should have some background in history, though not necessarily a BA in the subject. The department encourages applications from individuals of any age interested in resuming their education. Graduate students in history develop skills in critical thinking, writing and independent research. Our program prepares students for a wide variety of professions, including teaching, government service, museum and archive management and historic preservation, as well as further degree work in history, law, librarianship and business. The department expects that students graduating with an MA in history will master the following general skills for their degrees:

- The ability to pursue independent historical research projects
- The ability to analyze historiographical arguments
- The ability to analyze primary documents and develop arguments from them

- The ability to create bibliographies using archival, library, and Internet resources
- The ability to write in a variety of formats, including historiographical essays, book reviews, and research papers

Students will also master knowledge of the basic historical content of both their major and minor fields, and an understanding of the historiographies and historical methods in their major and minor fields.

Admission Requirements

- In addition to the general admission requirements of the Graduate School, the Department of History requires an undergraduate GPA of at least 3.25.
- Applicants are required to submit a sample of written work, usually a term paper or project of similar length.
- All applications must include three letters of recommendation, preferably from college or university faculty.
- Applicants should address any gaps, weaknesses, or special circumstances in their academic records in the statement of purpose portion of the application. In special circumstances, the department may modify its admission standards.

APPLICATION DEADLINES

April 1	**Fall admission**
October 1	**Spring admission**

Admission decisions are made by a graduate committee composed of the graduate advisor and faculty representing fields in U.S., European, global, and public history.

Graduate School Policies

All history MA students are subject to Graduate School policies related to graduate study, as well as to all relevant university policies. These policies cover such topics as time limits on degree completion, changing degree programs, incomplete grades, and more. Further information on these policies can be found in the Graduate School section of this online catalog.

Transfer Credits

With approval from the graduate advisor and the appropriate faculty, students may transfer up to nine graduate-level credits accrued before enrollment in the CU Denver MA history degree program, provided that they earned a grade of *B*+ or better in these courses. Students must submit a syllabus for each course they wish to transfer, and faculty may require students to complete additional assignments to meet the expectations of the department. The department will not accept transfer of courses comparable to HIST 6013, Introduction to the Professional Study of History.

Grade Requirements

The history department requires that graduate students maintain a cumulative GPA of 3.0 and will not accept grades lower than *B*- (2.7) toward the completion of course work for the master's degree. Students who earn less than a *B*- in HIST 6013 must retake the class.

Residency Requirements

The history department requires a residency of at least one academic year for the degree.

Graduate Advising

Early in their first semester, students should contact the history department graduate advisor to discuss their path through the program and to receive advice regarding the selection of major and minor fields.

Degree Tracking Responsibility

Although faculty will provide reasonable guidance, it is up to students to monitor their own progress through the program in consultation with the graduate advisor and their major advisor; this includes knowledge and understanding of application and graduate deadlines, degree requirements, comprehensive exam expectations and processes, thesis guidelines, etc.

Choosing Advisors and Fields of Study

All history MA candidates choose a major field and a minor field. Students will take courses in these fields and will be tested in these fields (see Comprehensive Examinations). After consulting with the graduate advisor, students are responsible for securing two field advisors, one to oversee their progress in the major field, the other to oversee their minor field. All students should have chosen their fields and advisors by the end of the semester in which they have complete 12 credit hours. Students will also need a third advisor for the comprehensive examinations. This third advisor is typically in their major field and should always be consulted during preparation for the examinations.

Major Fields, Minor Fields, and Concentrations

The MA in history seeks to provide students with a balance of breadth and depth in the study of history. Major fields are broad areas of study within which students gain a general picture of historical processes. Concentrations provide focus for developing

expertise within the major, either regionally or thematically. Minor fields provide a complementary or comparative area and must sit outside the major field.

Advisors and students together will work out Plans of Study, which indicate the courses students intend to take to meet their requirements, based on their selection of major and minor fields. *Students should make every effort to enroll in courses that best fit their major field, major concentration and minor field.*

The department has core readings for the Public History and US History fields. Students will draw on these readings for their comprehensive exams. Students working in all fields will coordinate their readings with their major and minor advisors.

Major Field Concentrations

Students work with advisors to select one of the major field concentrations listed below. Concentrations provide thematic or regional focus to a broad geographical or methodological major (e.g. for the global history major, students could concentrate on trade, borders, imperialism, etc.. or any of the areas of regional expertise of our faculty). Readings for the major field concentration are in addition to the core reading list. Note that students may select their concentrations and the options for minors from the same lists, below.

Minor Fields

Students can define their minor field as a specialization within one of the four major fields or as topics from the list of concentrations. Note that students may select their concentrations and the options for minors from the same lists, below.

Students must select their major and minor fields from any two of the following three groups. (Students may not select their major and minor fields from the same group).

Group 1: Geographical Concentrations

- East Asia
- Latin America
    - Mexico
    - South America
- Middle East
- Europe
    - Germany
    - France
    - Britain
    - The Mediterranean
- United States
    - Colonial and Early Republic

    - Nineteenth Century
    - U.S. West
    - Twentieth Century
    - U.S. Foreign Policy
    - Colorado
- Global
    - Atlantic World
    - Pacific World

Group 2: Thematic Concentrations

- Colonialism and Imperialism
- Cultural History
- Social History
- Foreign Policy
- Economic and Business History
- Environmental History
- Gender and Sexuality
- Citizenship and National Identity
- War, Revolution and Genocide
- Globalization
- Urban History
- Frontiers and Borderlands
- Race and Ethnicity
- Science, Medicine, and Society
- Intellectual History
- Material Culture
- Migration and Immigration
- Policing and Legal History
- Indigenous Histories

Group 3: Public History

- Memory and Community
- Museum Studies
- Historic Preservation

Note: *Majors in Public History must follow the Plan of Study for Public History.*

Degree Requirements

All history MA students must have a major field and a minor field, and they must complete half of their course work at the 6000 level.

Required Introductory Course

- HIST 6013 - Introduction to the Professional Study of History

Total: 3 Hours

Major Field

Core Course in Major Field (3-6 semester hours)

Public history and U.S. history major fields require core courses covering major approaches and themes. The core courses familiarize students with the field in a broad sense.

Research Seminars (3-6 semester hours)

Research seminars focus on students' development of an original, primary research paper. One 3-semester-hour research seminar is required of all students. A second research seminar is required for students not in public history; the second 3 semester hours can be taken within the major or minor field.

Major Electives (9-12 semester **hours**)

Major electives are made up of courses in the major and concentration, including readings courses, that address specific field historiographies, and optional extended research credits. Students who choose to do a thesis may apply 6 thesis semester hours (HIST 6950) toward the major electives requirement.

Total: 18 Hours

Minor Field

Minor Electives

Minor electives are made up of courses in the minor field, including readings courses, which address specific field historiographies, or research seminars.

Total: 12 Semester Hours

Open Elective

Students may use the open elective to explore a course outside their major or minor or to do extra course work in one of their fields.

Total: 3 Hours

Degree Total: 37 Hours

INDEPENDENT STUDY AND/OR INTERNSHIP

Candidates may register for up to 6 hours of internships or independent study, only one of which may be at the 6000-level. Students will not be allowed to fulfill the research seminar requirement with an independent study or internship. Any independent study or internship at the 6000-level needs the permission of the graduate advisor. Students interested in pursuing an independent study or internship must find a faculty member willing to oversee their work, and they should expect the workload to equal or exceed that required for other courses at the same level.

- HIST 5840 - Independent Study: History
- HIST 6840 - Independent Study: HIST
- HIST 6939 - Internship

COMPREHENSIVE EXAMINATIONS

All history MA candidates must pass a comprehensive examination in the major and minor fields after the completion of course work and generally before embarking on a thesis, curriculum project or public history project. The comprehensive exam evaluates students' knowledge of their course work and their reading lists for their major, minor and concentration. The exam consists of a take-home written section, with broad essay questions in both the major and minor fields; this is followed by an oral exam with the student's faculty committee. In answering their exam questions, students are expected to construct arguments and to show mastery of the historiographies, narratives and historical content in their fields. The comprehensive exam is administered and evaluated by a committee of the major advisor, the minor advisor and an outside reader from the history faculty. Students should expect to read 80-100 books combined, as well as significant articles, in their major and minor fields. Beginning in fall 2015, students must enroll in HIST 6940, Comprehensive Examination, a one-credit requirement connected to faculty commitment to preparing students for their examination.

- HIST 6940 - Comprehensive Exam

Master's Degree Extended Research Options

The MA program in history offers a set of courses in which students can develop extended research interests. Students must select an advisor and develop a proposal for a specific research agenda in the semester before beginning work on a project.

REQUIRED PUBLIC HISTORY THESIS (HIST 6950) OR PROJECT (HIST 6952)
Students majoring in public history must complete either a thesis (6 semester hours) or a project (usually 3 semester hours).

OPTIONAL THESIS FOR STUDENTS IN U.S., GLOBAL AND EUROPEAN HISTORY (HIST 6950)
Students majoring in U.S., Global, or European history can choose to write a thesis (6 semester hours in their major field).

OPTIONAL ADVANCED HISTORY CURRICULUM DEVELOPMENT (HIST 6951)
Students who undertake their master's program when they are already teachers or who intend to become teachers can choose to construct curriculum projects relevant to their teaching practice. See the separate section below on "Opportunities for Teachers and Teachers-in-Training."

- HIST 6950 - Master's Thesis
- HIST 6951 - Masters Project: Advanced History Curriculum Development
- HIST 6952 - Master's Project: Public History

Thesis Requirements

Students writing theses are expected to develop an original research agenda resulting in an extended paper. Students work with their major field advisor, who will help guide them through the process of research and writing. Students will enroll for six credit hours in HIST 6950 over one or more semesters to complete their theses. Before registering for HIST 6950, students should have a thesis proposal and initial bibliography approved by their major advisor.

A thesis is evaluated by a committee of three faculty, including the major advisor and two other faculty members chosen by the student in consultation with the major advisor. Upon completion of the thesis, the student meets with the committee members, who ask questions about the research and conclusions which the student must defend. In most instances, the committee will require further revisions, sometimes major in scope, before the thesis is accepted and cleared for submission to the Graduate School in fulfillment of degree requirements.

Project Requirements

In lieu of a thesis, public history majors may choose to enroll in three credit hours of HIST 6952 to complete a public history project. Projects, which are usually conducted in collaboration with a public history organization, can entail creating an exhibit, organizing a museum or archival collection, conducting a preservation survey, or similar activities. Students are required to prepare an analytical paper describing the process and results of their project.

Opportunities for Teachers and Teachers-in-Training

Curriculum Projects

Licensed teachers and students who intend to become teachers may choose to complete a curriculum development project. Students arrange curriculum development projects with a sponsoring faculty member. Generally, students are expected to develop and submit a complete course curriculum plan for each 3-semester-hour project. Projects need to show evidence of familiarity with the relevant historiographies and

primary sources. Students may apply the hours from HIST 6951 to either the major field or the minor field, depending on the project subjects. Curriculum plans must meet minimum criteria established by the history department in the document Advanced History Curriculum Development Projects.

- HIST 6951 - Masters Project: Advanced History Curriculum Development (3 or 6 semester hours in their major field, or 3 semester hours in their major and possibly 3 semester hours in their minor, if a student elects to do a second project)

Secondary Teacher Licensure

Students interested in secondary teacher licensure should consult with the School of Education and Human Development. See the Urban Community Teacher Education Program for information.

Humanities MH

► Graduate School Policies and Procedures apply to this program

Requirements for Admission

General rules for admission into the Graduate School apply to admission into the MH program in addition to the following:

- evidence of a bachelor's degree
- two official copies of transcripts from all community colleges, colleges, and universities attended
- overall GPA of at least 3.0 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, correct 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 CU Denver graduate-level courses as non-degree seeking students (unclassified student with a bachelor's degree) if they:

1. Wish to strengthen their record in order to demonstrate that they could successfully complete graduate-level courses in the program
   -or-
2. Wish to start coursework toward the program prior to completing their application, with the understanding that taking courses does not guarantee admission.

Up to 12 semester hours of CU Denver graduate-level work taken as a nondegree student may be accepted by the program once a student has been admitted to the program (the 12-hour limit also includes graduate work from another university). For further information on non-degree graduate student status, see the Information for Graduate Students section of this catalog. In the case of CU Denver graduate students transferring to the MH program, previous course work may be accepted as appropriate to the MH plan of study.

International Students:

International students must also meet CU Denver requirements for international admission. See the Information for International Students section of this catalog or call 303-315-2230 for further information.

Degree Requirements

The Master of Humanities (MH) program is a 36-semester-hour program, of which 30 hours must meet all specifications of the Graduate School. Throughout their work toward the MH degree, students must maintain at least a *B* (3.0) average in all courses. A grade below *B*- will not be counted toward the degree.

Students may pursue a general MH degree or focus their studies and course work on one of five tracks: Ethnic Studies, Philosophy and Theory, Social Justice, Visual Studies or Women and Gender Studies. Students also have the option of adding on a Women's and Gender Studies Graduate Certificate. All courses credited toward the MH degree must be taken at CU Denver (a maximum of 12 graduate semester hours may be transferred from other institutions after matriculating into the MH program, subject to the MH director's approval).

Each student's program is supervised by a MHMSS faculty. All independent study, project and thesis contracts must be approved in advance by the program director. A total of two independent study courses, two 4000-level undergraduate courses, and one

internship may count toward the degree. Only one graduate-level online course (up to 3 hours) may be taken toward the degree. The rest must be 5000-level or above courses offered through various university departments. All students must pass an oral comprehensive exam on the project or thesis in order to graduate.

General Master of Humanities Degree

Students pursuing the general MH degree have the opportunity to fashion a course of study based on their individual interests and goals. Students complete three required core courses and, in consultation with a faculty advisor, 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 students culminate with the completion of a final project or thesis and an oral exam defense of the final work.

GENERAL MH REQUIREMENTS

Three Required Core seminars for the MH degree:

- HUMN 5025 - Foundations and Theories of Interdisciplinary Humanities
  (Must be taken during the first year of entrance into the program. (**Offered fall only.**)
  Mid-Program Seminar, an interdisciplinary seminar which is approved for the student's program by the program director (note that the Mid-Program Seminar **must** have a HUMN prefix).

- HUMN 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; student must have completed at least 21-24 hours of course work and must register for the course via a schedule adjustment form with instructor approval. (**Offered spring only.**)
  Total: 9 Hours

Electives

Additionally, students must complete a total of 21-24 semester hours comprising a coherent selection of courses from a variety of disciplines. All courses for the self-structured portion of the program must be selected with the approval of an MHMSS program faculty advisor.

A total of two independent study courses and two 4000-level undergraduate courses taken when enrolled in the program may count toward the degree. All independent study contracts must be approved by the program director. The remaining course work must be 5000-level or above courses offered through various departments.

Students wishing to count credits accrued from a study abroad program while pursuing the MH must follow the rules of the Graduate School and must have approval of the program director in advance of studying abroad.

Students completing a project take 24 hours of electives, while thesis students complete 21 hours of electives.

Total: 21-24 Hours

Thesis or Project

A thesis (6 semester hours) or a final project (3 semester hours), which must include a substantial scholarly paper and may include a creative exercise involving at least two disciplines, must be completed at the end of the program. In order to proceed with a thesis or project, all students must submit to the program a proposal approved by their three faculty committee and the MH program director.

- HUMN 5950 - Master's Thesis
- HUMN 5960 - Master's Project
  Total: 3-6 Hours

Oral Exam

An oral exam defending the project or thesis before a committee of three faculty members must be passed in order to graduate.

Optional MH Tracks

Students may also focus in one of the tracks in the Master of Humanities program: Ethnic Studies, Philosophy and Theory, Social Justice, Visual Studies or Women and Gender Studies. Tracks allow students to concentrate their studies in a more specifically defined field of interest. In addition to these tracks, MH students may also pursue a Women's and Gender Studies Graduate Certificate in conjunction with the MH degree and/or one of its tracks. In addition to the three MH core required courses, students must fulfill the minimum track or graduate certificate requirements and must complete a total of 36 credit hours in order to complete the degree. For detailed track requirements and courses, please see one of the MHMSS program faculty.

General MH Degree Total: 36 Hours

ILT-Teacher Librarian Leadership MA

Office: 999 18th St. Suite 144
Telephone: 720-639-9228
E-mail: cpe@ucdenver.edu
Website:
http://www.ucdenver.edu/academics/colleges/SchoolOfEducation/Academics/MASTERS/SchoolLibrary/Pages/SchoolLibrary.aspx

Program Overview

The Teacher Librarian Leadership program within the ILT master's degree program is a revised and approved teacher librarian education program that leads to the Colorado Department of Education endorsement for teacher librarians. The program integrates 21st Century Learning Standards as approved by the American Association of School Libraries with Common Core content standards and leadership competencies. The program adheres to the constructivist theory of resource-based learning, teacher leadership, instructional coaching, and media literacy. The program believes that teacher librarians as endorsed by a state's department of education require education as a teacher as well as a librarian, as advocated by the American Library Association and the International Association of School Libraries. As a teacher librarian, you will provide collaborative instructional planning, facilitation of professional learning, utilization of information literacy, online instructional resources, and teacher leadership through the management of your library program and online. Courses are offered in a completely online program.

Once admitted, students begin a plan of study that typically takes about two years to complete. Consult the program website for more information about specific plans of study, course offerings and expectations of the program.

Admission Requirements

Admission decisions are based on undergraduate and graduate grades, external letters of recommendation and fit with the program as reflected in a letter of intent. Prospective students should consult the program website for complete admission procedures and requirements.

Professional Expectations

All students in the Teacher Library Leadership 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-Teacher Librarian Leadership program uses computers and related technologies as 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

ILT-Teacher Librarian Leadership students also have a choice between a teacher librarian endorsement - only for 24 graduate semester hours and a full master's program with a teacher-librarian endorsement. The master's program requires a minimum of 30 graduate semester hours. Students complete a plan of study consisting of courses and professional field experience. Students must be licensed as a teacher or plan to complete a teacher license prior to seeking the additional endorsement as a Teacher Librarian. This is a Colorado Department of Education requirement.

Courses are offered only in certain semesters and courses should be taken in a particular sequence based on when you start the program. Advising is required prior to enrolling in a course, even as a non-degree student, in order to ensure the most effective course sequencing and availability of courses.

30 Credit MA Degree Plan of Study

Prefix: Course Title	**Term offered:**	**Credits**
SCHL 5100 : School Libraries in the Digital Age	Fall	3
SCHL 5030: Information Literacy	Fall	3
SCHL 5160: Managing School Libraries	Spring	3
RSEM 5080: Research for Teachers or INTE 6720: Research in Learning Design and Technology	Spring	3
SCHL 5200: Promoting Literature in Schools	Summer	3
SCHL 5913: School Library Field Experience	Fall	3
INTE 5300: Media Literacy	Summer	3

CONCENTRATIONS- CHOOSE ONE

Complete 3 courses in the Online Learning Concentration, or the Teacher Leadership Concentration	9

Culminating Experience for All Students

The culminating experience consists of a professional portfolio in which 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 complete details about the Teacher Librarian Leadership program and endorsement requirements, see the program website.

Information and Learning Technologies - Digital Media for Teaching and Learning (K-12), Master of Arts

Students in this track may select a plan with or without an endorsement program in instructional technology. Courses in the endorsement option focus on the practical needs of teachers in their integration of technology and on ways to give leadership and professional-development opportunities to your school and district. The plan of study is accredited by the Council for the Accreditation of Educator Preparation (CAEP) and the Association for Educational Communications and Technology (AECT) and is designed in line with standards of the Colorado Department of Education (CDE.) You will create an online portfolio, referred to as a base camp. The base camp serves as a learning resource for your students, colleagues, and other professionals

Note: The courses in this program are fully online unless specified otherwise.

Digital Media for Teaching and Learning K-12 MA program with Instructional Technology Endorsement requirements

30 semester hours (each course is 3 semester hours):

INTE 5665 - Social Media and Digital Cultures

INTE 5200 - Crafting eLearning Experience
IINTE 5340 - Learning with Digital Stories
IINTE 5320 - Games and Learning
INTE 5250 - Teaching Strategies for Online and Blended Learning
INTE 6750 - E-Learning Trends & Issues
Select one: INTE 6710 - Creative Designs for Instructional Materials or INTE 5680 - Producing Media for Learning
INTE 6720 - Research in Learning Design and Technology
INTE 6999 - Leadership for Technology Innovation
INTE 6930 - Internship: Learning Technologies

Personalized Professional MA Information & Learning Technologies without Endorsement, Digital Media for Teaching and Learning requirements

For the Digital Media for Teaching and Learning (DMTL) concentration there are 3 required core courses (9 semester hours.) In consultation and with approval from your faculty advisor (mentor), select 5 graduate-level courses (15 semester hours) from Advisor-approved "Thematic Course Categories" to customize your learning. Finally, take the required research course (3 semester hours) and then complete the Capstone course (3 semester hours) for a total of 30 semester hours. This plan does NOT lead to an endorsement.

30 semester hours (each course is 3 semester hours):

Core, 9 semester hours:

INTE 5340 - Learning with Digital Stories
INTE 5320 - Games and Learning
INTE 5665 - Social Media and Digital Cultures

Thematic Course Categories, 15 semester hours (requires Faculty Advisor approval):

Course 1
Course 2
Course 3
Course 4
Course 5

Research and Capstone, 6 semester hours:

INTE 6720 - Research in Learning Design and Technology
INTE 6930 - Internship: Learning Technologies

Comprehensive Examination for all ILT Students

The comprehensive exam consists of a professional portfolio, referred to as a base camp, wherein students demonstrate program competencies through work products and related accomplishments. The base camp is created throughout the ILT program and submitted for faculty review during the final semester. For more information, see the ILT Current Student Resources website.

Information and Learning Technologies - eLearning Design and Implementation, Master of Arts

The focus of this track is on the planning, design, development, delivery, facilitation and evaluation of digital and online learning resources, experiences, and programs for higher education, K-12, and professional-learning (corporate, healthcare, government, non-profit) audiences. Throughout the program, you will apply learning, instructional and media design, and professional-development theory to the creation of digital and online instructional products and experiences. You will experience interactive learning, hands-on projects, and collaborative teamwork while learning to create quality eLearning products and experiences and while encouraging innovation and positive change within

your workplace. You will create an online portfolio, referred to as a base camp. The base camp helps you establish your professional web presence and digital footprint as a thought leader and helps showcase your accomplishments and share your work with your professional communities of practice. The entire program takes about two years to complete.

eLearning Design and Implementation (eDI) MA program requirements

30 semester hours (each course is 3 semester hours):

Core, 24 semester hours:

INTE 5100 - Planning and Designing for Instruction
INTE 5665 - Social Media and Digital Cultures
INTE 5680 - Producing Media for Learning
INTE 5670 - Planning and Facilitating Live Events
INTE 6710 - Creative Designs for Instructional Materials
INTE 6750 - E-Learning Trends & Issues
INTE 5660 - Developing Self-Paced Online Courseware
INTE 6720 - Research in Learning Design and Technology

Electives, Choose two courses (6 semester hours):

INTE 5250 - Teaching Strategies for Online and Blended Learning
INTE 5200 - Crafting eLearning Experience

INTE 5320 - Games and Learning
INTE 5340 - Learning with Digital Stories
INTE 6930 - Internship: Learning Technologies
INTE 6999 - Leadership for Technology Innovation
INTE 5000 - Design Thinking and Educational Innovation

Comprehensive Examination for all ILT Students

The comprehensive exam consists of a professional portfolio, referred to as a base camp, wherein students demonstrate program competencies through work products and related accomplishments. The base camp is created throughout the ILT program and submitted for faculty review during the final semester. For more information, see the ILT Current Student Resources website.

Information and Learning Technologies - Instructional Design and Adult Learning, Master of Arts

This track is designed to help you develop skills for creating quality instructional materials and professional-learning experiences that help adult-learning audiences learn and perform better on the job. Throughout the program, you will apply learning, instructional design (ID), and professional-development principles to the creation of digital and web resources, multimedia presentations, job aids, and online learning modules. These skills are in high demand in corporate, healthcare, government, non-profit, and higher education settings. You will experience interactive learning, hands-on projects, and collaborative teamwork as you develop expertise in core ID skills: creating curriculum, evaluating program quality, encouraging innovation, and leading organizations toward productive change and growth. Like all ILT students, you will create an online portfolio, referred to as a base camp. The base camp helps you establish your professional web presence and digital footprint as a thought leader and helps showcase your instructional-design accomplishments to employers and other professionals. The entire program takes about two years to complete. All courses are entirely online unless specified otherwise.

Instructional Design and Adult Learning MA program requirements

30 semester hours (each course is 3 semester hours):

Core, 15 semester hours:

INTE 5100 - Planning and Designing for Instruction
INTE 5665 - Social Media and Digital Cultures
INTE 6750 - E-Learning Trends & Issues
INTE 6710 - Creative Designs for Instructional Materials
INTE 6720 - Research in Learning Design and Technology

Electives, Choose five courses (15 semester hours):

INTE 5660 - Developing Self-Paced Online Courseware
INTE 5320 - Games and Learning
INTE 5670 - Planning and Facilitating Live Events
INTE 5680 - Producing Media for Learning
INTE 5200 - Crafting eLearning Experience
INTE 5250 - Teaching Strategies for Online and Blended Learning
INTE 5340 - Learning with Digital Stories
INTE 6930 - Internship: Learning Technologies
INTE 6999 - Leadership for Technology Innovation

Comprehensive Examination for all ILT Students

The comprehensive exam consists of a professional portfolio, referred to as a base camp, wherein students demonstrate program competencies through work products and related accomplishments. The base camp is created throughout the ILT program and submitted for faculty review during the final semester. For more information, see the ILT Current Student Resources website.

Information Systems MS

Program Director: Jahangir Karimi
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The Master of Science in Information Systems (MSIS) program at the Business School meets industry needs by providing specializations. The program prepares students for career paths in systems development and management services, enterprise application services, business intelligence, health information technology, information security audit and control, 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. Specializations in Business Intelligence, Enterprise Technology Management and Web and Mobile Computing can be completed online.

The MSIS program offers a wide choice of courses. Candidates for the MS degree are not required to take a comprehensive examination or to complete a thesis in the major field.

We offer a 4+1 program that allows our current undergraduate information systems students to pursue the master of science degree if they achieve a cumulative GPA of 3.50 or higher without taking the GMAT test. Students are also allowed to replace two undergraduate required information systems courses with two graduate information systems courses. Interested students please contact the Business School advising team for more information.

Information Systems Specializations

The specializations for the MS in Information Systems are designed to provide the fundamental knowledge necessary for a career as an IS professional. The IS specializations 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.

Accounting and Information Systems Audit and Control (AISAAC) Specialization

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 specialization 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 Prerequisites: (6 hours)

Advisor will evaluate transcript for possible waiver of the prerequisites.

- ACCT 6031 - Intermediate Financial Accounting I
- ACCT 6054 - Accounting Systems and Data Processing

Information Systems AISAAC Course Requirements: (12 Hours)

- ISMG 6060 - Analysis, Modeling and Design
- ISMG 6080 - Database Management Systems
- ISMG 6180 - Information Systems Management and Strategy
- ISMG 6220 - Business Intelligence Systems and Analytics

AISAAC Common Course Requirements: (12 hours)

- ISMG 6040 - Business Process Management
- ISMG 6830 - IT Governance and Service Management
- ACCT 6020 - Auditing Theory
- ACCT 6510 - Accounting and Information Systems Processes and Controls
  OR
- ISMG 6510 - Accounting and Information Systems Processes and Controls

AISAAC Electives: (6 hours)

Select two of the following courses:

- ACCT 6340 - Financial Statement Analysis
- ACCT 6360 - Fraud Examination
- ACCT 6470 - Internal Auditing

- ACCT 6620 - Seminar: Auditing and Other Assurance Services
- ISMG 6430 - Information Systems Security and Privacy
- ISMG 6450 - IT Project Management

Business Intelligence Specialization

Business Intelligence (BI) systems combine operational data with analytical tools to present complex and competitive information to planners and decision makers. The objective is to improve the timeliness and quality of inputs to the decision process. BI is used to understand the capabilities available in the firm; the state-of-the-art, trends, and future directions in the markets, the technologies, and the regulatory environment in which the firm competes; and the actions of competitors and the implications of these actions. With this specialization, you get the necessary skills and knowledge in real-time data warehousing, data visualization, data mining, online analytical processing, customer relationships management, dashboards and scorecards, corporate performance management, expert and advanced intelligent systems, and hands-on experience with leading BI tools.

Business Intelligence Required Courses: (6 hours)

- ISMG 6080 - Database Management Systems
- ISMG 6220 - Business Intelligence Systems and Analytics

Business Intelligence Electives: (15 hours)

Select five of the following courses:

- ISMG 6180 - Information Systems Management and Strategy
- ISMG 6340 - Cloud Computing Concepts, Tools, and Applications
- ISMG 6430 - Information Systems Security and Privacy
- ISMG 6450 - IT Project Management
- ISMG 6470 - Text Data Analytics and Predictive Modeling
- ISMG 6480 - Data Warehouse and Administration
- ISMG 6810 - Business Intelligence in Healthcare
- ISMG 6820 - Business Intelligence and Financial Modeling
- ISMG 6830 - IT Governance and Service Management
- BANA 6660 - Predictive Analytics
  Enrollment in BANA 6660 requires a petition.

Business Intelligence IS Electives: (6 hours)

Select two courses numbered 6000 or higher with an ISMG prefix or an internship (by petition) plus one additional ISMG course numbered 6000 or higher. Students pursuing

an additional specialization in GIS should fill this requirement with CVEN 5381, CVEN 5382, CVEN 5383, CVEN 5384, CVEN 5385, CVEN 5386, CVEN 5387, CVEN 5390, CVEN 5391, CVEN 5392, or CVEN 5395.

Business Intelligence Free Elective: (3 hours)

Select any one course numbered 6800 or higher with BUSN prefix or any course numbered 6000 or higher with prefix of ACCT, BANA, CMDT, ENTP, FNCE, INTB, ISMG, MGMT, MKTG, MTAX, or RISK. *Students pursuing an additional specialization in GIS should fill this requirement with CVEN 5381, CVEN 5382, CVEN 5383, CVEN 5384, CVEN 5385, CVEN 5386, CVEN 5387, CVEN 5390, CVEN 5391, CVEN 5392, or CVEN 5395.

NOTE: Some of these courses have prerequisites of a BUSN course that may not be listed in your degree plan. Check with an academic advisor to see if it is possible to waive the prerequisite based on previous coursework.

Cyber Security and Information Assurance Specialization

With recent breaches in the security of many large government agencies and private corporations, cyber security is an issue of great importance to the global society. Further, as corporations increasingly depend on digital solutions in new product development - from consumer shopping experiences and payment systems to driverless cars - the consequence of an electronic security breach will likely become more severe in the future. Colorado has large role in cybersecurity, particularly given Colorado's entrepreneurial focus, since small businesses typically cannot afford expensive security solutions that may be accessible to large corporations. The goal of this specialization is to support and enhance the cyber security of enterprises such as banks, governments, retail, health care institutions, law enforcement, construction, insurance agencies, transportation and the military. Naturally, organizations cannot outsource this protection but will have to have loyal and trustworthy employees trained in this discipline. Therefore, this area is likely to enjoy an ever-growing demand in the foreseeable future--and commensurate job opportunities.

Cyber Security and Information Assurance Core Courses: (6 hours)

Complete the required Core courses

- ISMG 6120 - Internet and Mobile Technologies
- ISMG 6430 - Information Systems Security and Privacy

Cyber Security and Information Assurance Required Courses: (12 hours)

Complete the following Required courses:

- ISMG 6850 - Securing the Enterprise
- ISMG 6855 - Protecting the Enterprise
- ISMG 6870 - Securing Information Assets
- ISMG 6875 - Protecting Information Assets

Cyber Security and Information Assurance Electives: (12 hours)

Select four courses from the list below:

- ISMG 6080 - Database Management Systems
- ISMG 6180 - Information Systems Management and Strategy
- ISMG 6830 - IT Governance and Service Management
- ISMG 6860 - Introduction to Voice and Data Security
- ISMG 6865 - Digital Forensic Analysis I
- ISMG 6880 - Intrusion Detection and Incident Response
- ISMG 6895 - Digital Forensic Analysis II
- RISK 6800 - Special Topics: Cyber Risk Management & Cyber Warfare

Digital Health Innovation Specialization

With the pervasive nature of Internet-based technologies, healthcare services are undergoing significant transformations where both providers and consumers have access to information for making informed decisions yielding the best possible outcomes. While providers are adopting or upgrading to state-of-the-art IT, the ongoing liberation of healthcare data has energized technology vendors, healthcare systems, start-ups, and researchers to develop new applications, tools, and products. The digital health innovation entrepreneurship specialization is designed for developing knowledge, skills and capabilities in innovation models, business plans and market platforms for drugs, devices, diagnostics, healthcare IT products and services.

Digital Health Innovation Specialization Required Courses: (6 hours)

Complete the following two required courses:

- ISMG 6060 - Analysis, Modeling and Design
- ISMG 6080 - Database Management Systems

Digital Health Innovation Specialization Electives: (15 hours)

Complete five of the following courses:

- ENTP 6802 - Regulatory Environment of Life Science Innovation
- ENTP 6824 - Entrepreneurial Financial Management
- HLTH 6071 - Introduction To Health Information Technology
- HLTH 6072 - Management of Healthcare Information Technology

- ISMG 6020 - .Net Programming Fundamentals
- ISMG 6120 - Internet and Mobile Technologies
- ISMG 6320 - Innovative Health Information Technologies
- ISMG 6430 - Information Systems Security and Privacy
- ISMG 6450 - IT Project Management

Digital Health Innovation Specialization IS Electives: (6 hours)

Select any two courses numbered 6000 or higher with an ISMG prefix OR complete an internship in the IS field plus one ISMG course numbered 6000 or higher.

Digital Health Innovation Specialization Free Elective: (3 hours)

Complete any one course number 6800 or higher with a BUSN prefix OR any course number 6000 or higher with the prefix of ACCT, BANA, CMDT, ENTP, FNCE, INTB, ISMG, MGMT, MKTG MTAX or RISK.

Enterprise Risk Management (ERM) Specialization

This specialization focuses on information technology as the primary driver of business strategy. Coursework focuses on the strategic, technological, financial and organizational issues involved with the effective management of information technology within an enterprise.

Enterprise Risk Management Prerequisites: (6 hours)

Advisor will evaluate transcripts for possible waivers of the prerequisites.

- BUSN 6530 - Data Analysis for Managers
- BUSN 6620 - Applied Economics for Managers

Enterprise Risk Management Required Courses: (15 hours)

- BUSN 6550 - Analyzing and Interpreting Accounting Information
- BUSN 6640 - Financial Management
- ISMG 6180 - Information Systems Management and Strategy
- RISK 6809 - Principles of Risk Management & Insurance
- RISK 6909 - Corporate Risk Management

Enterprise Risk Management Electives: (15 hours)

Select five of the following courses:

- ISMG 6430 - Information Systems Security and Privacy
- ISMG 6450 - IT Project Management

- ISMG 6460 - Emerging Technologies
- ISMG 6820 - Business Intelligence and Financial Modeling
- ISMG 6830 - IT Governance and Service Management
- ISMG 6850 - Securing the Enterprise
- ISMG 6855 - Protecting the Enterprise
- ISMG 6870 - Securing Information Assets
- ISMG 6875 - Protecting Information Assets
- RISK 6129 - Practical Enterprise Risk Management
- RISK 6309 - Strategic Risk Management
- RISK 6509 - Global Risk Management
- RISK 6800 - Special Topics: Cyber Risk Management & Cyber Warfare

Enterprise Technology Management (ETM) Specialization

This specialization focuses on information technology as the prime driver 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 specialization cover the emerging technologies and the evolving roles and importance of IT in modern organizations; IT-enabled organizational processes and knowledge management; methods to develop, acquire and implement information systems; implementing and managing complex IT projects; security and privacy issues associated with IT.

Enterprise Technology Management Required Courses: (6 hours)

- ISMG 6040 - Business Process Management
- ISMG 6180 - Information Systems Management and Strategy

Enterprise Technology Management Electives: (15 hours)

Select five of the following courses:

- ISMG 6080 - Database Management Systems
- ISMG 6120 - Internet and Mobile Technologies
- ISMG 6220 - Business Intelligence Systems and Analytics
- ISMG 6430 - Information Systems Security and Privacy
- ISMG 6450 - IT Project Management
- ISMG 6460 - Emerging Technologies
- ISMG 6830 - IT Governance and Service Management

Enterprise Technology Management IS Electives: (6 hours)

Select two courses numbered 6000 or higher with an ISMG prefix or an internship.

*Students pursuing an additional specialization in GIS should fill this requirement with CVEN 5381, CVEN 5382, CVEN 5383, CVEN 5384, CVEN 5385, CVEN 5386, CVEN 5387, CVEN 5390, CVEN 5391, CVEN 5392, or CVEN 5395.

Enterprise Technology Management Free Elective: (3 hours)

Any course numbered 6800 or higher with BUSN prefix or any course numbered 6000 or higher with prefix of ACCT, BANA, ENTP, FNCE/RISK/CMDT, INTB, ISMG, MGMT, or MKTG.

*Students pursuing an additional specialization in GIS should fill this requirement with CVEN 5381, CVEN 5382, CVEN 5383, CVEN 5384, CVEN 5385, CVEN 5386, CVEN 5387, CVEN 5390, CVEN 5391, CVEN 5392, or CVEN 5395.

NOTE: Some of these courses have prerequisites of a BUSN course that may not be listed in your degree plan. Check with an academic advisor to see if it is possible to waive the prerequisite based on previous coursework.

Technology Innovation and Entrepreneurship (TIE) Specialization

Technological Innovation and Entrepreneurship Specialization is designed to prepare students for successful careers in innovation-related roles, allowing them to organize, develop, and commercialize information technology-based innovation in existing firms or to create new technology-based ventures. This specialization prepares students to evaluate opportunities and manage the process of innovation and builds the necessary knowledge and skills that enable leaders to seize market opportunities and drive strategic management and intelligent decision making. It includes courses in both Information Systems and Entrepreneurship and may also include an optional emphasis in Bio-innovation.

Technology Innovation and Entrepreneurship Required Courses: (12 hours)

- ENTP 6020 - Business Model Development & Planning
- ENTP 6022 - Digital Strategy for Entrepreneurs
- ENTP 6842 - New Concept Development
- ISMG 6460 - Emerging Technologies

Technology Innovation and Entrepreneurship IS Electives: (18 hours)

Select six courses from the two elective lists below for a total of 18 hours.

Select 2 or 3 of the following Entrepreneurship electives:

- ENTP 6620 - New Venture Operations and Project Management
- ENTP 6822 - Legal and Ethical Issues of Entrepreneurship
- ENTP 6824 - Entrepreneurial Financial Management

- ENTP 6826 - International Entrepreneurship
- ENTP 6848 - Leadership in New Ventures

  If two ENTP courses were selected above, select four of the following Information Systems electives; if three ENTP courses were selected above, select three of the following Information Systems electives:
- ISMG 6020 - .Net Programming Fundamentals
- ISMG 6060 - Analysis, Modeling and Design
- ISMG 6080 - Database Management Systems
- ISMG 6120 - Internet and Mobile Technologies
- ISMG 6180 - Information Systems Management and Strategy
- ISMG 6220 - Business Intelligence Systems and Analytics
- ISMG 6240 - Website Development Practice and Technologies
- ISMG 6450 - IT Project Management

Web and Mobile Computing Specialization

This specialization focuses on building and managing large systems using platforms for website development, mobile and wireless applications, and web services and service oriented architectures. The courses provide expertise in .Net programming, business process management, internet and mobile technologies, website development technologies, data warehousing and administration, and service oriented architecture. Project management coursework enables graduates to successfully handle highly, complex systems development projects in the business world.

Web and Mobile Computing Required Courses: (6 hours)

- ISMG 6060 - Analysis, Modeling and Design
- ISMG 6080 - Database Management Systems

Web and Mobile Computing Electives: (15 hours)

Select five of the following courses:

- ISMG 6020 - .Net Programming Fundamentals
- ISMG 6040 - Business Process Management
- ISMG 6120 - Internet and Mobile Technologies
- ISMG 6240 - Website Development Practice and Technologies
- ISMG 6340 - Cloud Computing Concepts, Tools, and Applications
- ISMG 6450 - IT Project Management
- ISMG 6480 - Data Warehouse and Administration

Web and Mobile Computing IS Electives: (6 hours)

Select any two courses numbered 6000 or higher with an ISMG prefix or an internship (by petition).

*Students pursuing an additional specialization in GIS should fill this requirement with CVEN 5381, CVEN 5382, CVEN 5383, CVEN 5384, CVEN 5385, CVEN 5386, CVEN 5387, CVEN 5390, CVEN 5391, CVEN 5392, or CVEN 5395.

Web and Mobile Computing Free Elective: (3 hours)

Any course numbered 6800 or higher with BUSN prefix or any course numbered 6000 or higher with prefix of ACCT, BANA, CMDT, ENTP, FNCE, INTB, ISMG, MGMT, MKTG, MTAX, or RISK.

*Students pursuing an additional specialization in GIS should fill this requirement with CVEN 5381, CVEN 5382, CVEN 5383, CVEN 5384, CVEN 5385, CVEN 5386, CVEN 5387, CVEN 5390, CVEN 5391, CVEN 5392, or CVEN 5395.

NOTE: Some of these courses have prerequisites of a BUSN course that may not be listed in your degree plan. Check with an academic advisor to see if it is possible to waive the prerequisite based on previous coursework.

Geographic Information Systems (GIS) Option

The Geographic Information Systems option expands upon system development skills through the understanding of geographic information systems workflows, analysis processes, and data models. This option for the Business Intelligence, Enterprise Technology Management, OR Web and Mobile Computing specialization addresses how map representations can be abstracted in geo-databases to develop intelligent GIS systems. Learn how GIS can improve efficiencies, decision making, planning, geographic accountability, science-based plans and communication. The GIS option is offered in conjunction with the College of Engineering and Applied Science and a certificate in GIS is awarded by the College of Engineering and Applied Science.

Student must first complete either the Business Intelligence, Enterprise Technology Management, OR Web & Mobile Computing Specialization.

Geographic Information Systems and Geomatics (GIS) Specialization Required Course: (3 hours)

Complete the following course:

- CVEN 5381 - Introduction to Geographic Information Systems

Geographic Information Systems and Geomatics (GIS) Option Elective Courses: (9 hours)

Complete three of the following courses:

- CVEN 5382 - Geospatial Data Development

- CVEN 5383 - GIS Analysis -- Theory and Practice
- CVEN 5384 - GIS Project Management
- CVEN 5385 - GIS Relational Database Systems
- CVEN 5386 - GIS Laboratory
- CVEN 5387 - Advanced Remote Sensing
- CVEN 5390 - Interactive Web Mapping GIS
- CVEN 5391 - Introduction to Geomatics
- CVEN 5392 - Unmanned Aerial Systems
- CVEN 5395 - GPS/GNSS
  CVEN courses are offered through the College of Engineering in an online/video instruction format.

Integrated Sciences MIS

► Graduate School Policies and Procedures apply to this program

Program Description

Students in this program have the opportunity to take courses from a variety of areas in mathematics, the natural and physical sciences (biology, chemistry, environmental sciences, geology, and physics), and computer science in a program designed for professional growth in their area of interest. These areas are further explored through a required project or thesis that includes focused independent research on a topic that integrates two or three of the disciplines mentioned above.

The length of time it takes to complete the degree is determined by the student's own schedule flexibility; many finish within two years of full-time work. In accordance with Graduate School Rules, the degree must be completed within seven years of matriculation.

Admission Requirements

Admission into the MIS program is competitively based. Minimum requirements for an application to be considered are:

- the graduate application form for the University of Colorado Denver, including all application fees
- a statement of purpose specifying why the applicant wishes to be admitted to the program, the applicant's primary and secondary disciplines of interest, and their career goals

- three letters of recommendation from individuals who can speak to the applicant's academic qualifications, of which at least two should be from academic sources
- transcripts from all institutions of higher learning attended by the applicant
- a bachelor's degree from an accredited college or university
- a minimum cumulative undergraduate GPA of 3.0 on a 4.0 scale; however, applicants with an undergraduate GPA below 3.0 may be considered if they have taken the Graduate Record Examination (GRE) and if the scores are forwarded to the program office
- 40 semester hours of undergraduate courses in biology, chemistry, computer science, environmental sciences, geology, mathematics, and/or physics
- Possessing the minimum requirements will guarantee that the application is considered. It does not, however, guarantee admission. The admissions committee will select students competitively to create a high-quality and balanced cohort of participants entering the program each year.

Application Deadline

Students are admitted for the spring and fall semesters. The deadline for a complete application is April 15 for fall admission and October 15 for spring admission.

Core Requirement

Students are required to enroll in MINS 5200, Research Methods in Interdisciplinary Science, within their first year of the program. This course serves as an introduction to the program and helps students to develop research skills and to further their professional development. This course is offered in the fall semester only.

- MINS 5200 - Research Methods in Interdisciplinary Science

Concentration and Depth Requirements

The student must designate one area of concentration (the primary area of study) and one or two depth areas (the secondary and, if applicable, tertiary areas of study) within the disciplines of biology, chemistry, computer science, environmental sciences, geology, mathematics or physics. An interdisciplinary area of study (including but not limited to fields such as biochemistry, biophysics, or computational biology) may also be considered. The student must complete a minimum of nine semester hours in the chosen area of concentration and a minimum of six semester hours in each depth area.

Project or Thesis Requirement

The program provides students with two options as their capstone experience, either a project or a thesis, depending on their academic and professional goals. All students

must conduct independent research integrating coursework from the disciplines in their program of study. The research is conducted as either a project (requiring 3-4 semester-hours of MINS 5960) or a thesis (requiring 4-6 semester-hours of MINS 5950), and is presented to their examination committee in both written and oral forms. The student must successfully defend their project/thesis in an oral examination (defense) in order to graduate. Prior to enrolling in Project or Thesis hours, all students must submit a proposal approved by three faculty members (one of whom is their graduate faculty advisor) and the Program Director.

- MINS 5950 - Master's Thesis
- MINS 5960 - Master's Project

Graduate Advisor and Examination Committee

All candidates for the MIS degree must select a faculty advisor and two other faculty members to serve with the advisor as the candidate's graduate examination committee. The committee members must have graduate standing at the University of Colorado Denver and be approved by the Program Director. The name of the faculty advisor must be submitted to the Program Director at the start of the third semester following matriculation to the program.

Degree Total: 30 Hours

International Business MS

Program Director: Manuel G. Serapio, Jr.
Telephone: 303-315-8888
E-mail: Manuel.Serapio@ucdenver.edu

An MS in International Business (MSIB) from the University of Colorado Denver opens opportunities for dynamic careers in global business. MSIB students gain cutting-edge knowledge and skills to help them conduct business across borders.

Our innovative MSIB curriculum combines solid grounding in business foundations and knowledge of international business environments and operations, from both a multinational corporation and entrepreneurial perspective.

Our degree emphasizes action learning such as live case studies, international consulting projects and internships, and study-abroad trips.

The University of Colorado Denver is the only Colorado university, and one of just 17 universities nationwide, granted the U.S. Department of Education's prestigious

designation as a Center for International Business Education Research (CIBER), an honor earned in large part through the excellence of the international business program.

The MS program in International Business requires the completion of the following:

Prerequisites: (3 hours)

Select 1 of the following courses: BUSN 6520, BUSN 6530, BUSN 6550, BUSN 6560, BUSN 6620, or BUSN 6640. Prerequisite choices should be based on course choices in the International Core courses and electives below. *(Advisors will evaluate transcripts for possible prerequisite waivers)*

Students who choose to take classes below that require prerequisites not previously met, may be required to take additional courses. Completion of prerequisite courses is in addition to the 30 hour MS in International Business. Meeting prerequisites is the responsibility of the student.

A. International Business Core: (6 hours)

- INTB 6000 - Introduction to International Business
  or
- ENTP 6826 - International Entrepreneurship
- INTB 6200 - International Business Policy
  CAPSTONE COURSE - THIS COURSE IS INTENDED TO BE TAKEN NEAR THE END OF YOUR PROGRAM.

B. International Functional Core: (6 hours)

Select one course from the International Qualitative Requirement list below **and** select one course from the International Quantitative Requirement list below.

Select one course from the following International Qualitative Requirement list:

- ENTP 6826 - International Entrepreneurship (if not chosen for a core requirement course)
- INTB 6020 - Cross-Cultural Management
- INTB 6022 - International Business Negotiations
- INTB 6024 - International Trade Finance and Management
  INTB 6024 may be used to satisfy **either** the International Qualitative or Quantitative Requirement.
- INTB 6026 - Marketing Challenges at the Global Frontier
- INTB 6040 - Managing Global Talent
- INTB 6094 - Marketing Issues in the Chinese Environment
- INTB 6500 - International Business Consulting
- INTB 6800 - Special Topics in International Business (Select from special topics such as: Dialogue on Globalization or Global Opportunity Identification)

Select one course from the International Quantitative Requirement list below:

- ENTP 6800 - Special Topics in Entrepreneurship (Such as: Global Opportunity Identification)
- INTB 6370 - International Accounting
- INTB 6372 - International Financial Management
- INTB 6411 - International Corporate Governance
- MTAX 6430 - International Taxation
- RISK 6800 - Special Topics: Cyber Risk Management & Cyber Warfare

D. International Elective: (15 hours)

Select any course numbered 6000 or higher with an INTB prefix **or** any graduate level business course that is cross-listed with an INTB prefix. May also select from the following: ACCT 6430 International Taxation, ENTP 6826 International Entrepreneurship, ENTP 6827 Global Action Projects for International Entrepreneurship or RISK 6800 Special Topics: Cyber Risk Management and Cyber Warfare. Travel study courses offered by the Business School also apply.

E. Free Elective: (3 hours)

Complete any graduate business BUSN course numbered 6800 or higher **OR** any graduate business course numbered 6000 or higher with a prefix of ACCT, BANA, CMDT, ENTP, FNCE, INTB, ISMG, MGMT, MKTG, MTAX, or RISK. Note: students who require additional BUSN courses as prerequisites may petition to count one BUSN prerequisite course as a free elective. Please contact grad.advising@ucdenver.edu for the petition form.

Total 30 hours (plus any needed prerequisites)

Landscape Architecture MLA

Prerequisites

Students are expected to have achieved a basic level of computer literacy prior to enrolling in the first semester of classes. The department offers a required Introductory Skills Workshop for students before classes begin that is particularly helpful for students who do not have a background in drawing or computer graphics. The workshop is scheduled each year prior to the beginning of fall semester.

Program Requirements

The landscape architecture program offers first professional and post-professional graduate courses leading to the degree Master of Landscape Architecture (MLA). The program is fully accredited by the Landscape Architecture Accreditation Board (LAAB) and recognized by the Council of Educators in Landscape Architecture (CELA).

- The first-professional degree program requires a six-semester sequence of course work totaling 90 semester hours.
- The post-professional degree program is for qualified students who have already earned a first professional degree in landscape architecture (BLA) or related discipline. It requires a minimum of 60 semester hours. Advanced standing is based on prior academic accomplishment.
- Students completing the College of Architecture and Planning's BSArch degree or an accredited undergraduate design degree at another institution may be given advanced standing in the three-year program. Advanced standing is based on prior academic accomplishment, and is evaluated on an individual basis upon acceptance into the program.

Course Sequence (First Professional Degree)

(90-semester-hour MLA for students without a professional degree in landscape architecture or related professional field)

The curriculum consists of core and elective course work, including the immersive semester.

	Semester hours
Design Studios	33
History and Theory	12
Site Works	12
Media	15
Critical Practice	6
Total core courses	78
MLA Electives	6
General Electives	6
Total electives	12

Total courses 90

Typical 90-semester-hour sequence of courses for the first professional MLA degree (subject to change)

First Year

Fall

- LDAR 5500 - Introductory Landscape Architecture Design Studio
- LDAR 5510 - Graphic Media in Landscape Architecture
- LDAR 5521 - History of Landscape Architecture
- LDAR 5572 - Landscape Ecology
- LDAR 6641 - Computer Applications in Landscape Architecture

Total: 15 Hours

Spring

- LDAR 5502 - Landscape Architecture Design Studio 2
- LDAR 5532 - Landform Manipulation
- LDAR 5540 - Introduction to GIS
- LDAR 6630 - Site, Society and Environment

Total: 15 Hours

Second Year

Fall

- LDAR 5503 - Landscape Architecture Design Studio 3
- LDAR 6620 - Landscape Architecture Theory and Criticism
- LDAR 6631 - Landscape Construction Materials and Methods
- LDAR 6670 - Plants in Design

Total: 15 Hours

Spring

- LDAR 6604 - Landscape Architecture Design Studio 4
- LDAR 6605 - Landscape Architecture Design Studio 5
- LDAR 6949 - Research Tools & Methods
- Two electives. **Semester hours**: 6

Total: 15 Hours

Third Year

Fall - Immersive Semester

- LDAR 6706 - Advanced Landscape Architecture Design Studio Immersive I (travel may be required)
- LDAR 6740 - Advanced History/Theory Seminar - Immersive Semester
- LDAR 6745 - Advanced Media/Technology Seminar - Immersive Semester
- LDAR 6750 - Professional Practice

Total: 15 Hours

Spring

- LDAR 6607 - Landscape Architecture Design Studio 7
- LDAR 6608 - Landscape Architecture Design Studio 8
- Three Electives. **Semester hours**: 9

Total: 15 Hours

Course Sequence (Advanced Professional Degree)

(60-semester-hour MLA for students with a professional degree in landscape architecture or related disciplines)

The curriculum typically requires 60 semester hours and two years of full-time study. The core curriculum consists of three groups:

	Semester Hours
Design	24
History and Theory	9-12
Media	3-9
Electives	3-9
Total courses	60

The department chair or associate chair will advise each student engaged in this program of study.

Thesis

The graduate thesis in landscape architecture provides an opportunity for students to conduct independent research and design investigations that demonstrate their capacity for rigorous original thinking. The thesis is not required for graduation and not all students are approved to write a thesis. Choosing to pursue a thesis project constitutes a significant commitment to the endeavor; the topic must be chosen with care and thoughtfully and critically developed. Topics can explore material that has been previously unstudied, reinterpret existing material in a new light, or engage research and design practices in ways that strengthen and define the final project. For all theses, the research and products must meet the highest standards of academic excellence and contribute significantly to the discipline and/or profession.

Pursuing a thesis requires students to enroll in a three-course sequence for a maximum total of 12 semester hours. Students are required to formulate their research proposals two full semesters prior to their enrollment for the 6-semester-hour thesis, typically taken in lieu of the final studio. To proceed through the sequence, students must have completed and passed the research tools and methods class (LDAR 6940) and have secured departmental approval of the thesis proposal. The completion of the thesis is dependent on acceptance of the student's work by the faculty member acting as the thesis chair and by the committee. For work to be accepted it must meet the standards established by the University of Colorado Denver for graduate thesis projects.

Dual Degree and Certificate Options

Students may enroll in a dual degree program with architecture (MArch) or urban and regional planning (MURP).

Students may apply to the concurrent degree option for the one-year (36 credit) Master of Urban Design (MUD) degree, for which up to 12 credits of advanced standing is possible.

Students also may be selected through an application process to participate in our exchange program with Tongji University in Shanghai, China. Read more about this program on the department website.

A certificate in Geospatial Information Science (GIS) is also available to students interested in pursuing geospatial design.

Management and Organization MS

Program Director: Kenneth L. Bettenhausen
Telephone: 303-315-8425
E-mail: Kenneth.Bettenhausen@ucdenver.edu

The MS Management program prepares students for significant managerial responsibilities in the private and public sectors. Core course requirements provide students with an advanced understanding of how to manage interpersonal dynamics, effectively design organizations, implement planned change and organizational transformations and develop human resources. Students build on this foundation with any four electives in MGMT, ENTP or INTB, or with the courses that comprise one of the career-focused specializations.

The specializations include: business strategy, change and innovation, enterprise technology management, entrepreneurship and innovation, global management, leadership, managing human resources, managing for sustainability, sports and entertainment business and strategic management. These specializations will help students master the tools and knowledge to be successful in each focused competency.

The MS management and organization degree requirements are met by the following:

Management MS

Management and Organization Core: (12 hours)

- BUSN 6520 - Leading Individuals and Teams
- MGMT 6320 - Leading Organizational Change
- MGMT 6360 - Designing Effective Organizations
- MGMT 6380 - Managing People for Competitive Advantage

Management and Organization Electives or Specialization: (12 hours)

A student may select any four MGMT, INTB or ENTP elective courses or complete one of the Management specializations, all of which include four courses.

Specialization Options:

- Business Strategy
- Change and Innovation
- Enterprise Technology Management
- Entrepreneurship and Innovation
- Global Management
- Leadership
- Managing Human Resources
- Managing for Sustainability
- Sports and Entertainment Business
- Strategic Management

Business Strategy

Complete four of the following courses:

- ENTP 6022 - Digital Strategy for Entrepreneurs
- ENTP 6826 - International Entrepreneurship

OR

- INTB 6200 - International Business Policy
- INTB 6022 - International Business Negotiations

Or:

- INTB 6500 - International Business Consulting
- MKTG 6010 - Marketing Strategy
- MGMT 6610 - Business Strategy Lab
- MGMT 6730 - Human Resources Management: Performance Management
- MGMT 6803 - Visionary Leadership
- MGMT 6825 - Sustainable Change Leadership: Turning Business Into a Force for Good

Your selection may include up to 2 of the following CMDT/FNCE/RISK courses:

- CMDT 6682 - Trading in Commodity and Financial Markets
- FNCE 6310 - Financial Decisions and Policies
- FNCE 6340 - Business Firm Valuation
- FNCE 6411 - International Corporate Governance
- FNCE 6420 - Mergers and Acquisitions
- FNCE 6480 - Financial Modeling
- RISK 6309 - Strategic Risk Management
- RISK 6909 - Corporate Risk Management

Change and Innovation

Complete four of the following courses:

- MGMT 6730 - Human Resources Management: Performance Management
- MGMT 6803 - Visionary Leadership
- MGMT 6804 - Bargaining and Negotiation
- MGMT 6808 - Leadership Development

May include up to two of the following courses:

- BUSN 6830 - Business and the Natural Environment
- MGMT 6821 - Managing for Sustainability
- MGMT 6823 - The Sustainable Business Opportunity

Enterprise Technology Management

Required course (may be completed as a Free Elective):

- ISMG 6180 - Information Systems Management and Strategy

Complete four of the following courses:

- ISMG 6040 - Business Process Management
- ISMG 6120 - Internet and Mobile Technologies

- ISMG 6430 - Information Systems Security and Privacy
- ISMG 6450 - IT Project Management
- ISMG 6460 - Emerging Technologies
- ISMG 6830 - IT Governance and Service Management

  Note: If you pursue the Enterprise Technology Management Specialization one of the two remaining free electives on your degree plan must be a MGMT, ENTP or INTB course.

Entrepreneurship and Innovation

Complete four courses total in the following categories:

Complete two ENTP 6000 or higher courses, excluding ENTP 6801 and ENTP 6802.

Complete one of the following courses:

- ENTP 6020 - Business Model Development & Planning
- ENTP 6022 - Digital Strategy for Entrepreneurs

Complete either one ENTP 6000 level course of your choice (excluding ENTP 6801 and 6802) or complete one MGMT 6000 level course of your choice.

Global Management

Required courses:

- INTB 6000 - Introduction to International Business
- INTB 6020 - Cross-Cultural Management
- INTB 6040 - Managing Global Talent

  OR
- MGMT 6040 - Managing Global Talent

Complete one of the following courses:

Any INTB 6000 level course of your choice

A travel study course (see advisor for details)

ENTP 6800 Opportunity Identification in International Entrepreneurship (Special Topics course)

Leadership

Complete four of the following courses:

- MGMT 6803 - Visionary Leadership
- MGMT 6804 - Bargaining and Negotiation
- MGMT 6808 - Leadership Development

  May include up to 2 of the following courses:
- BANA 6650 - Project Management
- ENTP 6848 - Leadership in New Ventures

- INTB 6000 - Introduction to International Business
- MGMT 6821 - Managing for Sustainability
- MGMT 6822 - Business Ethics and Corporate Social Responsibility
- MGMT 6823 - The Sustainable Business Opportunity
- MGMT 6824 - Sustainable Business/CSR Field Study

Managing Human Resources

Prerequisites (completion of BUSN 6530 is in addition to the 30 hour MS MGMT)

- BUSN 6530 - Data Analysis for Managers
- MGMT 6380 - Managing People for Competitive Advantage Complete in core

Complete four of the following courses:

- BUSN 6540 - Legal and Ethical Environment of Business
- MGMT 6040 - Managing Global Talent **OR**
- INTB 6040 - Managing Global Talent
- MGMT 6710 - HR: Talent MGT
- MGMT 6720 - Human Resources Management: Training
- MGMT 6730 - Human Resources Management: Performance Management
- MGMT 6740 - Human Resources Management: Compensation
- MGMT 6750 - HRM: Investing in People: HR Analytics
- MGMT 6760 - Employee Benefits and Workforce Risk Management
- MGMT 6808 - Leadership Development

Managing for Sustainability

Complete four of the following courses:

- ACCT 6285 - Accounting and Finance for Sustainability
- BANA 6730 - Supply Chain Management
- BUSN 6830 - Business and the Natural Environment
- BUSN 6870 - Global Climate Change

  OR
- ENTP 6644 - Impactful Social Innovation
- INTB 6870 - Global Climate Change
- MGMT 6821 - Managing for Sustainability
- MGMT 6822 - Business Ethics and Corporate Social Responsibility
- MGMT 6823 - The Sustainable Business Opportunity
- MGMT 6824 - Sustainable Business/CSR Field Study
- MGMT 6825 - Sustainable Change Leadership: Turning Business Into a Force for Good
- MGMT 6800 - Special Topics in Management

  Choose from such special topic titles as: Ethics for Entrepreneurs or Ethics in Sports and Entertainment.

  *Independent Study/Internships by petition only
- MGMT 6840 - Independent Study

- MGMT 5939 - Internship
  OR
- MKTG 5939 - Internship
- MKTG 6830 - Marketing & Global Sustainability

Sports and Entertainment Business

Required course (may be completed as a Free Elective):

- BUSN 6560 - Marketing Dynamics in the 21st Century

Complete four of the following courses:

- MKTG 6040 - Services Marketing for Traditional and Creative Industries
- MKTG 6820 - Sports & Entertainment Marketing
- MKTG 6822 - "Fan"tastical Consumers of American Sports and Entertainment
- MKTG 6824 - Sales and Negotiation for Consumer, Services, Sports, and Entertainment Industries
- MKTG 6826 - The Sports and Entertainment Industry
- MKTG 6834 - Global Sports & Entertainment Management
- MKTG 5939 - Internship (by petition only)

Note: If you pursue the Sports and Entertainment Business Specialization one of the two remaining free electives on your degree plan must be a MGMT, ENTP or INTB course.

Strategic Management

Prerequisites (completion of prerequisites is in addition to the 30 hour MS MGMT):

- BUSN 6530 - Data Analysis for Managers
- BUSN 6550 - Analyzing and Interpreting Accounting Information
- BUSN 6620 - Applied Economics for Managers
- BUSN 6630 - Management of Operations

Required courses:

- BUSN 6560 - Marketing Dynamics in the 21st Century
- BUSN 6640 - Financial Management
- BUSN 6710 - Strategic Management
- MGMT 6803 - Visionary Leadership
  OR
- MGMT 6808 - Leadership Development

NOTE: Students pursuing a Dual MS ORMG and MBA degree are not eligible for the Strategic Management Specialization.

Free Electives: (6 hours)

1. Any course numbered 6000 or higher with prefix of ACCT, BANA, BUSN, CMDT, ENTP, FNCE, INTB, ISMG, MGMT, MKTG, MTAX, or RISK.

2. Enterprise Technology Management (ETM) specialization students must take at least one MGMT, ENTP or INTB course as a free elective. ETM specialization students must also complete the required course of ISMG 6180 as a free elective.

3. Sports and Entertainment Business (SEB) specialization students must take at least one MGMT, ENTP or INTB course as a free elective. SEB specialization students must also complete the required course of BUSN 6560 as a free elective.

4. NOTE: Some of these courses have strictly enforced prerequisites of a BUSN course that may not be listed on your degree plan. Check with an academic advisor to see if it is possible to waive the prerequisite based on previous coursework.

Marketing MS

Program Director: Vicki Lane
Telephone: 303-315-8468
E-mail: Vicki.Lane@ucdenver.edu

The MS in Marketing degree is designed to provide the skill sets necessary for you to succeed in Marketing Management careers. These positions include upper level positions (e.g., Chief Marketing Officer), middle level positions (e.g., Brand Manager, Advertising Account Executive) and positions for those who interface with an organization's markets (e.g., Marketing Analysts). Your MS in Marketing degree from the University of Colorado Denver consists of 10 courses as follows:

- Common Core - 7 courses (21 semester hours)
- Specialization Option - 3 courses (9 semester hours)

Everyone completes the same 7 common core courses and then chooses their Specialization option that consists of 3 courses. For the Specialization, you can choose from three *"Signature"* Specializations, four Cross-Over Specializations, or customize your program with three graduate marketing courses of your choice.

Required Core Courses

- BUSN 6560 - Marketing Dynamics in the 21st Century
- MKTG 6010 - Marketing Strategy
- MKTG 6020 - Marketing Challenges at the Global Frontier
- MKTG 6040 - Services Marketing for Traditional and Creative Industries
- MKTG 6050 - Market Research Analytics I
- MKTG 6060 - Consumer Intelligence--Psychology and Behavior

- MKTG 6200 - Marketing Intelligence and Metrics

Marketing Electives or Specialization: (9 hours)

Students may select any course numbered 6000 or higher with a **MKTG** prefix
OR students may choose from the marketing specializations.

The specializations are areas of focus that will appeal to those who have specific interests or are looking to apply their marketing acumen in particular contexts (e.g., interface with engineering or work in a multinational or nonprofit environment).

Advanced Market Analytics in a Big Data World

Marketing and survey researchers gather information about what people think, measure customer satisfaction and repurchase intentions, help companies decide what goods and services to offer and at what price, and detect up-and-coming trends. Marketing researchers need good quantitative skills, strong analytical skills and a good understanding of marketing and buyer behavior. Many of our alumni got their starts in marketing research positions. According to the U.S. Bureau of Labor Statistics, employment is expected to grow faster than average with the best job opportunities for those with an MS marketing degree (Don't just take our word for it; check out http://www.bls.gov/oco/ocos013.htm).

- MKTG 6090 - Big Data Customer Relationship Management
- MKTG 6051 - Market Research Analytics II
  Complete any one MKTG 6000 or higher course.

Brand Communication in the Digital Era

Are you interested in a career in advertising, promotions or public relations? How about furthering your career in marketing management? Advertising, promotion and public relations managers are creative, highly-motivated individuals who are flexible yet can meet a deadline. They need good verbal and written communication skills and the ability to work well with people. Similar talents are needed by those involved with brand management. This task is central to all marketers, especially those involved with perceptual positioning and the deliverance of positions in a target market (e.g., those working in any phase of market communication and R&D) The U.S. Bureau of Labor Statistics reports that, because of the high visibility of these positions, these managers are often prime candidates for top C-level positions. The job outlook remains promising but competition will be keen, and the best opportunities will go to those with an MS in marketing or an MS marketing /MBA dual degree. (Don't take our word for it, see http://www.bls.gov/oco/ocos020.htm).

Required:

- MKTG 6070 - Brand Identity & Marketing Communication Strategy
- MKTG 6092 - Digital Media Marketing - Tools and Analytics
  Complete one MKTG 6000 or higher course.

Global Marketing

One of the growing themes of the 21st century economy is the growth of world trade. There is continuing demand for individuals who understand the how to conduct marketing across many different international environments as well as rapidly growing areas such as China and the emerging markets. This specialization prepares you to effectively compete and succeed in this environment.

Required Course:

- ENTP 6826 - International Entrepreneurship
  Complete one of the following courses:
- INTB 6020 - Cross-Cultural Management
- MKTG 6830 - Marketing & Global Sustainability
  Complete either one MKTG 6000 or higher course, one INTB 6000 or higher course, or one ENTP 6000 or higher course with a global focus.

High-Tech/Entrepreneurial Marketing

The American economy was built on a spirit of innovation, hard work and entrepreneurship, and this is surely going to be the path that assures continued American dominance in the technology and business development fields. Most smart innovators know that, in addition to the financial and managerial aspects of a business, it is the marketing function that often makes the difference between success and failure. Whether your interest is in corporate intrapreneurship and the development of high-technology oriented innovations or individual entrepreneurship and the development of a small business with minimal funds, knowing how to create and implement appropriate marketing strategies is fundamental to achieving your goals. This specialization allows you to focus on the type of new business creation path that best suits your aspirations while greatly enhancing your endeavors probability of success. If you aspire to be the next Bill Gates, this is a "must take" degree path for you.

Required:

- ENTP 6842 - New Concept Development
  Complete one of the following courses:
- ENTP 6020 - Business Model Development & Planning
- ENTP 6022 - Digital Strategy for Entrepreneurs
- ENTP 6620 - New Venture Operations and Project Management
- ENTP 6644 - Impactful Social Innovation
- ENTP 6801 - Building Biotechnology
- ENTP 6822 - Legal and Ethical Issues of Entrepreneurship
- ENTP 6826 - International Entrepreneurship

Complete one MKTG 6000 or higher course.

Marketing and Global Sustainability

The world has changed. More than ever, companies around the globe need to introduce smart, sustainable brands to lead the way into the future. The strong core of MS marketing courses will give you the skills to become an effective marketing manager, while the specialized set of sustainability courses will give you the knowledge to work toward a better tomorrow. The sustainability courses will focus on the triad of economic, environmental and social sustainable development.

Required:

- MKTG 6830 - Marketing & Global Sustainability

Complete one of the following courses:

- BUSN 6830 - Business and the Natural Environment
- BUSN 6870 - Global Climate Change
- ENTP 6642 - Exploring Social Entrepreneurship
- MGMT 6821 - Managing for Sustainability
- MGMT 6822 - Business Ethics and Corporate Social Responsibility
- MGMT 6823 - The Sustainable Business Opportunity

Complete one MKTG 6000 or higher course.

Marketing Intelligence and Strategy in the 21st Century

According to the Bureau of Labor, in 2015 the median salary for Marketing, Advertising, and Promotions Managers was $124,850. This Specialization is designed to prepare students for these careers across various industries, whether services, products, global, or domestic. It provides a balance across strategy and intelligence. Skills, interests, and capabilities that are relevant include the following:

- Savvy in cultivating and maintaining business relationships
- Capacity to communicate effectively
- Interested in understanding how consumer psychology affects market success
- Fascinated with popular culture and its creation of market opportunities
- Captivated by the integration of branding with media, entertainment, and sports
- Intrigued by the "Internet of things" and how this is changing the relationships between organizations and consumers
- Focused on Creative approaches to business challenges
- Ability to think "out-of-the-box" and generate new ideas to solve market problems
- Knack for planning and organization
- Skill in managing people and resources

Complete the following required courses:

- MKTG 6070 - Brand Identity & Marketing Communication Strategy
- MKTG 6090 - Big Data Customer Relationship Management

Complete one MKTG 6000 or higher course.

Sports and Entertainment Business

The sports business industry is one of the largest and fastest growing in the United States. Add to that the burgeoning music, film, theater, television, cable and other entertainment industries and you've got virtually limitless choices. Every one of those industries needs good marketers. The strong core of marketing courses in the MS marketing program will give you the skills you need to hit the ground running with the specialized courses to teach you how to tailor your skills to the unique needs of the sports and entertainment industries.

If you pursue this specialization you must follow the course requirements listed below as this specialization has a unique degree plan.
Business Applications in Sports and Entertainment
Required Course:

- MKTG 6820 - Sports & Entertainment Marketing

Complete four courses from the following list:

- MKTG 5939 - Internship
- MKTG 6040 - Services Marketing for Traditional and Creative Industries
- MKTG 6822 - "Fan"tastical Consumers of American Sports and Entertainment
- MKTG 6824 - Sales and Negotiation for Consumer, Services, Sports, and Entertainment Industries
- MKTG 6826 - The Sports and Entertainment Industry

Business Skills for Sports and Entertainment Managers
Required Course:

- BUSN 6560 - Marketing Dynamics in the 21st Century

Complete three courses from the following list:

- MKTG 6010 - Marketing Strategy
- MKTG 6050 - Market Research Analytics I
- MKTG 6060 - Consumer Intelligence--Psychology and Behavior
- MKTG 6070 - Brand Identity & Marketing Communication Strategy
- MKTG 6090 - Big Data Customer Relationship Management
- MKTG 6092 - Digital Media Marketing - Tools and Analytics
- MKTG 6200 - Marketing Intelligence and Metrics
- MKTG 6800 - Topics in Marketing

Marketing Elective
Complete any one course numbered 6000 or higher with a MKTG prefix.

Master in Business Administration for Executives, MBA

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 21-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 strategic leadership; 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 outside of North America.

Mathematics Education Master of Science in Education MSEd

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Telephone: 303-315-6300
Fax: 303-315-6311
E-mail: education@ucdenver.edu
Web site: www.ucdenver.edu/education

Faculty

Information about faculty is available online at http://www.ucdenver.edu/academics/colleges/SchoolOfEducation/FacultyandResearch/Pages/Our-Faculty.aspx.

The MSEd in mathematics education program comprises courses that integrate learning of mathematical content, pedagogy and research. This approach fosters the teachers' ability to teach effectively at the K-12 level. The program arises from collaboration between the School of Education and Human Development (SEHD) and the Department of Mathematical and Statistical Sciences in the College of Liberal Arts and Sciences (CLAS). It interweaves both mathematical and educational understandings that lead to a truly interdisciplinary program, including a possibility to conduct one's own research project.

The MSEd core courses provide a sound basis in mathematics education, including learning theories and progressions, teaching approaches, and deep appreciation for diversity and philosophical foundations.

MSEd Core - 15 credits

- MTED 5030 - Theories Of Mathematics Learning
- MTED 5040 - Mathematics Teaching - Theory and Practice
- MTED 5050 - Critique Of Mathematics Education Research
- MTED 5060 - Developmental Pathways In Students' Mathematical Thinking

12 credits

Plus

- RSEM 5080 - Research In Schools
  Or

- RSEM 5120 - Introduction to Research Methods

3 credits

Mathematics Core - 9 Credits

Required Mathematics Core - Choose three courses in consultation with faculty advisor. Students may select 5000-level MATH, MCKE, MTED, or RSEM courses relevant to the grade-level with which the teacher works with approval from faculty advisor. (Note: Several mathematical content courses are taught by the mathematics education faculty.)

Plus

Optional Course work

Thesis Option (if chosen): SCED 5950 - Master's Thesis . 6 credits required for this option.

Or

Non-Thesis Option: Elective Courses - Choose two courses relevant to the grade-level with which the teacher works in consultation with faculty advisor. **6 credits**

MSEd Total: 30 Hours

MBA/MS in Bioengineering

The Business School and the Department of Bioengineering offer this degree option for students admitted into the Bioengineering MS program and the MBA program. This dual degree is an excellent opportunity for students who are planning a career in industry or as an entrepreneur. Bioengineering students including those who create medical devices, often launch their own venture upon graduation or thereafter. Business skills, especially in the area of marketing, legal environments, finance and operations are critical to enhance the probability of venture success. A dual degree also opens up new doors with regard to career choice, either in business or in one's core field.

Mechanical Engineering MEng

► Graduate School Policies and Procedures apply to this program

The master's of engineering (MEng) is an interdisciplinary degree program designed to meet the needs of those practicing engineers who wish to follow an integrated program of studies in engineering and allied subjects related to the individual student's professional work. Students can combine advanced engineering course work with graduate-level non-engineering courses such as business administration, environmental sciences, social sciences, biological sciences or public administration. There are also tracks in biomechanics and sports engineering.

Prospective students are required to present a well-defined objective in order to be admitted to the program. In consultation with faculty advisors, an academic program is developed to meet this objective.

An advisory committee will be appointed for each student by the department. The advisory committee that 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.

The requirements for admission are the same as those for the MS degree awarded through the College of Engineering and Applied Science. 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 12 semester hours may be taken outside of engineering. In addition to course work, a written report is required in the MEng program as a final project (3 semester hours). The report 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 on work done for credit under independent study.

Mechanical Engineering MS

► Graduate School Policies and Procedures apply to this program

Program Plans

For the master of science (MS) degree in mechanical engineering, students may choose between three plans with each plan totaling 30 semester hours.

- Plan I - Students following Plan I (thesis option) take 24 semester hours of formal course work plus 6 semester hours of thesis work.
- Plan II - Students following Plan II (project option) take 27 semester hours of formal course work plus a 3 semester hour final project requiring a report.
- Plan III - Students following Plan III (10-course option) take 30 semester hours of formal course work plus a final comprehensive exam.

Students following Plan I or Plan II must submit a proposal to their examination committee prior to the semester in which they register for their thesis or project semester hours, and the examination committee must approve the proposal for the thesis or project.

Program Options

Students in each of the plans may choose one of four options. In the first three options, the student may choose to specialize in thermal science, mechanics or biomechanics. The fourth option is the general mechanical engineering option.

- The **thermal science option** requires 12 semester hours of course work in 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.
- The **biomechanics option** requires 31 credit hours to graduate. Please contact the mechanical engineering department or visit the biomechanics website for more information.
- The **general mechanical engineering option** requires the student to take 18 semester hours of required course work in analytical methods, numerical methods, fluid mechanics, thermodynamics, elasticity and dynamics.

After meeting the course requirements for any of the four options the student may select any mechanical engineering graduate course to complete the credit-hour requirements. The student may also take courses approved by an advisor outside of the mechanical engineering department.

Media Forensics Emphasis, Recording Arts MS

► Graduate School Policies and Procedures apply to this program.

Please click here to see general Music & Entertainment Industry Studies information.

Program Overview

The Master of Science in Recording Arts emphasis in media forensics (MSRA-MF) prepares students from various backgrounds for work in the field of forensic audio, video and image analysis, utilizing the state-of-the-art methods and technology necessary to fight crime in the digital age. Housed in the National Center for Media Forensics (NCMF), this program is unique in providing a hybrid format (online and onsite) graduate education in forensic multimedia analysis.

Students from related disciplines (media production, electrical engineering, forensics, computer science, etc.) are encouraged to apply, as this program enhances scientific inquiry while guiding students through a two-year cohort curriculum. The hybrid delivery format affords students the ability to work full-time while completing most of the program online with additional onsite study at the NCMF and its partner institutions. Classes are comprised of online self-guided lectures, interactive learning, discussion boards, reading responses and scheduled video conferencing. Onsite course work provides students with hands-on and practical experiences which augment and enrich the curriculum. Additionally, experiential learning activities include visits to regional crime labs and scientific conferences to understand the application of forensic media technology and laboratory procedures.

Courses lead students through three areas of study: foundational knowledge, core analyses and capstone experiences, which fully prepare students for research in forensic science and expert witness testimony. Digital media evidence acquisition through computer forensics applications is emphasized in an environment that fosters creativity and individual skills. The research thesis on a topic of the student's choosing is conducted under the advisement of the director and associate director of the NCMF with input from forensic professionals from around the world. The thesis is a topic of exploration throughout the program and serves to enhance a graduate's area of specialty as they prepare for work in private forensic practice, corporate research and development, academic research and teaching, or crime labs at the local, state and federal levels.

Note: The application process and requirements for the Master of Science in Recording Arts emphasis in media forensics (MSRA-MF) differ from those listed for the recording arts (MSRA) program.

Curriculum

The MSRA-MF program comprises 33 semester hours of credit: 29 hours are required courses and 4 hours are thesis. All courses must be completed with a grade of B- (2.7) or better and students must maintain at least a 3.0 cumulative GPA. Grades of C+ (2.3) or lower, or a cumulative GPA below 3.0, will result in the student's dismissal from the program. Students are admitted to the program in the fall as a cohort and must follow the curriculum in sequence.

MSRA Media Forensics Application

Admission to the MSRA-MF program is competitive. The MSRA-MF program accepts students in the fall only. Admission decisions are made by committee and are based on the entirety of the applicant's submitted materials. Admission to the program is contingent upon:

- Formal documentation of an earned bachelor's degree in a related field. (International students must document an equivalent.) Undergraduate degrees from other disciplines will be considered with proper support from application components.
- Successful completion of the Graduate Record Exam (GRE) General Test.
- For international students, submission of proof of English Language Proficiency. Please contact the Office of International Admissions for more information.
- Strength of application components as they relate to:
    - Scientific competency
    - Writing skills
    - Desire to work in the field of forensic media analysis
    - Strength of academic/professional background

- Strength of references through letters of recommendation

Application Components

Required application components include:

- Graduate Application for Admission
- Application Fee
- Entrance Examinations: GRE (and TOEFL/IELTS or other evidence of English proficiency, if applicable)
- Official Transcripts
- Cover Letter
- Resume
- Three (3) Letters of Recommendation
- Two (2) Technical Writing Samples

Applications that do not include all of the requirements or that include partial components are considered incomplete and will not be reviewed.

International applicants are encouraged to visit the Office of International Admissions website for detailed information.

Application requirements are subject to change. Refer to the National Center for Media Forensics MSRA-MF program website for detailed information and updates regarding the application process and requirements.

Program Sequence

Fall - Year 1

MSRA 5014 - Research Practices in Media Forensics

MSRA 5124 - Forensic Science and Litigation

Spring - Year 1

MSRA 5054 - Experiential Lab

MSRA 5114 - Foundations in Media Forensics

MSRA 5144 - MATLAB Foundations

Summer - Year 1

MSRA 5134 - Computer Forensics

MSRA 5244 - Mobile Phone Forensics

Fall - Year 2

MSRA 5054 - Experiential Lab

MSRA 5214 - Forensic Audio Analysis

MSRA 5254 - MATLAB for Forensic Audio Analysis

Spring - Year 2

MSRA 5054 - Experiential Lab

MSRA 5224 - Forensic Video and Image Analysis

MSRA 5264 - MATLAB for Forensic Video and Image Analysis

Summer - Year 2

MSRA 5314 - Report Writing and Court Testimony

Summer - Year 2 (or later)

MSRA 6954 - Research Thesis in Media Forensics

Total: 33 Semester Hours

New Directions, Political Science MA

► Graduate School Policies and Procedures apply to this program.

Director: Minsun Ji
E-mail: minsun.ji@ucdenver.edu

An alternative track of the political science MA program (Plan II) is offered off-campus through the Center for New Directions in Politics and Public Policy at CU Denver South in Parker, CO and on the Fort Lewis College campus in Durango, CO. This politics and public policy track presents courses in an intensive weekend format. 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 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."

Degree Requirements

Students must complete a total of 30 graduate credit hours to complete the MA degree.

Core Courses

- PSCI 5014 - Seminar: American Politics
- PSCI 5085 - Comparative Governance: Environment and Society
- PSCI 5324 - Politics, Public Policy and Leadership
- PSCI 5457 - Seminar: American Political Thought
- PSCI 5468 - Research Methods in Political Science

Total: 15 Hours

Electives

In addition to the required core courses, students must take 15 credit hours of political science electives.

[*Note*: Previously earned graduate credit may be submitted for approval to satisfy up to nine hours of the supportive elective requirement. The elective courses offered may change from time to time based on needs, interests and other factors.]

Below are examples of electives taken by New Directions students:

- PSCI 5007 - Beyond Political Correctness
- PSCI 5009 - Politics of the Budgetary Process
- PSCI 5024 - State Politics: Focus on Colorado
- PSCI 5084 - Local Government and Administration
- PSCI 5274 - Conflict Resolution and Public Consent Building
- PSCI 5354 - Seminar: Environmental Politics and Policy
- PSCI 5374 - Public Priorities for the 21st Century
- PSCI 5414 - Organizational Change Agents
- PSCI 5644 - Ethical Responsibilities of Leaders

Total: 15 Hours

Project Requirement

All students are required to complete a 3-credit master's project under the direction of a faculty advisor. Registration is done using the Special Processing form, rather than online.

- PSCI 5960 - Master's Project

Total: 3 Hours

Major Total: 33 Hours

Common Course Outcomes

In addition to clearly stated subject outcomes, all courses will have a common set of outcomes related to the following areas which are considered critical in developing leadership capacities necessary to address the changing public priorities for the 21st century:

- Creativity and innovation
- Changing public priorities
- Political and social diversity
- Ethical accountability
- Deductive and inductive reasoning
- Applied use of appropriate technology
- Strategic planning and decision making
- Resolution of conflicts and public consent building
- Individual, organizational and cultural communication effectiveness

Course Format

All courses are offered in a weekend format that consists of two or three weekend sessions for a given course spread out over a two-month period. Three-weekend classes are held from 9:00 am to 4:00 pm on both Saturday and Sunday of each weekend session. Two-weekend classes meet from 5:00 until 9:00 p.m. on Friday evening and from 8:30 a.m. until 4:30 p.m. on Saturday and Sunday. In most cases, a student will complete all of the two or three weekend sessions of one course before starting the weekend sessions for the next course. There is typically a 2-3 week break between semesters.

Certificate Program

The Center for New Directions MA program offers a certificate program as well, allowing students to focus their studies in a particular direction and to note that particular focus on their transcript. Students do not have to be seeking a full Master's degree to earn a certificate of completion through the certificate program.

For more information on the graduate certificate in Public Non-Profit and Community Leadership, click here.

Political Science MA

► Graduate School Policies and Procedures apply to this program

The Political Science Department offers a Master of Arts (MA) degree in Political Science with an emphasis on building academic and practical skills in key areas of the discipline. Research and teaching in the department centers on the major fields of American politics, comparative politics, international relations, political theory and public policy; however, the department also offers more specialized training in human rights, legal studies, gender politics, race and ethnic politics, European studies, indigenous politics and urban politics. Students pursuing the MA have the option of completing the traditional track or an alternative track centered on the study on politics, public policy and leadership. Students completing the alternative "politics and public policy" track take most courses in weekend, off-campus locations. Students completing either track have gone on to PhD programs across the country and work in a variety of areas, including; state and local elected office, government service, directors of community-based organizations and nongovernmental organizations, legislative analysts, UN affiliates, lobbyists, teachers, media analysis and political consulting.

Requirements for Admission

Students applying for admission to the MA program in political science should present at least 18 semester hours of previous academic work in political science, at least 9 hours of which should be at the upper-division or graduate level. 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 compensates for the deficiencies in political science). Applicants should present an undergraduate GPA of at least 3.0 to be considered. In their applications, students must submit transcripts and letters of recommendation (from academic sources) as specified by the Graduate School. In addition, applicants must submit a statement of academic objectives and an academic writing sample. Standardized test scores are not required of applicants, but will be considered if submitted.

In order to take graduate courses in political science, students must either be admitted to the MA program or secure permission as a non-degree student. Non-degree students may take up to 12 semester hours of graduate course work; however, they must first secure permission from the department graduate advisor to enroll in all graduate course work.

Degree Requirements

In addition to the requirements for admission and details of the program spelled out here, graduate students in political science must also abide by department rules and procedures specified in the Graduate School Policies and Procedures. Failure to meet these policies may result in a student being dropped from the program.

Under the MA program in political science, two degree plans are available:

- Plan I requires the completion of nine graduate courses (27 semester hours) and a 6-credit thesis
- Plan II requires the completion of ten graduate courses (30 semester hours) and a 3-credit project.

Course work in both plans completed under the traditional track offered on the Downtown Campus must include:

PSCI 5000 - State of the Discipline

Additionally, at least one graduate seminar is required in each of the following areas: American politics, comparative politics or international relations, political theory and research methods.

Students will complete between 12 and 15 elective semester hours, depending on whether they are working under Plan I or II, which may be fulfilled through graduate course work in political science, related disciplines, independent study or internships. Ultimately, the total combination of independent study, graduate course work in related disciplines and internship cannot exceed 9 semester hours. With either plan, students are required to complete a minimum of 16 semester hours with the political science department at the University of Colorado Denver, and maintain a minimum *B* (3.0) overall GPA or better. Any course in which a student receives a final grade lower than B- cannot be counted toward the total credits for the Master's degree. Students who are on probation must meet regularly with the graduate advisor and must secure approval from the advisor for all course work while on probation.

Plan II is available both under the traditional MA track offered on the Denver campus, as well as through an alternative track offered off-campus through the Center for New Directions in Politics and Public Policy. For details about this off-campus track in politics and public policy, see New Directions, MA in Political Science.

The Political Science graduate program offers two transcripted certificates, allowing students to focus their studies in a particular direction and to note that particular focus on their transcript.

For more information on the graduate certificate in Democracy and Social Movements, click here.

For more information on the graduate certificate in Public, Non-Profit and Community Leadership, click here.

Public Administration MPA

Introduction

The Master of Public Administration degree (MPA) provides graduate professional education for students interested in public service leadership positions and careers with public and nonprofit agencies and organizations. The program serves students new to public service as well as those already in the field who are interested in furthering their careers.

Program Director: Jane Hansberry, PhD

Faculty

Professors:

Mary Guy, PhD, University of South Carolina
Tanya Heikkila, PhD, University of Arizona
Richard Stillman, PhD, Syracuse University
Paul Teske, PhD, Princeton University
Chris Weible, PhD, University of California, Davis

Associate Professors:
Deserai Crow, PhD, Duke University
Christine Martell, PhD, Indiana University
Geoffrey Propheter, PhD, George Washington University
Danielle Varda, PhD, University of Colorado Denver
Allan Wallis, PhD, City University Graduate Center

Assistant Professors:
Todd Ely, PhD, New York University
Sebawit Bishu, PhD, Florida International University
John Ronquillo, PhD, University of Georgia
William Swann, PhD, Florida State University
Sandy Zook, PhD, Georgia State University

Wirth Chair in Sustainable Development:

Mark Safty, JD, University of Montana

Assistant Research Professor:

Kelly Hupfeld, JD, Northwestern University

Clinical Professors:

Denise Scheberle, PhD, Colorado State University

Scholar in Residence:

Jane Hansberry, PhD, University of Pittsburgh
Parker Baxter, JD, New York University

Senior Instructor:

Wendy Bolyard, PhD, University of Central Florida
Pamela Medina, PhD, University of Central Florida
Robyn Mobbs, PhD, University of Colorado Denver

Professor Emeritus:

Stephen Block, PhD, University of Colorado
John Buechner, PhD, University of Michigan
Lloyd Burton, PhD, University of California, Berkeley

Dean Emerita:

Kathleen Beatty, PhD, Washington State University

MPA AND MCJ-General Information

Admission Requirements

1. Applicants must have 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. Applicants must provide 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. Standard graduate admission test scores are normally waived when the candidate already has a graduate degree in another field from an accredited institution. Other applicants may have test scores waived if they have an undergraduate GPA of 3.0 or better *and* they have *significant* post-baccalaureate professional employment in management or policymaking positions for a minimum of 7 years or the equivalent.
4. A current resume highlighting professional accomplishments and community involvement, a short essay stating educational and career goals, a declaration of program form, and an application fee are also required.
5. International applicants may have different admission requirements and should check with the Office of International Affairs. In particular, international students whose first language is not English are required to take the TOEFL or IELTS. A composite score of 6.5 on the IELTS, or a composite score of 80 on the TOEFL, with accompanying minimum IELTS or TOEFL subscores of 20 or greater, is required.

All application material and test scores should be sent to SPA, University of Colorado Denver, Campus Box 142, P.O. Box 173364, Denver, CO 80217-3364.

SPA will review applications as soon as they are complete. 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.*

Preferred Application Deadline

Fall - March 1
Spring - October 15
Summer - March 1

*Final Deadline**

Fall - August 1
Spring - December 1
Summer - May 1

*Final deadline does not apply to international students who should contact the Office of International Affairs for deadline information.

Provisional Admission

In exceptional cases, a student who does not otherwise meet the minimum requirements for admission may be admitted on provisional status if elements of their application suggest they may be able to succeed in the program. Students admitted on a provisional basis take two core courses in their first semester, and must earn at least a B in each course.

MCJ students may select two of the following for their first semester:

- CRJU 5001
- CRJU 5003
- 5002 or 5005

Based on their performance in these courses, a formal decision will be made concerning their admission into the program. Provisionally-admitted students may not take any other courses at SPA until they have been formally admitted to the program.

Nondegree Admissions

Students may register as nondegree students while developing their application packet. However, students are discouraged from taking multiple courses as a nondegree student if they hope to pursue a degree. No more than 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. Taking courses as a nondegree student does not guarantee later admittance into the MCJ program. Nondegree student application forms are available in the Office of Admissions or online.

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.

Limitation of Course Load

The normal course load for a full-time MCJ student is 6 to 9 graduate credit hours per semester; full-time status for MCJ graduate students is 5 graduate credit hours per semester for financial aid determination. A student who is employed full-time is strongly advised not to carry more than 6 graduate semester hours in the MCJ program. Students who wish to carry a graduate course load above 9 hours per semester must consult their advisor and/or student service coordinator first.

Financial Assistance

Students in the master's degree programs are eligible for several types of financial assistance. Educational loans require application to the CU Denver Office of Financial Aid 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 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.

Persons interested in applying for financial assistance should inquire in the SPA office. The deadline for current students is March 1 for the fall term. Prospective students seeking scholarship funds should have complete scholarship applications on file at the SPA office by the preferred application deadline for the semester they are requesting funds.

The Internship Program

An internship for the MPA and MCJ programs is required for students who have not had the equivalent of at least one year of professional full-time experiencein the field,

following the awarding of their Bachelor degree. The purpose of the internship is to continue the linkage between theory and practice that is the philosophical basis of SPA. Internships generally involve substantive part-time work undertaken during the course of one semester. A maximum of three semester hours will be awarded for internship service. Placements have included the Governor's Office, Colorado General Assembly, 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.

Time Limit for Master's Degree

Master's degree students must complete all coursework and degree requirements within seven years of registration in their first course.

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. Graduate Course Work

All students must complete a minimum of 36 semester hours of graduate course work, with a cumulative GPA of B (3.0) or better. No more than 6 semester hours of independent study can be applied toward the degree. Students who have not had at least one year of 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. Core Courses

All MPA students (with the exception of those in the executive MPA option) must complete the following core courses or approved equivalents, for a total of 18 credit hours. Students must receive a grade of at least B- (2.7) in each core class. Students who earn a lower grade in a core class may repeat the class once in an effort to improve the grade.

- PUAD 5001 - Introduction to Public Administration and Public Service
- PUAD 5002 - Organizational Management and Behavior
- PUAD 5003 - Research and Analytic Methods

- PUAD 5004 - Economics and Public Finance
  Or

- PUAD 5503 - Public Budgeting and Finance *Students in the Local Government Concentration must take PUAD 5503

- PUAD 5005 - The Policy Process and Democracy
- PUAD 5006 - Public Service Leadership and Ethics
- PUAD 5008 - Evidence-Based Decision-Making

3. Electives

All MPA students must complete 12 hours of electives. Elective courses in which a student earns a grade of less than a *C* (2.0) will not be counted toward a degree.

4. Capstone Class

All MPA students, except those pursuing the thesis option, must complete the capstone course during the last semester of their degree program. All core courses must be completed before beginning the capstone.

- PUAD 5361 - Capstone Seminar

5. Thesis Option

The thesis option is available in lieu of PUAD 5361 for MPA students who have an interest in pursuing a topic in-depth or who are planning to pursue a career in research or academia. Students must receive approval from their faculty advisor or the MPA director to pursue the thesis option. The thesis is a six credit course that normally spans two semesters.

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 PUAD 6910, Field Study in Public Administration. The decision to require PUAD 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 semester hours of credit. This requirement raises the total semester hours needed to earn the MPA degree to 39.

MPA Options

Concentrations and Graduate Certificates

All SPA concentrations are a total of 12 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 or may complete the MPA without a specified concentration. 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

Students take the two courses listed below, plus three electives approved by the concentration director:

- PUAD 5631 - Seminar in Environmental Politics and Policy

Total: 12 Hours

Local Government Concentration

Students take

- PUAD 5503 - Public Budgeting and Finance

and at least two of the three courses listed below, plus electives approved by the concentration advisor:

- PUAD 5625 - Local Government Management
- PUAD 5626 - Local Government Politics and Policy
- PUAD 5628 - Urban Social Problems

Electives approved by advisor (1-2) (3-6 semester hours)

Total: 12 Hours

Gender-Based Violence Concentration

Students take four specified courses.

- PUAD 5910 - Nature and Scope of Interpersonal Violence
- PUAD 5920 - The Psychology of Interpersonal Violence
- PUAD 5930 - Interpersonal Violence Law and Policy
- PUAD 5940 - Interpersonal Violence Leadership, Advocacy, and Social Change

Total: 12 Hours

Emergency Management and Homeland Security Concentration

Students must take a minimum of two out of the four courses listed below as well as electives approved by the advisor. We recommend that students take three of the four if possible.

- PUAD 5655 - Principles of Emergency Management
- GEOG 5230 - Hazard Mitigation and Vulnerability Assessment
- PUAD 5650 - Public Service in Emergency Management and Homeland Security

Total: 12 Hours

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

Students take two required courses as well as nonprofit electives approved by advisor.

- PUAD 5110 - Seminar in Nonprofit Management
- PUAD 5140 - Nonprofit Financial Management
  Other nonprofit courses (6 semester hours)

Total: 12 Hours

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 accelerated option is priced at a flat fee, regardless of in-state or out-of-state student status, 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 August. 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 currently offers an executive MPA option for senior level professionals in the nonprofit and public sectors. The Executive MPA option requires 30 semester hours of credit.

Initial Leadership Experience (3 credit hours):
All students will enroll in the Rocky Mountain Program, a SPA residential leadership program. This is a six-day seminar typically held in Breckenridge that brings together public and non-profit professionals from across the country to collaborate on current management issues while honing leadership skills. Federal employees may elect OPM's federal Management Assessment Seminar at either the Western or Eastern Management Development Centers in lieu of the Rocky Mountain Program. For more information about the OPM program option please see www.leadership.opm.gov.

Required Courses (15 credit hours):
All students are required to complete two courses (6 credits) held on the Denver campus in an intensive format (1-2 weeks). Students complete two additional core courses (6 credits) in either an online, weekend intensive, or through the traditional campus based classroom setting. All students complete their program with a capstone project (3 credits). The capstone project allows students to synthesize the information learned during the program and put it into practice within a professional setting.

Elective Courses (12 credit hours):
In consultation with an advisor, students select elective courses that best meet their professional goals. These may be taken online or in the classroom. Students may complete up to 9 credits through the federal OPM Management Development Center provided they are approved for graduate credit by the American Council on Education.

Online Option

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, and other concentrations are being added annually. As well, a variety of other electives leading to a general MPA degree are available online. Students in the executive option may also choose to do all SPA course work online.

Gender-Based Violence Cohort

The first graduate program of its kind in the nation, the University of Colorado Denver's MPA concentration in gender-based violence focuses on the management and policies surrounding gender-based violence, as well as grass-roots social justice work and best practices in this emerging field. Each fall, 10 to 20 students are accepted into the cohort program, allowing the participants to build a strong community of advocates and learners.

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.

The cost of the gender-based violence concentration courses is the same for in-state and out-of-state students. Nonresident students pursuing the MPA with a concentration in gender-based violence may also qualify for reduced tuition through the Western Regional Graduate Program which covers 14 western states.

Public History, MA in History

► Graduate School Policies and Procedures apply to this program.

The MA program in history offers graduate-level major and minor fields in public history. Public history is a field of study that applies historical methods to the public sphere. This graduate major requires a concentration, in either museum studies or historic preservation. Public history majors can minor in any subspecialty the department currently offers. Students majoring in U.S., European or Global history can also minor in public history.

Admission Requirements-See History MA

Degree Requirements

Required Introductory Course

- HIST 6013 - Introduction to the Professional Study of History

Total: 3 Hours

Major Courses

- HIST 5234 - Introduction to Public History

Concentration Requirement (optional)
Students who choose to concentrate in museum studies or historic preservation must take either

- HIST 5231 - History in Museums
- -OR- HIST 5232 - Historic Preservation

Research Seminar (3 hours)
Research seminars focus on students' development of an original, primary research paper.

Major Electives (9-12 hours)
Electives are made up of courses in public history, which focus on methodology and practice and thesis or project credits. These courses include:

- HIST 5133 - Management of Material Culture and Museum Collections
- HIST 5228 - Western Art and Architecture
- HIST 5229 - Colorado Historic Places
- HIST 5240 - National Parks History
- HIST 5242 - Oral History
- HIST 5243 - Public History Administration
- HIST 5244 - Interpretation of History in Museums: Exhibits and Education
- HIST 5245 - Heritage Tourism
- HIST 6992 - Seminar: Colorado Studies

Total: 18 Hours

Minor Electives

Electives are made up of courses in the minor field, including readings courses, which address specific field historiographies, or research seminars.

Total: 12 Hours

Open Elective

Students may use the open elective to explore a course outside their major or minor or to do extra course work in one of their fields.

Total: 3 Hours

Total: 36 Hours

Independent Studies and/or Internships

Candidates may register for up to 6 hours of internships or independent study, only one of which may be at the 6000-level. Students will not be allowed to satisfy the research seminar requirement via independent study. *Any independent study or internship at the 6000-level needs the permission of the graduate advisor.* Students interested in pursuing an independent study or internship must find a faculty member willing to oversee their work, and they should expect the workload to equal or exceed that required for other courses at the same level.

- HIST 5840 - Independent Study: History
- HIST 6840 - Independent Study: HIST
- HIST 6939 - Internship

Comprehensive Examinations

All history MA candidates must pass a comprehensive examination in the major and minor fields after the completion of course work and before embarking on a thesis, curriculum project or public history project. The comprehensive exam evaluates students' knowledge of their course work and their reading lists for their major, minor and concentration. In answering their exam questions, students are expected to construct arguments and to show mastery of the historiographies, narratives and historical content in their fields. The comprehensive exam is administered and evaluated by a committee of the major advisor, the minor advisor and an outside reader from the history faculty.

Master's Degree Extended Research Options

The MA program in history offers a set of courses in which students can develop extended research interests. Students must select an advisor and develop a proposal for a specific research agenda in the semester before beginning work on a project.

REQUIRED PUBLIC HISTORY THESIS (HIST 6950) OR PROJECT (HIST 6952)
Students majoring in public history must complete either a thesis (6 semester hours) or a project (3 semester hours).

OPTIONAL ADVANCED HISTORY CURRICULUM DEVELOPMENT (HIST 6951)
Students who undertake their master's program when they are already teachers can choose to construct curriculum projects relevant to their teaching practice. See the separate section below on "Opportunities for Teachers and Teachers-in-Training."

- HIST 6950 - Master's Thesis
- HIST 6951 - Masters Project: Advanced History Curriculum Development
- HIST 6952 - Master's Project: Public History

Thesis Requirements

Students writing theses are expected to develop an original research agenda resulting in an extended paper. Students work with their major field advisor, who will help guide

them through the process of research and writing. Students enroll for six credit hours in HIST 6950 to complete their theses. Before registering for HIST 6950, students must have a thesis proposal and initial bibliography approved by their advisor.

A thesis is evaluated by a committee of three, including the major advisor and two other faculty members chosen by the student in consultation with the major advisor. Upon completion of the thesis, the student meets with the committee members, who ask questions about the research and conclusions which the student must defend. In many instances, the committee will require further revisions, sometimes major in scope, before the thesis is accepted and cleared for submission to the Graduate School in fulfillment of degree requirements.

Project Requirements

In lieu of a thesis, public history majors may choose to enroll in one semester of HIST 6952 to complete a public history project. Projects, which are usually conducted in collaboration with a public history organization, can entail creating an exhibit, organizing a museum or archival collection, conducting a preservation survey or similar activities. Students are required to prepare a paper describing the process and results of their project.

- HIST 6952 - Master's Project: Public History

Opportunities for Teachers and Teachers-in-Training

Curriculum Projects

Licensed teachers and teachers-in-training enrolled in the history graduate program may choose to complete a curriculum development project. Students arrange curriculum development projects with a sponsoring faculty member. Generally, students are expected to develop and submit a complete course curriculum plan for this 3-semester-hour project. Projects need to show evidence of familiarity with the relevant historiographies and primary sources. Students may apply the credits from HIST 6951 to either the major field or the minor field, depending on the project subjects. Curriculum plans must meet minimum criteria established by the history department in the document Advanced History Curriculum Development Projects.

- HIST 6951 - Masters Project: Advanced History Curriculum Development (3 semester hours in their major field or minor field)

Secondary Teacher Licensure

Students interested in secondary teacher licensure should consult with the School of Education and Human Development. See the Urban Teacher Education Program for information.

Recording Arts, Master of Science (MSRA)

► Graduate School Policies and Procedures apply to this program.

Please click here to see general Music & Entertainment Industry Studies information.

Program Overview

Recording arts is a field that deals with all aspects of recorded music and sound, including mixing, mastering, production, MIDI sequencing, live sound reinforcement, and post-production for film and video. The program refines students' skills in sound recording, aesthetics, multi-track recording, analog and digital signal processing, automated mixing, synchronization, stereo and surround imaging, mastering and post-production.

The Master of Science in Recording Arts (MSRA) has the only pedagogy track in the nation. Pedagogy is synonymous with teaching, and the MSRA includes a survey of available resources for audio education. The curriculum offers an interdisciplinary approach, which can include physics, acoustics, engineering, music recording, psychoacoustics, multimedia, theatre and film/video. The program emphasizes design and development of new methods and materials.

This graduate degree is designed to:

- prepare students for audio careers in mass communications, education, music, multimedia and the entertainment industries.
- enhance advancement of professionals in their careers.
- prepare the music educators of the future.

In their final semester, students will create and defend a thesis or a portfolio.

- *Thesis* -- Written research
- *Portfolio* -- Research in conjunction with a recorded work. This could be a music recording, audio for video, or other media.

Graduate courses comprising the core of the program advance students' artistic, pedagogical, technical and problem-solving abilities. Elective courses allow each student to develop additional skills and knowledge in related areas, including surround sound, acoustics, studio design, digital signal processing and others.

The Department of Music & Entertainment Industry Studies encourages students from allied disciplines (music, physics, engineering, etc.) to apply. Students are not required to have their bachelor's in recording arts; the bachelor's degree can be from any discipline. Applicants can qualify for the MSRA program by having 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.

Note: The application process and requirements for the MSRA program differ from those listed for the media forensics emphasis.

MSRA Application Components

Admission to the MSRA program is competitive. Applications are accepted for fall-only admission to the cohort. Admission decisions are made by committee and are based on the entirety of the applicant's submitted materials. Incomplete applications are not considered, and application requirements may vary between domestic and international students.

- Graduate Application for Admission
- In-State Tuition Classification Application (if applicable)
- Application Fee
- Entrance Examinations: GRE (and TOEFL/IELTS or other evidence of English proficiency, if applicable)
- Official Transcripts
- Three (3) Letters of Recommendation
- Application Essay
- Resume
- Portfolio

Applications that do not include all of the requirements or that include partial components are considered incomplete and will not be reviewed.

International applicants are encouraged to visit the Office of International Admissions website for detailed information.

Refer to the MSRA website for deadlines, detailed information and updates regarding the application process and requirements.

Required Courses

- MSRA 5000 - Introduction to Graduate Studies
- MSRA 5001 - MSRA Research Seminar
- MSRA 5580 - Graduate Audio Seminar I
- MSRA 5590 - Graduate Audio Production
- MSRA 6510 - Graduate Audio Studies Pedagogy

- MSRA 6950 - Thesis in Professional Audio
  or
- MSRA 6951 - Professional Audio Portfolio Thesis

Total: 19 Semester Hours

Electives

Choose **15 semester hours** from the list below. Students may take courses not listed here upon approval of the faculty or academic advisor.

- MSRA 5500 - Topics in Professional Audio
- MSRA 5505 - Audio Post Production I
- MSRA 5530 - Live Sound Reinforcement
- MSRA 5560 - Mastering & Advanced Digital Audio
- MSRA 5575 - Graduate Surround Sound
- MSRA 5605 - Audio Post Production II
- MSRA 5820 - Digital Music Techniques
- MSRA 5840 - Independent Study for MSRA

Program Total: 34 Semester Hours

Students should plan to graduate in a minimum of four semesters. 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 should not register for thesis/portfolio unless approved by the faculty advisor.

Please refer to the MSRA website for additional information.

Social Science MSS

► Graduate School Rules apply to this program

Requirements for Admission

General rules for admission into the Graduate School apply to admission into the MSS program in addition to the following:

- evidence of a bachelor's degree
- two official copies of transcripts from all community colleges, colleges, and universities attended
- overall GPA of at least 3.0 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 MSS degree
- a typed statement specifying the goal of advanced study in the social sciences expressed in clear, correct 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.

Non-degree 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 12 semester hours taken as a nondegree student may be accepted by the program once a student has been admitted into the program (the 12-hour limit also includes graduate work from another university).

For further information on non-degree graduate student status, see the Information for Graduate Students section of this catalog. In the case of CU Denver graduate students transferring to the MSS program, previous course work may be accepted as appropriate to the MSS plan of study.

International Students:

International students must also meet CU Denver requirements for international admission. See the Information for International Students section of this catalog or call 303-315-2230 for further information.

Degree Requirements

The MSS is a 36-semester-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. A grade below *B*- will not be counted toward the degree.

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 five focus areas from which students can select: Community Health Science, Ethnic Studies, International Studies, Social Justice, Society and Environment, and Women's and Gender Studies.

Three Required Core Seminars

The following two courses must be taken during the first year following entrance to the program:

- SSCI 5013 - Methods and Practices of Graduate Interdisciplinary Humanities (Offered spring only)
- SSCI 5020 - Foundations and Theories of Interdisciplinary Social Science
  This course title has changed to Foundations and Theories of Interdisciplinary Social Sciences (Offered fall only)
- SSCI 5023 - Research Perspectives in Social Science
  (Offered spring only)
  Students should take this course only after they have completed 21-24 credit hours, which will be toward the end of the program, when students are ready to write a proposal for their thesis or project.

Total: 9 Hours

Electives

In addition to the 9 credits of required coursework, students must complete a total of 21-24 semester hours comprising a coherent selection of courses from a variety of disciplines. All courses for the self-structured portion of the program must be selected with the approval of one of the MSS program directors.

A total of two independent study courses and two 4000-level undergraduate courses taken while enrolled in the program may count toward the degree. All independent study contracts must be approved by one of the program directors. The remaining coursework must be 5000/6000-level courses offered through various departments.

Students completing a project take 24 hours of electives, while thesis students complete 21 hours of electives.

Total: 21-24 Hours

Thesis or Project

In order to proceed with a thesis or project, all students must submit a proposal approved by three faculty members (and approved by one of the program directors). Students must also pass an oral comprehensive exam to graduate. Total hours required are: 3 hours of project and 6 hours of thesis.

- SSCI 6950 - Master's Thesis
- SSCI 6960 - Master's Project or Report

Total: 3-6 Hours

Oral Exam

An oral exam defending the project or thesis before a committee of three faculty members must be passed in order to graduate.

Degree Total: 36 Hours

Sociology MA

► Graduate School Policies and Procedures apply to this program

Program Requirements

The MA program in Sociology provides a coherent, progressive educational experience that prepares students for either immediate entry to a master's level career or continued study in a PhD program. Students choose from two options for their Comprehensive Paper that completes the master's degree: either a 6-credit thesis, or a 3-credit applied experience plus a 3-credit paper. The program also offers 3 concentration areas (Crime, Law & Deviance; Health & Society; Family, Social Services & Community) for students seeking specialization in high-demand career areas.

Required Courses

Tier 1 Knowledge

This includes 5 courses required for all graduate students. SOCY 5000 must be taken in the first fall semester. SOCY 5024 must be taken before SOCY 5183 and SOCY 5193. Students must earn a *B* or better in all core courses.

- SOCY 5000 - Professional Seminar: Sociological Inquiry (3 credits)
- SOCY 5016 - Social Theory (3 credits)
- SOCY 5024 - Seminar: Research Methods I (3 credits)
- SOCY 5183 - Seminar: Quantitative Data Analysis (3 credits)
- SOCY 5193 - Seminar: Qualitative Data Analysis (3 credits)

Tier 1 total: 15 Credits

Tier 2 Knowledge Applied to Substantive Areas

- 12 elective credits (students choosing a concentration must apply 9 of these credits to that area). Credit requirements are fulfilled only for those courses earning a minimum grade of B-.

Tier 2 total: 12 Credits

Tier 3 Comprehensive Paper

- SOCY 5955 - Master's Thesis (6 credits)
  OR

- SOCY 5939 - Internship (3 credits)
  OR
- SOCY 5840 - Independent Study: SOCY
  AND
- SOCY 5964 - Master's Report (3 credits)

Tier 3 total: 6 Credits

Plans of Study

Students must choose **one** of the following Comprehensive Paper options:

Thesis Option Requirements

Core course requirements	15 Credits
Four substantive area courses	12 Credits
Master's Thesis	6 Credits

- SOCY 5955 - Master's Thesis

Thesis Option Total: 33 Credits

Applied Experience + Paper Option Requirements

Core course requirements	15 Credits
Four substantive area courses	12 Credits
Applied Experience (internship or independent study)	3 Credits

Master's Paper 3 Credits

- SOCY 5939 - Internship
- SOCY 5840 - Independent Study: SOCY
- SOCY 5964 - Master's Report

Applied Experience + Paper Option Total: 33 Credits

Substantive Area Requirements (12 credits for both options)

Students can take an unlimited number of sociology graduate (5000-level) seminars to fulfill their 12 elective credits requirement, or a combination of the following:

- Independent study: maximum 6 semester hours
- Graduate level courses in other departments: maximum 6 semester hours
- Internship: maximum 3 semester hours

Students pursuing one of the concentration areas should work closely with the Graduate Program Director or their Culminating Paper Advisor to verify that 9 credits of selected courses qualify for the chosen concentration area.

For further information about the Department of Sociology or the MA program, visit the Sociology website.

Spanish MA

► Graduate School Policies and Procedures apply to this program

The faculty of the CU Denver Modern Languages Department offer a Spanish 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 a 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 3.0, 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
- a TOEFL score higher than 550 for students whose previous academic degree was completed in a non-English-speaking country

In special circumstances, the department may modify its admission standards.

Program 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):

- **3 hours** SPAN 5000 - Introduction to Graduate Studies in Spanish
- **24 hours** Literature/Culture and Linguistics coursework, including at least 6 semester hours in Literature/Culture and 6 in Linguistics. Students may include up to two courses (3-6 credits) from outside the Modern Languages Department, as approved by their advisor.
- **6 hours** SPAN 5950 - Master's Thesis preparation and writing

Thesis Option Total: 33 Hours

Nonthesis option (course work):

- **3 hours** SPAN 5000 - Introduction to Graduate Studies in Spanish
- **30 hours** Literature/Culture and Linguistics coursework, including at least 6 hours in Literature/Culture and 6 in Linguistics. Students may include up to two courses (3-6 credits) from outside the Modern Languages Department, as approved by their advisor.

Nonthesis Option Total: 33 Hours

Notes:

1. No more than one undergraduate course (3 semester hours) may be applied toward the MA degree, and that course must have been taken at the 4000 level or above and 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 (303-556-2886).

For further information concerning the master's degree in Spanish at CU Denver, direct inquiries to the graduate advisor.

Statistics MS

Program Requirements

Students must present 30 hours of course work (which are broken into 4 components as detailed below) and maintain a 3.0 GPA or above for the M.S. degree. At least 24 of these hours must consist of graduate level (numbered 5000 or higher) courses with the MATH prefix. The remaining 6 hours must be either MATH courses numbered 5000 or above or approved courses outside the department numbered 4000 or above.

Up to 9 semester hours of prior course work may be transferred in (subject to approval); these must be at the 5000 level or above with a B- or better grade. Courses already applied toward another degree (graduate or undergraduate) cannot be used toward the M.S. degree in Statistics. Additionally, the following MATH courses will NOT count toward a graduate degree: MATH 5010, 5012-5015, 5017, 5198, and 5830.

Following completion of course work, all students must complete a written project and pass a final oral exam. The project is developed as a student-centered independent research component within MATH 5960 unless the student has chosen the thesis option. For students choosing the thesis option, 4 to 6 hours (of the 30 required hours) may be devoted to the writing of a thesis through MATH 5950. By graduate school rules, Master's students, whether enrolled full-time or part-time, must complete all degree requirements within 7 years of matriculation.

Course Requirements for the M.S. Degree in Statistics

The M.S. degree in Statistics consists of 4 components: 1) core courses, 2) statistics electives, 3) other electives, and 4) MATH5960 (Master's project) or MATH5950 (Master's thesis).

Core Courses: The core courses include:

- MATH 5310 - Probability
- MATH 5320 - Introduction to Mathematical Statistics
- MATH 5387 - Applied Regression Analysis
- MATH 6330 - Workshop in Statistical Consulting
- MATH 6388 - Advanced Statistical Methods for Research

Statistics Electives: Nine hours of statistics electives are required. A running list is given below. Additional courses can be substituted given prior approval by the student's advisor and the Director of the Program in Statistics.

- MATH 5394 - Experimental Designs
- MATH 6376 - Statistical Computing
- MATH 6380 - Stochastic Processes
- MATH 6384 - Spatial and Functional Data Analysis
- MATH 7384 - Mathematical Probability
- MATH 7826 - Topics in Probability and Statistics

Additional courses may be taken but students must seek prior approval from their advisor and the Director of the Program in Statistics.

Other Electives: Six hours of other electives are required. Any MATH prefix course that can be used for an M.S. or Ph.D. degree in Applied Mathematics can be used as an Other Elective. While these courses could be additional statistics-focused courses, the added flexibility allows students to direct their coursework into other areas of mathematics and/or science. The following courses will not count toward the M.S. in Statistics: MATH 5010, MATH 5012-5015, MATH 5017, MATH 5198, and MATH 5830.

Taxation MS

Program Director: Eric Zinn
Telephone: 303-315-8482
E-mail: Eric.Zinn@ucdenver.edu

The MS in Taxation degree from CU Denver gives you the skills and knowledge you need to be successful in a career in this dynamic and changing industry. Tax

professionals are constantly in demand, and the long-term prospects make this a particularly intriguing field.

There is an increasing demand for tax professionals-over 20% job growth in the next decade. The average starting salary in this field is $60,000. To meet this industry demand the CU Denver Business School has created an MS in Taxation degree to give students the skills and knowledge needed to succeed in this dynamic career field.

The world of tax is constantly changing. Globalization and increased competition, both domestically and internationally, have created a situation where tax law is helping to shape social, political, economic, and business policies and agendas.

Prerequisite(3 semester hours or waiver with advisor approval):

- ACCT 6140 - Fundamentals of Federal Income Tax
  OR
- ACCT 4410 - Fundamentals of Federal Income Tax
  Most courses require ACCT 4410 or ACCT 6140, or an equivalent course taken at another accredited domestic institution, as a prerequisite.

Core Requirements (12 semester hours)

- MTAX 6400 - Taxation of C Corporations and Shareholders
- MTAX 6440 - Tax Practice and Procedures
- MTAX 6450 - Research Problems and Business Communications in Taxation
- MTAX 6480 - Partnership Taxation

Electives (18 semester hours)

Choose six of the following courses:

- MTAX 6405 - Taxation of Property Transactions
- MTAX 6410 - Individual Income Tax
- MTAX 6415 - Employment Taxes and Related Topics
- MTAX 6420 - Estate and Gift Taxes
- MTAX 6425 - Taxation of S Corporations and Their Shareholders
- MTAX 6430 - International Taxation
- MTAX 6435 - Income Tax Accounting and Methods
- MTAX 6445 - Entrepreneurs' Tax and Finance
- MTAX 6455 - Tax Aspects Relating to Exempt Organizations
- MTAX 6460 - Advance Topics in Taxation
- MTAX 6465 - State and Local Taxation
- MTAX 6470 - Professional Judgment and Ethical Decision Making in Accounting and Tax
- MTAX 6475 - Accounting for Income Taxes
- MTAX 6485 - Advanced Partnership Taxation

- MTAX 6490 - Income Tax of Trusts, Estates, and Beneficiaries
- MTAX 6495 - Travel Study: Washington, D.C. Tax Experience
- MTAX 6500 - Advanced Corporate Taxation
- MTAX 6800 - Special Topics in Taxation
- MTAX 6840 - Tax Independent Study
- MTAX 6939 - Tax Internship/Cooperative Education

  Potential future course offerings:
- Inbound International Taxation
- Outbound International Taxation
- Auditing for Taxes and Tax Fraud

Urban and Regional Planning MURP

The Master of Urban and Regional Planning Program at the University of Colorado Denver offers a hands-on learning experience that uses Colorado as a classroom, involves students with addressing real world issues, and engages students with community stakeholders.

The program is built on the belief that successful city building requires expertise, breadth, interdisciplinary understanding, and creativity. Our program looks beyond traditional professional silos and instead centers on issues at the forefront of planning practice. Our three Initiatives - Healthy Communities, Urban Revitalization, and Regional Sustainability - form the basis of our research, instruction, and community outreach.

Students in the MURP program are encouraged to follow their passion and develop expertise in the areas that matter most to them. Thus, we offer a unique, self-directed curriculum that allows students to understand the breadth of the planning field while gaining the technical expertise demanded by the profession. Our list of program faculty includes some of the most respected researchers and educators in the planning field, as well as top local planning practitioners, all of whom bring a wealth of experience to the classroom. All of our faculty make teaching a top priority.

Our presence in a College of Architecture and Planning ensures that our approach to planning education has a strong connection to design, and our location in the heart of downtown Denver offers students endless opportunities for experiential learning and interaction with the community.

Curriculum

Program Requirements

Completing the MURP degree requires 54 semester hours, comprised of 36 semester hours of required "core" courses and 18 semester hours of elective courses. (Six of the 36 required semester hours represent a self-directed Capstone project or thesis.) Most full-time students complete the program in two years, while other students complete the program at a slower or part-time pace.

New students begin the program of study in the fall semester. Full-time students typically take approximately 12 semester hours per semester; taking more than 15 is generally ill-advised. Students are strongly encouraged to primarily take core courses during their first year of study. With the exception of the studio and capstone courses, most core courses are offered only one semester per year so it is important to pay attention to the scheduling to ensure your desired graduation date.

Core Courses

The MURP Program curriculum includes 10 required "core" courses totaling 36 semester hours. These courses provide students with a comprehensive survey of the planning field and the foundational knowledge, skills, and values important to the profession. The core courses have been carefully designed to fully comply with the Planning Accreditation Board's required educational outcomes. The list below shows the core courses and the program year in which the course is intended to be taken.

YEAR 1 - FALL

- URPL 5000 - Planning History and Theory
- URPL 5010 - Planning Methods
- URPL 5020 - Planning Law and Institutions
- URPL 5030 - The Planning Profession

12 semester hours

YEAR 1-SPRING

- URPL 5040 - Urban Sustainability
- URPL 5050 - Urban Development
- URPL 5060 - Planning Workshop

12 semester hours

YEAR 2

- URPL 6000 - Planning Project Studio

Student's choice of ONE of the following 6-credit courses:

- URPL 6900 - Planning Capstone

- OR-

- URPL 6920 - Planning Thesis A

and

- URPL 6925 - Planning Thesis B

12 semester hours

Elective Courses

Beyond the core curriculum, MURP students follow a self-directed educational path. Students may choose any combination from our broad offering of elective courses, whether aligned with one of our three Initiatives, a traditional or unique specialization, or a generalist survey of the planning field. We offer MURP students a broad selection of elective courses within the program. In addition, numerous other elective courses applicable for MURP credit are available through our allied programs within the college (Architecture, Urban Design, Historic Preservation, and Landscape Architecture) and through cross-listed courses offered by other CU Denver programs, such as Public Affairs, Geography, and Business.

Internships

Internships are an important way the MURP program helps students achieve hands-on, experiential learning. The difference between an internship and a part-time job is that an internship is specifically intended to be a learning experience. While getting academic credit for an internship is not required, it is highly recommended. Students earn three elective credits for enrolling in URPL 6805 but, more importantly, the coursework will enable students to maximize the personal and professional development their internship affords.

Planning Workshop/Project Studio

Planning Workshop (URPL 5060) and Planning Project Studio (URPL 6000) are the two studio core courses. These courses are a key part of the hands-on, real-world focus of the MURP program.

Planning Workshop is the introductory studio for MURP students. It provides students an opportunity to address actual planning problems, issues, and processes; apply previously acquired knowledge and skills; and develop new knowledge and practical skills in an applied context.

Students will develop basic competence in accessing existing information, generating new information, and performing planning analysis and synthesis. Students will also learn to enhance their graphic, written, and oral communication capabilities. Through the Planning Workshop experience, students will develop an understanding of the relationship between planning theory and practice, as well as gain the ability to formulate compelling planning arguments in applied settings.

Students will also receive introductory instruction in Trimble SketchUp, which complements the introductory instruction in Geographic Information Systems (ArcView GIS) and Adobe Creative Suite (Photoshop, Illustrator, InDesign) students receive in The

Planning Profession course. The integration and use of all of these common planning technology applications is a critical component of the Planning Workshop experience.

Planning Project Studio is the MURP program's advanced studio course. This studio requires students to work together as a "planning consultant team" to complete a single planning project or study from beginning to end for a real-world client. It is expected that students enrolled in Planning Project Studio will have already gained the fundamental planning knowledge, skills, and values from their experience in Planning Workshop and other MURP courses. Consequently, the emphasis in Planning Project Studio is on putting everything together into a complete real-world planning project.

The studio will emulate the typical planning consultant/client experience, including: refining the project scope and schedule with the client; establishing guiding principles and expected outcomes; conducting case studies and existing plans background research; gathering and analyzing existing conditions data; formulating alternative plan concepts; assessing alternative concepts through specific criteria; identifying and refining the preferred alternative; and preparing and presenting the final plan deliverables to the client. Emphasis is also placed on professionalism, project management, team-building and collaboration, client management, public involvement, and other aspects of the real-world planning consultant realm.

Each Planning Project Studio course section will focus on a project generally associated with one of the MURP program's three initiatives (Healthy Communities, Urban Revitalization, and Regional Sustainability). Typically three to five sections of Planning Project Studio are offered each academic year, thereby ensuring that students will have a chance to enroll in a Planning Project Studio section that is aligned with an initiative of interest to them. However, as each studio section is limited in size, there is no guarantee students will be able to enroll in their preferred section. A balloting process will be used when necessary.

Planning Capstone/Planning Thesis

The culminating component of the MURP curriculum is the Planning Capstone/Planning Thesis requirement, which challenges students to utilize to the fullest extent the planning knowledge, skills, and values gained during their MURP program experience. Students must choose which option to select-Planning Capstone or Planning Thesis-based on their career goals, personal interests and aptitudes, and the advice of their faculty advisor.

Planning Capstone is a six-credit, project-oriented, one-semester course that results in a substantial deliverable upon completion. The Capstone option is best suited for students who wish to pursue a career as a professional planner after graduation. Within the Planning Capstone option are two alternatives: Independent Project and Small-Group Project.

If a student chooses the Planning Capstone > Independent Project path, he or she will work individually to complete a significant planning project or study for a real-world client. If a student chooses the Planning Capstone > Small-Group Project path, he or she must team up with one or two other students-forming a project team of no more than three people-to complete a significant planning project or study for a real-world client. However, each student must be individually responsible for a clearly defined component of the project as each student will be graded independently for his or her work.

During the semester before enrolling in Planning Capstone, students will be required to: (a.) determine if they will be working independently or as part of a small group, (b.) identify their Capstone client and project topic, and (c.) begin preparing a detailed project prospectus (work plan, schedule, methodology, and deliverables). Also during the semester before Capstone, students must attend a mandatory Capstone Orientation to receive instruction and guidance on project planning and management. Students must have a completed and approved project prospectus by the second week of their Capstone semester. Students may identify their own Planning Capstone client and project topic or they may select from a list of Capstone clients/projects that have been pre-arranged and approved by the MURP faculty.

During the Planning Capstone semester, students complete their project work while maintaining regular contact with their Capstone faculty advisor and client to ensure sufficient progress and work quality, as well as periodically meeting with other Capstone students to discuss common issues and challenges, share experiences, and receive continued instruction and guidance from the Capstone faculty on project management and methodologies. The Planning Capstone semester concludes with the submission of all deliverables and a formal presentation to the client and Capstone faculty.

For more information about the Planning Capstone option, please visit the Capstone webpage on the college website.

Planning Thesis comprises a pair of three-credit courses (A and B) taken over two semesters that together constitute a six-credit effort. The thesis option is most appropriate for outstanding MURP students who are considering pursuing a Ph.D. or a research-oriented career after graduation. More information about the thesis option can be found in the MURP Student Handbook.

Certificate Programs

The College offers an official certificate program in geospatial information science (GIS). The Certificate builds upon the extraordinary depth of the GIS community in Colorado and the interdisciplinary teaching and research occurring at the Facility for Advanced Spatial Technology (FASTLab) at CU Denver.

Dual Degree Options

As part of encouraging among planners an appreciation for and knowledge of the perspectives and practices of the other disciplines that participate in planning and city-building, we offer several dual degree opportunities, both within the College of Architecture and Planning and with other units across the University of Colorado system. In every instance the total credit requirement of the Dual Degree is considerably less than would be needed if each degree were independently pursued.

Applicants to any dual degree option must apply to and gain separate admission to each degree program. Once admitted, the student cannot graduate from either program until the work is completed for both degrees.

The degrees that may be combined with the Master of Urban and Regional Planning include:

- Master of Architecture (MURP+MARCH)
- Master of Landscape Architecture (MURP+MLA)
- Master of Public Health (MURP+MPH)
- Master of Public Affairs (MURP+MPA)
- Master of Business Administration (MURP+MBA)
- Master of Science degree in Historic Preservation (MURP+MSHP)
- Juris Doctorate (Law Degree) (MURP+JD-in collaboration with the CU Boulder Law School)

Urban Design MUD

► Graduate School Rules apply to this program

Program Director: Ann Komara
Program Advisor: Patricia McKissock
Telephone: 303-315-1000
Email: ann.komara@ucdenver.edu

Program Description

The Master of Urban Design (MUD) is an intensive, calendar year, post-professional degree program for students already holding a first professional degree in architecture, landscape architecture or urban and regional planning (e.g., BArch, BLA, MArch, MLA or MCRP/MURP or equivalents). Students enrolled in masters programs in the College of Architecture and Planning can apply and enter the MUD program concurrently to complement and complete their primary studies with the additional degree. The interdisciplinary urban design program uses Denver as an urban laboratory but the globe as a reference, educating future designers about the unique place the city holds in addressing the critical problems of our time.

The program began in 1969 and is one of the oldest in the United States. It counts several hundred alumni practicing around the world. Our student body is extremely diverse, with recent students from Bangladesh, China, Colombia, India, Iran, Japan, Libya and Saudi Arabia. These students join our domestic students to examine contemporary urbanism and design practice through an interdisciplinary, studio-based curriculum taught by a multi-disciplinary faculty. Coursework is capped off by the required Advanced Travel Studio held each summer, when students experience other urban locations and study urban issues in dynamic, context-based locations. Locations range from international cities such as Shanghai, Copenhagen and Barcelona, to North American cities such as Washington, D.C.

The program is organized around three central themes reinforced by core studios and seminars.

Sustainable Cities

We take a holistic approach to designing the livable city. Since more than half the world's population lives in cities, with that number set to increase to two-thirds by 2030, we must anticipate the ecological impacts of our design decisions. In preparation for a post-carbon era, we address concerns related to climate change, energy usage, public health, food production and resource availability through an integrated approach to the design of urban settlements. Our students re-imagine and re-interpret urban systems - from transportation networks to hydrological systems to zoning codes to social movements - with the goal of creating cities that are at once socially just, economically diverse and ecologically resilient. These challenges are unprecedented and must be urgently addressed: we believe that urban designers are ideally positioned to meet them head on.

Local to Global

Urban designers must recognize the interrelated local and global impacts of their actions and understand the interdisciplinary nature of urban problems. We address design issues at all scales, from the individual public space to the neighborhood and city to the regional and global. Our approach acknowledges that all sites are embedded within larger systems, an ecologically grounded concept we engage in all our studios. In the fall and spring studios, students examine the Denver metropolitan area, a progressive, yet prototypical, urban laboratory experiencing significant growth and development and home to every urban condition imaginable, from dense downtown infill to sprawling edge cities to the New Urbanism-inspired Stapleton airport brownfield redevelopment. The Front Range is a national leader in design and planning innovation, as represented by the multi-billion dollar FasTracks transit project, Denver's groundbreaking citywide form-based code, Boulder's open space acquisition policies and energy municipalization effort, Arvada's GEOS net-zero energy neighborhood, and Fort Collins' closed-loop brewery-oriented development. Students apply the skills and knowledge gained in their

local study in the summer term in an advanced travel studio. Recent projects have studied the dense urban core of Copenhagen, Denmark, in partnership with faculty affiliated with the Danish Institute for Study Abroad (2014-16), and the role and design of streets as public spaces in Barcelona (2018).

Innovations in Practice

We train our students to become critical, reflective professionals with a deep understanding of urban design theory and practice to lead contemporary urban thinking. All our graduates are prepared to address the most complex social-ecological problems of our time well with exceptional technical, verbal and graphic communication skills. Our curriculum is informed by innovations in current practice: we undertake real projects with real clients. Each year, we bring in renowned practitioners from leading design firms to teach courses, give lectures, and serve as jurors in urban design studios. We see high demand for graduates who possess multiple talents, a broad understanding of urban planning, architecture, landscape, real estate development, and urban politics and economics, and the ability to work not only with design professionals but also engineers, policy makers, environmental scientists and the public. Students are required to select two electives from a multidisciplinary array offered in the College of Architecture and Planning. Importantly, our CAP Internship Program aims to place qualified students into internships in some of the region's top design firms. Participating firms have included: AECOM, Civitas, Inc., Design Workshop, DTJ Design, Norris Design, RNL/Stantec and Tryba Architects. Based on a competitive application process, college units including the Colorado Center for Community Development (CCCD) frequently hire MUD students as research assistants (RAs), and the departments of Architecture, Landscape Architecture and Urban and Regional Planning may hire qualified teaching assistants (TAs) from our incoming MUD students.

Prerequisites

Students are required to hold a first professional degree in architecture, landscape architecture or urban and regional planning (e.g., BArch or BLA from an accredited program, MArch, MLA, MURP/MUP or equivalents).

Admissions

The Master of Urban Design program accepts applications for fall semester entry. The program does not encourage entry to the program in any spring semester due to the specific sequencing of the classes, however, current CAP students may begin classes in spring term based on advising.

CAP students can enter the MUD with advanced standing through a concurrent degree program mapped with their primary degree program in the College of Architecture and

Planning. For more information on the MArch+MUD, MLA+MUD or MURP+MUD, visit the college website.

The priority deadline for all applicants is February 15; final deadline is March 15. The requirements the admissions committee considers are:

- Evidence of a professional degree (BArch or BLA from an accredited program, MArch, MLA, MURP/MUP or equivalent)
- At least a 3.2 undergraduate or graduate cumulative GPA
- Your statement of purpose, which should include your educational and professional goals
- Résumé (which describes your educational and professional background)
- A portfolio that includes examples of student and/or professional projects
- A list of courses that you have taken that relate to design and planning (current transcript for CAP students)
- A writing sample from previous professional or academic work
- Graduate Record Exam (GRE) scores if available (not required for admission)
- English language proficiency (TOEFL) scores are required for international applicants when English is not their first language. Please see International Admissions website for current minimum score requirements.

Program Requirements

The requirements for the post-professional Master of Urban Design (MUD) degree depend on your current standing and educational background. The basic study plan is a 36-semester-hour plan that includes two open elective courses. Students obtaining a first professional degree in the University of Colorado Denver College of Architecture and Planning may enroll in the MUD concurrently, with the degree to be completed at the end of their primary degree program. CAP students may receive up to 12 semester hours of advanced standing.

Courses

The basic study plan is 36 semester hours including these core courses, plus two elective courses (could include an independent study or internship).

Core Courses

- URBN 6610 - Design Studio I (6 semester hours)
- URBN 6611 - Design Studio II (6 semester hours)
- URBN 6612 - Advanced Travel Design Studio (6 semester hours)
- URBN 6641 - Design Process (3 semester hours)
- URBN 6642 - Design Policy (3 semester hours)

- URBN 6651 - Design Practice (3 semester hours)
- URBN 6652 - Design Seminar (3 semester hours)
  (topics vary - a prerequisite for URBN 6612)

30 semester hours

Electives

Two elective courses (could include an independent study or internship)

6 semester hours

Total Required: 36 hours

Dual Degree Programs

4+1 International Studies to Masters in Humanities or Social Sciences

Introduction

The International Studies BA/MHMSS (Master of Humanities/Master of Social Science Program) in the College of Liberal Arts and Sciences provides an expedited interdisciplinary program of study that allows participating students to complete an interdisciplinary Bachelor degree in International Studies and an interdisciplinary Master degree in Humanities or Social Science through the MHMSS program in five years. INTS students interested in participating apply for either the MH or MSS degree no earlier than their first semester of junior-year standing as an undergraduate. Students may further choose to concentrate in one of the MH or MSS tracks. (For track information, see descriptions of the MH and MSS degree programs in this catalog.) Upon acceptance, students take five graduate-level courses beginning the second semester of their junior year and continuing during the whole of their senior year. These classes "double count," satisfying requirements for both the BA major and the Master degree in Humanities of Social Science. Students then continue graduate studies in the chosen degree plan, either MH or MSS, to complete their master degree by the conclusion of their fifth year in CLAS at CU Denver.

Program Delivery

- This is an on-campus program.

Declaring This Major

Admissions Requirements and Process

- Interested students should contact their INTS advisor and the MH or MSS advisor as early as possible to ensure proper planning for the five year degree.
- To qualify, students must have a 3.0 or higher GPA in CLAS. All courses taken at the 4000- and 5000-level must be completed with at least a B or higher.
- Students may apply to the program during the semester in which they will successfully complete 90 semester hours, and should have most of their general education and major requirements completed by this time. Students must complete all the required MPA application materials for the School of Public Affairs.

General Requirements

To earn a degree, students must satisfy all requirements in each of the three areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Curriculum
- College of Liberal Arts & Sciences Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

Program Requirements

Students in the 5-year INTS BA/MHMSS Program must satisfy all existing requirements for both an undergraduate degree in CLAS with a major in International Studies and a Master of Humanities or Social Science degree. These requirements can be fulfilled through multiple possible paths through the department's curriculum:

Students must maintain a 3.0 GPA in CLAS course work.

Program Options

BA/MHMSS students may choose to do a general MH or MSS degree or select a track concentration within the degree plan, including Social Justice, Philosophy and Theory, Visual Studies, Women's and Gender Studies, Ethnic Studies, International Studies, Community Health, and Society and Environment.

Degree Confirmation

Students are eligible to receive a bachelor's degree once they have successfully completed 120 semester hours and all CLAS requirements. The BA/MHMSS will be conferred once the student has completed all requirements of the Master of Humanities or Master of Social Science degree, including at least 36 hours of graduate level course work.

4+1 Political Science BA to MA

Introduction

Please click here to see Political Science department information.

The proposed 4+1 program in political science is an expedited program of study that would allow participating students to complete a Bachelor's degree and a Master's degree in political science in five years. Students interested in participating would apply into the Master's program during their first semester of junior year standing as an undergraduate. Upon acceptance, students would take several graduate-level courses during the second semester of their junior year and during their senior year. These classes would "double count," satisfying requirements for both the BA major and the Master's degree in political science. This program is intended for outstanding undergraduate political science majors who have graduate-level skills and can do graduate-quality work as undergraduates, and is thus not appropriate for all majors; students would therefore have to apply and be accepted into the program.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major.
- Application process: Interested students would submit a short application to the Department early on during the first semester of their junior year. The application will include:
    - A letter of interest that describes the student's reasons for applying into the program.
    - Undergraduate transcripts.
    - Letters of support from at least two faculty members that attest to applicant's advanced levels of reading, writing and analytical skills, and to their outstanding intellectual curiosity and work ethic.

- Following review and admission by the faculty later in the first semester of junior year, students would begin their 4+1 curriculum during the second semester of their junior year.

General Requirements

To earn a degree, students must satisfy all requirements in each of the three areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Curriculum
- College of Liberal Arts & Sciences Graduation Requirements
- Click here for information about Academic Policies

4+1 Public Health BA/BS to Masters in Public Health

Introduction

Please click here to see Health and Behavioral Sciences department information.
Please click here to see the overview of the Public Health undergraduate program.
Please click here to see the overview of the Masters in Public Health graduate program.

These degree requirements are subject to periodic revision by the academic department, and the College reserves the right to make exceptions and substitutions as judged necessary in individual cases. Therefore, the College strongly urges students to consult regularly with their major advisor and CLAS advisor to confirm the best plans of study before finalizing them.

PBHL Director: jimi adams, Associate Professor
Office: North Classroom 3018
Telephone: 303-315-7177
Fax: 303-556-8501
Email: jimi.adams@ucdenver.edu

CSPH Contact: Lori Crane, Associate Professor
Office: Bldg 500, Dean's Suite, Room D
Telephone: 303-724-4385
Email: Lori.Crane@ucdenver.edu

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major.
- To be eligible, students must be declared PBHL majors (BA or BS).
- Ideal candidates will have a GPA of 3.5 or higher, and will have completed a minimum of 12 credit hours toward their undergraduate PBHL degree including Introduction to Public Health (PBHL 2001), General Biology I with lab (BIOL 2051/2071) and General Biology II with lab (BIOL 2061/2081), each completed with grades of B+ or higher.
- Complete an application via SOPHAS (NOTE: GREs are not required). Students should apply by the January preferred deadline in their Sophomore or Junior year.
- Upon application, declare a provisional MPH concentration (NOTE: some concentrations may establish additional eligibility criteria).

General Requirements

To earn a degree, students must satisfy all requirements in each of the three areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Curriculum
- College of Liberal Arts & Sciences Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

1. Undergraduate degree requirements follow either the BA (found here) or BS (found here).
2. Students in this program will be conferred both degrees (BA or BS, and MPH) simultaneously upon completion of all requirements.
3. Each class must be completed with a grade of C- or higher to count towards the major, and students must maintain a minimum 3.5 GPA in the undergraduate major and MPH courses.
4. The following are exceptions and/or substitutions that are applicable to the BA/BS requirements for students in the BA/BS - MPH program:

   Take the following Core course:

- PBHL 2001 - Introduction To Public Health

Take **two** graduate-level classes from the following list, which will count toward both degrees:

- PBHL 2020 - Introduction to Environmental Health can be replaced by EHOH 6614
- PBHL 3001 - Introduction to Epidemiology can be replaced by EPID 6630
- PBHL 3030 - Health Policy can be replaced by HSMP 6603
- PBHL 4040 - Social Determinants of Health can be replaced by CBHS 6610

Take the following Quantitative Methods course:

- MATH 5830 - Applied Statistics (in lieu of BIOS 6601 requirement for MPH program)

Additional Notes

1. To facilitate timely completion of the program, students are expected to take 6 credits in each of 2 summers.
2. If students apply late to this program, (including having already completed additional PBHL core requirements), they may not be able to benefit from all of the substitution-based time savings, and therefore may not be able to complete the program in 5 years.

4+1 Sociology BA to MA

Introduction

The Combined BA/MA (4+1) program in Sociology provides a coherent, progressive educational experience that prepares students for either immediate entry to a master's level career or continued study in a PhD program. The BA/MA application process is competitive, as the program is designed for highly-qualified students who are capable of an expedited program. Students choose from two options for their Comprehensive Paper that completes the master's degree: either a 6-credit thesis, or a 3-credit applied experience plus a 3-credit paper. The program also offers 3 concentration areas (Crime, Law & Deviance; Health & Society; Family, Social Services & Community) for students seeking specialization in high-demand career areas.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Consult your advisor about declaring this major

General Requirements

To earn a degree, students must satisfy all requirements in each of the three areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Curriculum
- College of Liberal Arts & Sciences Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

Tier 1 Knowledge
Take **all** of the following required undergraduate courses:

- SOCY 1001 - Introduction to Sociology
- SOCY 2001 - Inequalities in Social World
- SOCY 3115 - Quantitative Methods & Analysis
- SOCY 3119 - Qualitative Methods
- SOCY 3140 - Sociological Theory

Take **all** of the following required graduate courses:
SOCY 5000 must be the first graduate course taken (may be taken concurrently with other graduate courses); SOCY 5024 must be taken before SOCY 5183 and SOCY 5193. Students must earn a *B* or better in all graduate core courses.

- SOCY 5000 - Professional Seminar: Sociological Inquiry
- SOCY 5016 - Social Theory
- SOCY 5024 - Seminar: Research Methods I
- SOCY 5183 - Seminar: Quantitative Data Analysis
- SOCY 5193 - Seminar: Qualitative Data Analysis

Tier 2 Knowledge Applied to Substantive Areas
Five elective courses, one of which may be taken at the undergraduate level. Graduate credit requirements are fulfilled only for those courses earning a minimum grade of B-.

Tier 3 Comprehensive Paper
Take one of the following Comprehensive Paper options:

- SOCY 5955 - Master's Thesis **or**
- SOCY 5939 - Internship **or**
- SOCY 5840 - Independent Study: SOCY
  and
- SOCY 5964 - Master's Report

Plans of Study

THESIS OPTION REQUIREMENTS

Core course requirements	15 Credits
Four substantive area courses	12 Credits
Master's Thesis	6 Credits

- SOCY 5955 - Master's Thesis

BA/MA Thesis Option Total: 53 Credits

APPLIED EXPERIENCE + PAPER OPTION REQUIREMENTS

Core course requirements	15 Credits
Four substantive area courses	12 Credits
Applied Experience (internship or independent study)	3 Credits
Master's Paper	3 Credits

- SOCY 5939 - Internship
- SOCY 5840 - Independent Study: SOCY
- SOCY 5964 - Master's Report

BA/MA Applied Experience + Paper Option Total: 53 Credits

Substantive Area Requirements (12 credits for both options)

Students can take an unlimited number of sociology graduate (5000-level) seminars to fulfill their 15 elective credits requirement, or a combination of the following:

- Independent study: maximum 6 semester hours
- Graduate level courses in other departments: maximum 6 semester hours
- Internship: maximum 3 semester hours

Students pursuing one of the concentration areas should work closely with the Graduate Program Director or their Culminating Paper Advisor to verify that 9 credits of selected courses qualify for the chosen concentration area.

For further information about the Department of Sociology or the MA program, visit the Sociology website.

5 Year Mathematics BS/Statistics MS

Introduction

This is a unique program where a student can obtain both a B.S. in Mathematics and M.S. in Statistics in five years through a specialized course sequence. The program requires 12 fewer credits than if both degrees were earned separately.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Work with your advisor to declare this major.

General Requirements

To earn a bachelor's degree, students must satisfy all requirements in each of the three areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Curriculum
- College of Liberal Arts & Sciences Graduation Requirements
- Click here for information about Academic Policies

Program Requirements for Mathematics BS

1. Students must complete a total of at least 30 upper-division MATH semester hours (typically 10 courses).
2. Students must complete at least 16 upper-division semester hours in MATH in residence at CU Denver.
3. A grade C- or better is needed in each class counted toward the MATH major.
4. A minimum GPA of 2.25 is required for all MATH courses applying to MATH requirements.
   Take **all** of the following Mathematics courses:

- MATH 1401 - Calculus I
- MATH 2411 - Calculus II
- MATH 2421 - Calculus III
- MATH 3000 - Introduction to Abstract Mathematics
- MATH 3191 - Applied Linear Algebra
- MATH 3382 - Statistical Theory
- MATH 4310 - Introduction to Real Analysis I
- MATH 5310 - Probability
- MATH 5320 - Introduction to Mathematical Statistics
- MATH 5387 - Applied Regression Analysis
- MATH 6330 - Workshop in Statistical Consulting

Take **both** of the following Computer Scince courses:

- CSCI 1410 - Fundamentals of Computing
- CSCI 1411 - Fundamentals of Computing Laboratory

Take **two** additional MATH classes (and at least 6 credits) above 3000 excluding 3040, 3195, 3511, 3800, 4012, 4013, 4014, 4015 and 4830.

Program Requirements for Statistics MS

1. Students must apply for admission into the 5-year B.S./M.S. program to the Director of the Program in Statistics after completing MATH 1401, 2411, 2421, 3000, 3191, and 3382.
2. Students must present 30 hours of course work (which are broken into 4 components as detailed below) and maintain a 3.0 GPA or above for the M.S. degree.
3. At least 24 of these hours must consist of graduate level (numbered 5000 or higher) courses with the MATH prefix.
4. The remaining 6 hours must be either MATH courses numbered 5000 or above or pre-approved courses outside the department numbered 4000 or above.
5. Students must complete a written project and pass a final oral exam.

Note that the MATH 5310, MATH 5320, MATH 5387, and MATH 6330 courses used for the B.S. portion of the degree apply to the 30 hours of course work and satisfy the core requirement discussed below.

Up to 9 semester hours of prior course work may be transferred in (subject to approval); these must be at the 5000 level or above with a B- or better grade. Courses already applied toward a prior degree (graduate or undergraduate) cannot be used toward the M.S. degree in Statistics. Additionally, the following MATH courses will NOT count toward a graduate degree: MATH 5010, 5012-5015, 5017, 5198, and 5830.

Following completion of course work, all students must complete a written project and pass a final oral exam. The project is developed as a student-centered independent research component within MATH 5960 unless the student has chosen the thesis option. For students choosing the thesis option, 4 to 6 hours (of the 30 required hours) may be devoted to the writing of a thesis through MATH 5950. According to Graduate School policies, Masters students, whether enrolled full-time or part-time, must complete all degree requirements within 7 years of matriculating into the graduate program.

The M.S. degree in Statistics consists of 4 components: 1) core courses, 2) statistics electives, 3) other electives, and 4) MATH5960 (Master's project) or MATH5950 (Master's thesis).

The **4** *core courses* include:

- MATH 5310 - Probability
- MATH 5320 - Introduction to Mathematical Statistics
- MATH 5387 - Applied Regression Analysis
- MATH 6330 - Workshop in Statistical Consulting

and are satisfied during the completion of the B.S. portion of the degree.

Students must take **at least three** additional *statistics electives* courses from the list below:

- MATH 5394 - Experimental Designs
- MATH 6376 - Statistical Computing
- MATH 6380 - Stochastic Processes
- MATH 6384 - Spatial and Functional Data Analysis
- MATH 6388 - Advanced Statistical Methods for Research
- MATH 7393 - Bayesian Statistics
- MATH 7384 - Mathematical Probability
- MATH 7826 - Topics in Probability and Statistics

  Additional courses given prior approval by the student's advisor and the Director of the Program in Statistics

  Students must take **two** *Other Electives*: Any MATH prefix course that can be used for an M.S. or Ph.D. degree in Applied Mathematics can be used as another Elective. While these courses could be additional statistics-focused courses, the added flexibility allows students to direct their coursework into other areas of mathematics and/or science. The following courses will not count toward the M.S. in Statistics: MATH 5000-5010, MATH 5012-5015, MATH 5017, MATH 5198, MATH 5250 and MATH 5830.

  Students must take either MATH 5950 or MATH 5960 as part of completing their written project.

Bioengineering Dual MS-MBA

► Graduate School Policies and Procedures apply to this program.

Master of Science (MS) - Master of Business Administration (MBA) Dual Degree Program

We offer a dual MS-MBA in partnership with the CU Denver Business School. Please contact either program for more information and advising. Students registered in other MS programs in the University of Colorado system may be able to combine the two degrees; please contact us at **bioengineering@ucdenver.edu** for more information.

Bioengineering MD-MS

We offer an MD-MS in bioengineering in partnership with the University of Colorado School of Medicine. This dual degree option is available to current CU medical students only. Prospective students should contact the department at bioengineering@ucdenver.edu as early in their medical school training program as possible for more information and advising.

Bioengineering MD-PhD

► Graduate School Policies and Procedures apply to this program.

For students already enrolled or accepted into the Medical Scientist Training Program (MSTP) in the School of Medicine at University of Colorado Anschutz Medical Campus. Degree completion in 7-8 years with highly individualized training pathway and multidisciplinary research dissertation. Please contact us for advising.

Business Administration/Business 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. See MS program pages for a list of functional areas. Contact a graduate academic advisor for details, 303.315.8200.

Business Administration/Medicine 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.

Business Administration/Urban and Regional Planning MBA/MURP

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.

Business/Business 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 and one semester. In addition, candidates for the dual degree must satisfy all common body of knowledge (CBK) and background requirements prescribed for each degree. Waivers may be approved for some of the CBK or background upon transcript evidence of equivalent undergraduate or graduate course work. For more information contact a graduate academic advisor, 303-315-8200.

Chemistry BS/MS

While students are completing a BS degree in chemistry or biochemistry, they may also complete some of the requirements for an MS degree in chemistry by participating in the BS/MS program, using the following guidelines:

- The student must apply and be accepted for participation in the BS/MS program prior to completion of the BS degree in consultation with both the undergraduate and graduate advisors.
- Up to 12 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.
- In addition, up to 3 semester hours of directed 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, and the chemistry graduate program director.

- The chemistry department will waive the requirement for placement examinations in each area of chemistry for which the student has completed the undergraduate sequence of courses and laboratories at the Downtown Campus with grades of *B (3.0)* or better for each course.
- The student must apply for and be admitted to the MS program in chemistry beginning the semester immediately following completion of the BS degree in chemistry at the Downtown Campus.

The BS/MS 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 MS program through the BS/MS program option must fulfill all of the requirements of the Plan I or Plan II MS degree programs.

Criminal Justice BA/MCJ

The dual BA/MCJ program is designed to allow students to work concurrently toward the BA in criminal justice and the master in criminal justice (MCJ). Graduate credit hours earned while enrolled in the BA/MCJ program can be counted toward both the bachelor of arts and master of criminal justice. This program offers high-achieving students the opportunity to complete their undergraduate and graduate degrees in criminal justice in five years.

Admissions Requirements and Process

Interested students should contact their BA academic advisor as early as possible to ensure proper planning for the five year degree.

Eligibility Requirements

Both current CU Denver students and new transfer students are eligible to apply after meeting the following:

- Currently enrolled in the School of Public Affairs as a criminal justice major
- Completed the University of Colorado Denver's undergraduate core curriculum
- Completed 60 semester credit hours
- Completed the following 12 semester credit hours in criminal justice: CRJU 1000 Criminal Justice: An Overview, CRJU 2041 Crime Theory and Causes, CRJU 3100 Criminal Justice Research Methods, and CRJU 3150 Statistics for Criminal Justice (transfer criminal justice courses must have been approved and accepted toward the major).
- Minimum 3.0 cumulative GPA

- Minimum 3.5 cumulative GPA in criminal justice courses
- Completed or scheduled official GRE or LSAT exam

Application Process

Students should apply after earning 75 credit hours of undergraduate coursework and before earning 90 credit hours. For full consideration, students must submit all application materials by Oct. 15 for admission to the following spring semester and by March 15 for admission to the fall semester. The following steps should help in the application process:

1. Plan ahead when scheduling courses through the junior year. All four of the required criminal justice courses listed above and all of the student's core education requirements must be completed by the end of the student's junior year.
2. At the beginning of the semester in which the student is applying to the program, the student should approach a criminal justice faculty member about writing a letter of recommendation. The student should also begin working on a personal statement of purpose. The following guidelines should help with writing the statement.
    - Length: 1 to 2 pages
    - The statement should describe:
        - Applicant's reasons for undertaking graduate study in criminal justice
        - Applicant's future career plans
        - Planned area of concentration within criminal justice
3. By Oct 15 of the fall semester or March 15 of the spring semester the student must submit the following items to the undergraduate coordinator:
    - Personal statement of purpose
    - One letter of recommendation from a faculty member
    - School of Public Affairs' BA/MCJ application form
    - Completed or scheduled GRE or LSAT scores

Admission Criteria

Admission to the BA/MCJ program is competitive. Applicants will be evaluated on the following:

1. Grade point average (overall and in criminal justice course work)
2. Grade trend (improving, consistent, or declining)
3. Total number of credit hours completed
4. Likelihood of success and persistence based from the Statement of Intent and Reference Letter
5. Completed or scheduled GRE or LSAT scores

Students who are not admitted to the BA/MCJ program are eligible to reapply after completing an additional 12 semester credit hours. Students can apply and be considered for admission to the dual BACJ/MCJ program a maximum of two times.

BA/MCJ Program Matriculation

Students must successfully complete (B, or better) a minimum of 3 semester credit hours of graduate criminal justice course work each semester following admission to the BA/MCJ program. A maximum of 15 graduate semester credits can be completed as a BA/MCJ student, for dual credit.

Students must maintain a minimum 3.0 cumulative grade point average for all course work and a 3.0 grade point average for courses in criminal justice.

The School of Public Affairs reserves the right to rescind a BA/MCJ student's admittance to the dual program if at any point the students' grade point average falls below the requirements lists above.

Tuition and Fees

Students will be assessed tuition and fees at the undergraduate rate until the Bachelor of Arts in Criminal Justice degree is conferred.

Students will assess tuition and fees at the graduate level upon formal acceptance to the Master of Criminal Justice program.

Program Requirements

General BA/MCJ Degree Program Requirements

- 144 total semester credit hours successfully completed
- 37-38 semester credit hours in the general education core curriculum
- 46-48 semester credit hours in general electives
- 21 semester hours of undergraduate criminal justice course work
- 18 upper-level (3000 or higher) semester credit hours in criminal justice
- 45 total semester hours of upper-division course work (3000 and above)
- Minimum 3.0 CU cumulative grade point average in undergraduate criminal justice courses
- Full acceptance to the Graduate School and the Master in Criminal Justice program
- Minimum 36 semester hours of graduate-level course work (5000 and above)
- Minimum of 30 hours of resident credit; 21 out of the last 30 hours in resident course work
- Minimum of a B (3.0) in each required core MCJ course
- Minimum of 3.0 CU cumulative grade point average in all graduate level courses
- Successful completion of master of criminal justice capstone or thesis
- Fulfillment of all college and major requirements

Degree Confirmation

Students are eligible to receive the BA in criminal justice degree once they have successfully completed 120 semester hours and all CU Denver undergraduate degree requirements. The MCJ will be conferred once the student has completed all requirements of the Master of Criminal Justice degree.

Economics MA/Applied Mathematics MS Dual Degree, with a focus in Applied Statistics

► Graduate School Policies and Procedures apply to this program.

Graduate Advisors: Brian Duncan and Hani Mansour

The fields of mathematics and economics are inextricably linked. In economics, mathematics and statistics are used extensively in theory construction, tests of existing theories and discovery of regularities to inform new theories. Economics also gives mathematicians/statisticians new challenges, new outlets and new ideas to incorporate in mathematics. These complementarities have long been recognized and economics graduate students have always been advised to take advanced courses in statistics.

A "dual" degree means that students who complete the program earn two master's degrees: MA in economics and MS in applied mathematics. Students interested in completing the dual degree in economics and applied mathematics 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 may not graduate under the dual degree program. Students may apply to both programs at the same time or apply to the economics program first, and then to the applied math program after their first semester, or vice versa. Both programs must be completed in the same semester to take advantage of the dual degree program. Further information about this program can be obtained from either the Department of Economics or the Math Department.

Click here for admissions requirements for the MA program in Economics

Click here for admissions requirements for the MS program in Applied Mathematics

There are an increasing number of economics MA students wishing to obtain graduate training and a degree in statistics. Having an MA degree in economics and an MS degree in Applied Mathematics will make a student highly employable in the job market and provide them an edge in applying for elite PhD programs.

Degree Requirements

The requirements for the dual degree in economics and applied mathematics include completing 21 credit hours in ECON and 21 credit hours in MATH (42 total credit hours).

Students are expected to meet all course prerequisites. ECON 5803 – Mathematical Economics is a prerequisite for ECON 5073 - Microeconomic Theory and ECON 5813 - Econometrics I. This prerequisite requirement is waived for students who are currently admitted to the MS Applied Mathematics program.

A grade of B- or better is required in all courses, with a cumulative grade point average of B (3.0) or above. No course may be taken more than twice.

Core Courses

Take all of the following courses:

- ECON 5073 - Microeconomic Theory
- ECON 5083 - Macroeconomic Theory
- ECON 5813 - Econometrics I
- ECON 5823 - Econometrics II
- ECON 6053 - Seminar In Applied Economics
- ECON 6054 - Seminar In Applied Economics II
- ECON 6073 - Research Seminar
- MATH 5070 - Applied Analysis
- MATH 5310 - Probability
- MATH 5320 - Introduction to Mathematical Statistics
- MATH 5718 - Applied Linear Algebra
- MATH 6330 - Workshop in Statistical Consulting

Take one of the following courses:

- MATH 5394 - Experimental Designs
- MATH 6376 - Statistical Computing
- MATH 6380 - Stochastic Processes
- MATH 6384 - Spatial and Functional Data Analysis
- MATH 6388 - Advanced Statistical Methods for Research
- MATH 7384 - Mathematical Probability
- MATH 7826 - Topics in Probability and Statistics
- An additional course given prior approval by the student's advisor and the Director of the Program in Statistics.

Total: 36 hours

Electives

One 5000 or higher course with a MATH prefix **(3 semester hours)**, except MATH 5000-5010, MATH 5017, MATH 5198, and MATH 5250. Contact a graduate advisor in the Math Department for information about Math course requirements.

One 5000 or higher course with an ECON prefix **(3 semester hours)**.

Contact a graduate advisor in the Economics Department for information about Econ course requirements.

Total: 6 Hours

Dual Degree Total: 42 Hours

Economics MA/Finance MS Dual Degree

► Graduate School Policies and Procedures apply to this program

Graduate Advisors: Brian Duncan and Hani Mansour

For students interested in combining the quantitative skills of an economics degree with the specific applications of a business degree, we offer an MA economics / MS finance dual degree. This 42-semester-hour program is offered jointly with the Business School.

A "dual" degree means that students who complete the program earn two master's degrees: MA in economics and MS in finance. Students interested in completing the dual degree in economics and public administration 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 may not graduate under the dual degree program. Students may apply to both programs at the same time or apply to the economics program first, and then to the finance program after their first semester, or vice versa. Both programs must be completed in the same semester to take advantage of the dual degree program. Further information about this program can be obtained from either the Department of Economics or the Business School.

Click here for admissions requirements for the MA program in Economics

Click here for admissions requirements for the MS program in Finance and Risk Management

The dual degree program is intended to create highly-skilled research professionals with considerable econometric skill as well as familiarity with their chosen financial institutions. Given the similarity in course work within the two programs, there can be considerable time savings for the student. Essentially, the program allows students to

complete the two programs that separately would require 60 hours of course work with 42 hours of combined course work.

Degree Requirements

The requirements for the dual degree in economics and finance include completing 21 credit hours in ECON and 21 credit hours in FNCE (42 total credit hours)

Students are expected to meet all course prerequisites. A grade of B- or better is required in all courses, with a cumulative grade point average of B (3.0) or above. No course may be taken more than twice.

Core Courses

- ECON 5073 - Microeconomic Theory
- ECON 5083 - Macroeconomic Theory
- ECON 5803 - Mathematical Economics
- ECON 5813 - Econometrics I
- ECON 5823 - Econometrics II
- ECON 6073 - Research Seminar
- BUSN 6640 - Financial Management
- FNCE 6300 - Macroeconomics and Financial Markets
- FNCE 6330 - Investment Management Analysis
- FNCE 6380 - Futures and Options
  -OR-
- FNCE 6382 - Survey of Financial Derivatives
  -OR-
- FNCE 6410 - Real Options and Decisions Under Uncertainty
  Total: 30 Hours

Electives

Three 6000 or higher courses with a FNCE prefix (9 semester hours), except FNCE 6290 - Quantitative Methods. Contact a graduate advisor in the Business School for information about Finance course requirements.

One 5000 or higher course with an ECON prefix (3 semester hours). Students are strongly encouraged to take 3 elective hours of ECON 6053/6054 or to meet with an economics graduate advisor to discuss how to otherwise prepare for ECON 6073 - Research Seminar. Contact a graduate advisor in the Economics Department for information about ECON course requirements.

Total: 12 Hours

Dual Degree Total: 42 Hours

Economics MA/Public Administration MPA Dual Degree

► Graduate School Policies and Procedures apply to this program

Graduate Advisors: Brian Duncan and Hani Mansour

The fields of public administration and economics are inextricably linked. Economists provide much of the theory and analytic foundation that administrators use to evaluate and implement policy. Given that the capital of the state of Colorado is in Denver, there is great need for administrators that fully understand methods of program evaluation and have the theoretical background needed to forecast how individuals and institutions will respond to new proposals. Similarly, good theory and practice must take into account how the proposals will be implemented and results interpreted. Both administrators and economists need to be engaged in constructive dialog for either to be fully effective.

A "dual" degree means that students who complete the program earn two master's degrees: MA in economics and MPA in public administration. Students interested in completing the dual degree in economics and public administration 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 may not graduate under the dual degree program. Students may apply to both programs at the same time or apply to the economics program first, and then to the public administration program after their first semester, or vice versa. Both programs must be completed in the same semester to take advantage of the dual degree program. Further information about this program can be obtained from either the Department of Economics or the School of Public Affairs.

Click here or admissions requirements for the MA program in Economics

Click here for admissions requirements for the MPA program in Public Administration

Degree Requirements

The requirements for the dual degree in economics and public administration include completing 21 credit hours in ECON and 27 credit hours in PUAD (48 total credit hours).

Students are expected to meet all course prerequisites. A grade of B- or better is required in all courses, with a cumulative grade point average of B (3.0) or above. No course may be taken more than twice.

Core Courses

- ECON 5073 - Microeconomic Theory

- ECON 5083 - Macroeconomic Theory
- ECON 5803 - Mathematical Economics
- ECON 5813 - Econometrics I
- ECON 5823 - Econometrics II
- PUAD 5001 - Introduction to Public Administration and Public Service
- PUAD 5002 - Organizational Management and Behavior
- PUAD 5003 - Research and Analytic Methods
- -OR- PUAD 5004 - Economics and Public Finance
- PUAD 5005 - The Policy Process and Democracy
- PUAD 5006 - Public Service Leadership and Ethics
- ECON 6073 - Research Seminar
- -OR- PUAD 5361 - Capstone Seminar

  Total: 33 hours

Electives

If the student elects to take the capstone course ECON 6073 - Research Seminar

One 5000 or higher course with an ECON prefix (3 semester hours).

Students are strongly encouraged to take 3 elective hours of ECON 6053/6054 or to meet with an economics graduate advisor to discuss how to otherwise prepare for ECON 6073 - Research Seminar.

Four 5000 or higher course with a PUAD prefix (12 semester hours).

If the student elects to take the capstone course PUAD 5361 - Capstone Seminar

Two 5000 or higher course with an ECON prefix (6 semester hours).

Three 5000 or higher course with a PUAD prefix (9 semester hours).

Contact a graduate advisor in the Economics Department for information about Econ course requirements.

Contact a graduate advisor in the School of Public Affairs for information about public administration course requirements.

Total: 15 hours

Dual Degree Total: 48 Hours

Finance/Economics MS/MA

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. Students apply to each program separately and admission into one of the programs does not guarantee admissions into the second program.

Political Science MA / Master of Business Administration (MBA) Dual Degree

► Graduate School Policies and Procedures apply to this program.

In the 21st century, the fields of business administration and political science intersect, in that sustainable business development requires an understanding of the political environment, while political theory and practice must address the role of the business community in economic development. Providing students with both the business foundation and the political knowledge enhances their ability to succeed in our ever-changing political world.

The CU Denver Master of Arts in Political Science (MA) degree offers an in-depth understanding of the political environment, locally, nationally and globally, emphasizing the development of academic and practical skills in key areas of the discipline, and centering on the major fields of American politics, comparative politics, international relations, political theory and public policy. The CU Denver Master of Business Administration (MBA) degree provides a strong foundation in business knowledge in such areas as organizing teams, developing marketing plans, using data analysis and technology in decision making, economics, financial management and strategic planning. The MBA develops skills required for competent and responsible administration of an enterprise viewed in its entirety, within its social, political and economic environment.

The Dual Master's Degree in Political Science (MA) and Business Administration (MBA) is designed for students whose interests overlap business and politics or business and international affairs. This program is jointly sponsored by the Department of Political Science of the College of Liberal Arts and Sciences and the Business School. This program enables students to simultaneously earn an MA in Political Science with an MBA.

The dual degree program provides a more comprehensive education to the next generation of professionals in the non-profit sector, corporate arena and governmental organizations. Dual degree students are able to complete both degree programs in less time, and with fewer total credit hours (66 for both), than if both degrees were pursued separately (48+33 = 81). The program keeps the core of each program intact, including some electives from both programs, and enables students to choose two additional electives from either business or political science to best suit their career and personal goals. Furthermore, the interactions between the students enrich the students in both programs, as well as the organizations that employ them.

Admission Requirements

Students must apply separately to, meet the admission requirements of, and be accepted by each program. It is possible for students currently admitted to one program to learn about the dual degree and choose to apply after admission to the other program.

GPA Requirements

Students must maintain a cumulative GPA of 3.0 or higher across all courses that are applied to the dual degree. Any political science course in which a student receives a final grade lower than *B-* cannot be counted toward the total credits for the dual degree. Any business course in which a student receives a final grade lower than *C* cannot be counted toward the total credits for the dual degree. All graduate courses will be included in the cumulative GPA.

Transfer Credits

No more than 9 semester hours of business credits from an AACSB Business School with a grade of *B* or better and no more than 6 semester hours of political science credits may be transferred into this dual degree program. The Business School will evaluate transfer hours in business and the Political Science Department will evaluate transfer hours in political science.

Graduation

Students must complete all the requirements for both programs before they apply to graduate, and must apply to graduate in the same term for both programs.

Degree Requirements

MBA Core (30 Hours)

- BUSN 6520 - Leading Individuals and Teams

- BUSN 6530 - Data Analysis for Managers
- BUSN 6540 - Legal and Ethical Environment of Business
- BUSN 6550 - Analyzing and Interpreting Accounting Information
- BUSN 6560 - Marketing Dynamics in the 21st Century
- BUSN 6610 - Information Systems Management and Strategy
- BUSN 6620 - Applied Economics for Managers
- BUSN 6630 - Management of Operations
- BUSN 6640 - Financial Management
- BUSN 6710 - Strategic Management

International Elective (3 Hours)

Any course numbered 6000 or higher with the INTB prefix

or ENTP 6826 - International Entrepreneurship

or any graduate-level business course that is cross-listed with an INTB prefix. Travel study offered by the Business School will also apply.

Political Science Core (18-21 Hours)

- PSCI 5000 - State of the Discipline
- PSCI 5468 - Research Methods in Political Science
  Graduate Seminar in American Politics subfield
  Graduate Seminar in Comparative or International Politics subfield
  Graduate Seminar in Political Theory subfield
  PSCI 5950 - Master's Thesis (6 credits)
  OR
  PSCI 5960 - Master's Project (3 credits)

Political Science Electives (6-9 Hours)

PSCI graduate seminars [must complete 6 hours if thesis, or 9 hours if project (from Political Science Core)]

Free Electives (6 Hours)

Courses must be from either the Business School or Political Science department, meeting the descriptions below. A combination of both is also acceptable.

Business Free Electives: Any course numbered 6800 or higher with a BUSN prefix or any course numbered 6000 or higher with a prefix of ACCT, DSCI, ENTP, FNCE, HLTH, INTB, ISMG, MGMT OR MKTG.

*P***olitical Science Electives:** *Any course numbered 5000 or higher with a PSCI prefix.*

Public Administration MPA/JD

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 semester hours from the law school to be accepted as electives in the 36-semester-hour MPA program, and 12 semester hours from SPA to be accepted into the law school’s 89-semester-hour JD program. Students are thus simultaneously awarded both degrees with a cumulative total of 101 semester hours; 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.

Public Administration/Criminal Justice MPA/MCJ

The fields of public administration and criminal justice are closely connected. While the MPA is a generalist degree designed to prepare graduates for a variety of positions in administration and policy analysis, criminal justice studies prepare graduates to research and work in public service organizations within the substantive policy area. By providing an opportunity for students to complete both a generalist master's degree as well as a specialist master's degree, graduates will be equipped with administrative skills applicable to a number of public service settings and deep knowledge of work that pertains to criminal justice settings.

Admission

Students pursuing the joint degree program must apply and be admitted to each of the programs. If one program accepts student for the dual degree but the other program does not, then the student will not be accepted for the dual degree. It is possible for students currently admitted to one program to learn about the dual degree and choose to apply after admission to the other.

The MPA and MCJ Program Directors serve as advisors for this program. Interested applicants should consult one of the Program Directors before applying.

Course Requirements

Students enrolled in the dual degree program must complete a minimum of 24 credit hours in each of the two programs (not counting Internship or Field Study if required). Because each program requires 36 (not counting Internship or Field Study) credit hours, the student will be able to complete 48 hours and earn two degrees. This means that the student can earn two degrees by completing 66% of the credit hours that would be required if the student were pursuing each degree separately.

Interested students should contact the School of Public Affairs directly for specific information on course sequencing and requirements.

Public Administration/Economics MPA/MA

The fields of public administration and economics are inextricably linked. Economists provide much of the theory and analytic foundation that administrators use to evaluate and implement policy. Given that the capitol of Colorado is in Denver, there is great need for administrators that fully understand methods of program evaluation and have the theoretical background needed to forecast how individuals and institutions will respond to new proposals. Similarly, good theory and practice must take into account how the proposals will be implemented and results interpreted. Both administrators and economists need to be engaged in constructive dialog for either to be fully effective.

Therefore the Department of Economics of the College of Liberal Arts and Sciences and the School of Public Affairs jointly sponsor a dual degree program. This program enables students to simultaneously earn an MA degree in economics with a master of public administration (MPA).

The dual degree program provides students to opportunity to take the core of both programs and choose electives that suit their career and personal goals best. Electives in one program are allowed to count as an elective in the other. The net result is that while both degrees separately require 66 hours, the dual degree program provides a

more comprehensive and effective education in 48 hours or 73 percent of the dual degree total.

Degree Requirements

Admission into 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. It is possible for students currently admitted to one program to learn about the dual degree and choose to apply after admission to either economics or SPA.

Other policies

Minimum Grade for Graduation

Students must maintain a GPA of 3.0 or higher across all courses that are applied to the dual degree. Students who fail to maintain a GPA of 3.00 will be placed on probation for a semester, after which they may be dropped from the dual degree program if the GPA is not increased to 3.0 or above. Additionally, any core course in which a student receives a final grade lower than B- cannot be counted toward the total credits required for the dual degree; in such a case, the student must retake the course.

Capstone Advising

All students are required to complete a capstone paper and obtain the signatures of three graduate faculty. Every dual degree student, regardless of the capstone course they choose (ECON 6073 or PUAD 5361) must select a committee composed of faculty from both programs.

Course Credit Transfers from Other Universities

No more than 6 hours may be transferred, and both SPA and economics program directors must approve any transfers.

Sample Plan of Study for the MPA/MA Economics

Total: 48 semester hours with 21 in economics and 27 in public administration

Core

(33 semester hours)

A grade of B- or better is required in all core courses, with a B average overall. No public administration course may be taken a third time.

- ECON 5073 - Microeconomic Theory
- ECON 5083 - Macroeconomic Theory
- ECON 5803 - Mathematical Economics
- ECON 5813 - Econometrics I
- ECON 5823 - Econometrics II
- PUAD 5001 - Introduction to Public Administration and Public Service
- PUAD 5002 - Organizational Management and Behavior
- PUAD 5003 - Research and Analytic Methods
  or
- PUAD 5004 - Economics and Public Finance
- PUAD 5005 - The Policy Process and Democracy
- PUAD 5006 - Public Service Leadership and Ethics
- ECON 6073 - Research Seminar
  or
- PUAD 5361 - Capstone Seminar
  To be completed after all other core courses or with instructor and advisor consent.

Electives

(15 semester hours)

If the student takes PUAD 5361, then they are required to take 6 semester hours of economics electives and 9 semester hours of electives from SPA labeled 5000 or above.

If the student takes ECON 6073, then they are required to take 3 semester hours of economics electives and 12 semester hours of electives from SPA labeled 5000 or above.

Public Administration/Public Health MPA/MPH

Applying for the Program

Students need to apply to the School of Public Health with a separate application. Students must be admitted to both programs to participate in the dual degree.

Course Requirements

To complete the dual degree, students take all the core courses in each program, 9 elective credits from the School of Public Affairs, 9 elective credits from the School of Public Health, and the School of Public Health's capstone course requirements. Total credits required: 60 semester credit hours. For more information, see the course map provided on the School of Public Affairs website; spa.ucdenver.edu.

When to Enroll

Students should indicate intention to complete the dual degree upon application to the School of Public Affairs and simultaneously complete the application for the School of Public Health. SPA does not have a limit on the number of students who can enroll. Students already enrolled in the School of Public Affairs student may begin the SPH application right away (see the SPH for application deadlines), while taking MPA classes. It is best to get started on the application process right away, so that advising matches graduation goals.

Advising

Once admitted to the dual degree program, students have an advisor from each school.

Public Administration/Urban and Regional Planning MPA/MURP

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 capstone 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 semester hours)

MURP

- URPL 5000 - Planning History and Theory
- URPL 6220 - Advanced Research Techniques
- URPL 6215 - Analyzing the Built Enviroment
- URPL 5020 - Planning Law and Institutions
- URPL 6000 - Planning Project Studio

Total: 18 Hours

MPA

- PUAD 5001 - Introduction to Public Administration and Public Service
- PUAD 5002 - Organizational Management and Behavior
- PUAD 5004 - Economics and Public Finance
- PUAD 5005 - The Policy Process and Democracy
- PUAD 5006 - Public Service Leadership and Ethics

Total: 15 Hours

Take one of two

- PUAD 5003 - Research and Analytic Methods
- URPL 5040 - Urban Sustainability

Total: 3 Hours

Additional Course Work (21 semester hours)

MURP

12 hours if URPL 5510 elected, or 15 hours if PUAD 5003 elected. Courses are to be selected with MURP advisor’s approval.

- URPL 5040 - Urban Sustainability
- PUAD 5003 - Research and Analytic Methods

Total: 12-15 Hours

MPA

6 hours if PUAD 5003 elected, or 9 hours if URPL 5510 elected.

- PUAD 5003 - Research and Analytic Methods
- URPL 5040 - Urban Sustainability

Total: 6-9 Hours

Practicum

- PUAD 5361 - Capstone Seminar (3 hours required)

Total: 3 Hours (required)

Electives

Take one of the following or another option with MPA advisor’s approval (3 hours):

- PUAD 5250 - Intergovernmental Management
- PUAD 5410 - Administrative Law
- PUAD 5440 - Negotiation and Conflict Resolution
- PUAD 5502 - Public Financial Management and Policy
- PUAD 5503 - Public Budgeting and Finance
- PUAD 5540 - Organization Development
- PUAD 5625 - Local Government Management
- PUAD 5626 - Local Government Politics and Policy
- PUAD 5631 - Seminar in Environmental Politics and Policy
- PUAD 5632 - Seminar in Environmental Management

Total: 3 Hours

Public Affairs BA/MPA

The BA/MPA degree program offered by the College of Liberal Arts and Sciences and the School of Public Affairs provides 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. The five year BA/MPA program decreases

the time and number of semester hours required to earn both degrees by allowing students to count graduate level courses in the School of Public Affairs toward the bachelor's degree requirements. The program is designed to give students an opportunity to prepare for professional positions and advancement with federal, state or local governments, nonprofits or private sector firms concerned or involved with public affairs.

Admissions Requirements and Recommendations

Interested students should contact their CLAS advisor and the School of Public Affairs' MPA director as early as possible to ensure proper planning for the five year degree. To qualify, students must have a 3.5 or higher GPA in CLAS.

Students may apply to the program during the semester in which they will successfully complete 90 semester hours, and should have most of their general education and major requirements completed by this time. Students must complete all the required MPA application materials for the School of Public Affairs.

Program Requirements

Students must fulfill all the requirements for graduation for CLAS:

- Total of 120 hours (includes hours in public affairs)
- 30 hours in the core curriculum
- 30-48 hours to satisfy major requirements
- Writing proficiency (1 - 7 hours)
- Mathematics proficiency (0 - 3 hours)
- Level III foreign language (0 - 13 hours)
- It is highly recommended that students complete a course in American government, statistics and economics before applying to the MPA program

Students must maintain a 3.5 GPA in CLAS course work.

Students may complete a maximum of 18 semester hours of SPA graduate course work while classified as an undergraduate student.

Students must fulfill all the requirements for graduation from SPA:

- Total of 36-39 semester hours in public affairs
- Six core courses (PUAD 5001 - PUAD 5006)
- Five elective courses at the graduate level (5000 and 6000 level courses)
- Nine of the 15 elective semester hours must be PUAD courses
- An internship (3 hours) is required from those who do not have significant work experience in the field
- Successful completion of the capstone course taken in a semester AFTER all core courses are completed. A thesis option is available. Interested students should contact their SPA faculty advisor.

Students must maintain a 3.0 or higher GPA in public affairs course work.

Program Options

BA/MPA students may choose from any CLAS major.

BA/MPA students may choose to do a general MPA or select a MPA concentration in local government, nonprofit management, environmental policy, emergency management and homeland security or domestic violence.

Degree Confirmation

Students are eligible to receive a bachelor's degree once they have successfully completed 120 semester hours and all CLAS requirements. The BA/MPA will be conferred once the student has completed all requirements of the master of public administration degree, including at least 36 hours of graduate level course work.

Doctoral Programs

Applied Mathematics PhD

► Graduate School Policies and Procedures apply to this program.

The Department of Mathematical and Statistical Sciences 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 computational mathematics, discrete mathematics, mathematics of science and engineering, operations research, optimization, probability and statistics.

Program Requirements

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 dissertation.

- Students must complete 42 semester hours of non-thesis course work at the graduate level (up to 30 hours of this course work may be transferred in, including courses taken as part of a master's degree). In addition, 30 hours of dissertation credit must be taken. The following courses are required as part of the formal course work: MATH 5779-Math Clinic and three readings courses (1 semester hour each). Students must also satisfy a **breadth requirement** by completing a total of six graduate math courses from among several areas of mathematics, with no more than three of these courses from any one area. A

3.25 GPA must be maintained throughout all course work. [The following MATH courses will NOT count toward a graduate degree: MATH 5000-5009, 5010, 5012-5015, 5017, 5198, 5250 and 5830.]

- 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 by the start of their fourth semester.
- Six semesters of full-time scholarly work 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 comprehensive examination is taken after completion of the preliminary exams, completion of at least three semesters of residency, and upon completion of essentially all non-thesis coursework. The exam is designed to determine mastery of graduate-level mathematics and the ability to embark on dissertation research. It consists of a six-hour written examination and an oral follow-up examination. Students must pass the comprehensive exam by the beginning of the 4th year. Within six months after passing the comprehensive examination, the candidate must present a dissertation proposal to their dissertation committee.
- Each student must write and defend a dissertation containing original contributions and evidence of significant scholarship. The dissertation defense is public and must be given before an examining committee approved by the Graduate School.

For more detailed information about the Applied Mathematics PhD, see www.math.ucdenver.edu/phd.

Bioengineering PhD

► Graduate School Policies and Procedures apply to this program.

Doctor of Philosophy (PhD) Degree Program

The PhD is offered to students with an undergraduate or master's degree in engineering or the life sciences. Students complete the degree in three to five years with a highly individualized training pathway. All PhD students complete a dissertation, which may have an industry component.

Visit our website (ucdenver.edu/bioengineering) or contact us at bioengineering@ucdenver.edu for more information.

Civil Engineering PhD

► Graduate School Policies and Procedures apply to this program

The PhD degree in civil engineering is offered through a coordinated program with University of Colorado Boulder.

Specialty Areas for Degrees:

- Environmental and Sustainability Engineering
- Geotechnical Engineering
- Hydrologic and Hydraulic Engineering
- Structural Engineering
- Transportation Engineering
- Civil Engineering Systems
- Construction Engineering and Management (through the Engineering and Applied Science PhD program)

Note: The multidisciplinary engineering and applied science PhD is also offered through the Department of Civil Engineering.

What is civil engineering systems?

The doctoral program in civil engineering systems has different rules than the five other traditional doctoral tracks in order to facilitate more interdisciplinary research. This doctoral track can be the degree that would follow a master's of engineering.

Additional Doctoral Admissions Requirements

In addition to the admissions requirements listed for master's students, doctoral applicants need to have the support of a faculty advisor before they are admitted. Once doctoral students are approved by the graduate admissions committee, their application must be reviewed again by the Department of Civil, Environmental and Architectural Engineering at CU Boulder as the programs are jointly administered. Prospective PhD students should contact the Department of Civil Engineering at CU Denver to inquire about application requirements and to obtain the "Rules and Policies for the Coordinated PhD Program."

Requests for applications for graduate study in civil engineering should be addressed to

CU Denver Department of Civil Engineering
Campus Box 113
P.O. Box 173364
Denver, CO 80217-3364

Computer Science and Information Systems PhD

► Graduate School Policies and Procedures apply to this program

Program co-directors: Gita Alaghband (CSE) and Mike Mannino (Business School)
Website: engineering.ucdenver.edu/CSISPhD

The CSIS PhD degree is designed to provide an infrastructure for a wide spectrum of research possibilities in the computer science and information systems field. It is offered jointly through the Department of Computer Science and Engineering (housed in the College of Engineering and Applied Science) and the Information Systems program (housed in the Business School.)

The CS track emphasizes the scientific, algorithmic, system design and computing aspects of the field, while the IS track has a major emphasis on information management and the entrepreneurial side of the field. The two tracks intersect through some graduate-level course work, research, and committee memberships to provide a broad perspective of research and development in IT for students.

The PhD degree is granted by the College of Engineering and Applied Science for those focused on the CS track and by the Business School for those focused on the IS track. The program is multidisciplinary by nature, and while it supports basic research in computer science and in information systems in the traditional sense, the trust of the program is collaborative research within the program and with other institutions. Our students work with research centers and researchers from variety of disciplines, including the CU School of Medicine, chemistry, mathematics, biology, all engineering disciplines, economics, health, and education, in addition to industry and businesses. This distinctive infrastructure supports basic research in both CS and IS as well as the demand of computing and IT integration with all other scientific and business fields.

Admission Requirements

For more information regarding the admission requirements for the CSIS PhD, visit engineering.ucdenver.edu/CSISPhD.

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. 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, you may have your doctoral research co-supervised by two faculty members. At least one co-supervisor must be a full-time current graduate faculty member in the CSE department or Business School. The committee must contain at least one faculty member from the CSE department and at least one from the Business School. At least one committee member is from outside of the CSE department and the information systems faculty. One committee member may be from outside the CSE department and the information systems faculty.

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 reapproval by the co-directors.

Preliminary Exam

According to Graduate School Rules, students are required to demonstrate their basic knowledge and preparation toward more advanced doctoral level work. For more information visit the PhD CSIS website at engineering.ucdenver.edu/CSISPhD

Comprehensive Exam

Students will submit a paper to fulfill the graduate school's comprehensive exam requirement. The paper should describe an area of research including literature review, problem definition, and possible methodologies/models to study a significant problem in computer science or information systems. The paper will be evaluated by a committee of three faculty members. An oral presentation of the paper will be open to the entire CSIS faculty. The committee may adopt additional guidelines to evaluate the paper and presentation. According to graduate school rules, the comprehensive exam must be completed by the end of the fourth year in the program. In addition to these requirements, the comprehensive exam must meet the other graduate school requirements.

Dissertation Proposal (if determined by the comprehensive exam committee)

A student's doctoral committee can require a dissertation proposal after the student completes the comprehensive exam. The doctoral committee may consider the quality and level of detail in the comprehensive paper and other factors in determining the need for a student to prepare a dissertation proposal. If the doctoral committee requires a dissertation proposal, the student must prepare a proposal that will be evaluated by the doctoral committee.

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 Science, while students applying through information systems receive the PhD from the Business School.

Computer Science and Information Systems PhD (Business School)

► Graduate School Rules apply to this program.

CSIS Business Ph.D. Program

Program co-director: Jiban Khuntia (Ph: 303-315-8424, email: jiban.khuntia@ucdenver.edu)

The computer science and engineering (CSE) department in the College of Engineering and Applied Science and the Business School offer a joint doctor of philosophy degree program in computer science and information systems (CSIS). Known as t**he CSIS Ph.D., this program provides two tracks:**

- The Computer Science (CSIS CS Track) in the College of Engineering and Applied Science.

- The Information Systems (CSIS Business Ph.D.) in the Business School.

The CSIS Business Ph.D. The program is located Business School of the University of Colorado Denver. Students admitted to CSIS Business Ph.D. will work with the Information Systems Department of the Business School at the University of Colorado Denver. The primary mission of the CSIS Business Ph.D. The program is to produce individuals who will contribute to the discovery and dissemination of scientific knowledge through continued careers in research, publishing, and teach at research-oriented universities and research-oriented non-academic institutions throughout the world.

A prospective student requiring admission to this program, need to choose the CSIS Business Ph.D. track and complete the admission. The admission to the program is decided based on the following criteria. Admission is competitive.

Program Components

Program Requirements: Business School IS Ph.D. students should complete at least 60 credit units of coursework. This includes 30 units of Ph.D. level Information Systems (IS) theory-based, and research methods courses; and 30 dissertation topic units. Students are not holding a master's degree in IS, and demonstrating insufficient skills, may need to take additional coursework prior to the start of their Ph.D. program.

Each student will develop a detailed program plan with the consultation of advisor(s) to outline two years of required course works, take the prelims and comprehensive exams, fulfill their teaching requirement, and complete their dissertation. Students generally complete the IS theory-based and methods coursework within the first two years of their program. After completing all required coursework, students immediately take a comprehensive exam, typically during the Maymester time-period if finishing coursework in the Spring. Besides these general requirements, students should work with faculty on various research assignments that ultimately may be published in top-ranked IS journals.

Following successful completion of the comprehensive exam, students begin to work on their dissertation research during the Summer before the start of their 3rd year. The dissertation is an independent research project conducted by the student under the supervision of a dissertation committee assembled by the student. It is strongly recommended that students do research consistent with the research interests of current faculty. These topics include Behavioral, Organizational, Economics and Social issues related to information systems. The specific sequence of courses can vary depending on the schedule of classes being offered. The following is a sample milestone for the program schedule and completion requirements.

Schedule and Milestones

- **Year 1, Semester 1**
- Coursework
    - ISMG PHD1
    - ISMG 7200

    - Advanced Research Method
- Initiate research project 1 (RP1) with faculty.

- **Year 1, Semester 2**
- Coursework
    - ISMG 7211
    - ISMG PHM1
- Advanced Methods Research
- Complete research project 1 (RP1) with faculty.
- Work on at least one publication for submission to a conference

- **Year 1, Summer**
- Prelims examinations.
- Conduct independent research with a faculty advisor; be ready with a rough draft by the end of summer.
- Continue writing and improving the paper for presentation in year-2.

- **Year 2, Semester 1**
- Coursework
    - CS Breadth Course
    - ISMG 7220
- Initiative research project 2(RP2) with advisor

- **Year 2, Semester 2**
- Coursework
    - ISMG PHD2
    - CSCI Course
- Complete research project 2(RP2) with advisor for submission to a conference

- **Year 2, Summer**
- Comprehensive examinations.
- Develop preliminary ideas for a dissertation topic.

- **Year 3, Semester 1**
- Dissertation hours (6)

- Conduct research for dissertation proposal (at least two essays, three is better), with focus on literature review, research questions and proposed methods

- **Year 3, Semester 2**
- Dissertation hours (6)
- Dissertation first study should be complete or near to completion

- **Year 3, Summer**
- Dissertation hours (6)
- Dissertation proposal submission to committee for review and finalization
- Finish Dissertation Essay 1 and plan for submission to journal
- **Year 4, Semester 1**
- Dissertation hours (6)
- Defend proposal
- HICSS and ICIS paper submissions.
- Research seminar presentation and Job preparation (Complete enough of the dissertation to be able to interview at the International Conference on Information Systems (ICIS) in December).
- **Year 4, Semester 2**
- Dissertation hours (6)
- Campus interviews, finalize/negotiate job offers.
- Finish and defense dissertation.
- Prepare dissertation journal articles.

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 information systems program receive the PhD from the Business School.

Design and Planning PhD

► Graduate School Rules apply to this program

Contact: Dr. Jody Beck, Director
Telephone: 303-315-1000
Email: jody.beck@ucdenver.edu

Overview

The Ph.D. in Design and Planning at the University of Colorado is a research-oriented degree offered by the College of Architecture and Planning (CAP) at the University of Colorado Denver. Initiated in 1997, the program is dedicated to the education of future intellectual leaders in the fields of the built environment who have a critical understanding of the social, political, and global conditions that influence their profession.

It is the intent of the program to prepare students to excel in research regarding the planning and design of built environments through the incorporation of intellectual, analytical, and integrative aspects of the involved professions. Within this context, students and faculty seek to creatively shape the built environment and understand it in relation to institutional, political, economic, social, and natural environments.

Admission to the program is competitive and based on merit and available funding. Excellent academic performance, references, and a commitment to critical issues in the built environment are prerequisites.

The minimum residency requirement is four semesters, not including summer semesters. In the first two years of residence, students take courses to satisfy the credits relevant to preparation for writing their dissertation and the core requirement of the program, as well as additional electives. After completing these requirements, the student takes a comprehensive exam.

After satisfying program requirements, students move on to preparing a dissertation topic and research proposal which is presented and defended in a public event. With the successful defense of the dissertation topic and research proposal, students are admitted to candidacy. Finally, the completed dissertation is defended in a public

examination involving external examiners in addition to the members of the committee. Upon successful completion of the dissertation defense the program recommends the awarding of the Ph.D. degree.

One of the strengths of the College of Architecture and Planning Ph.D. program is that students can take advantage of resources in all departments and fields in the College and elsewhere in the university. In addition to faculty from within the College of Architecture and Planning, we have a broad and exciting group of affiliate faculty from many departments across the university.

The Ph.D. degree in Planning and Design is appropriate for those seeking careers in research and teaching or roles in government or professional consultation, all of which require a research specialization. So far, over 40 graduates of the program have gone on to faculty positions at universities in the United States and elsewhere, post-doctoral work, and into private consulting, non-profit organizations, and the federal government.

Admission Requirements

Prerequisites

Applicants admitted to the Ph.D. Program normally will have completed the requirements for the Master of Architecture, Master of Planning, Master of Landscape Architecture, or a related master's degree program. Students from allied fields are encouraged to apply. Field specialization and background are open.

GPA and TOEFL Scores

Consistent with the University requirements, applications are evaluated based on Grade Point Average (GPA) scores, and the Test of English as a Foreign Language (TOEFL) scores (where applicable). All exams must have been taken within a year before applying to the program:

- Academic achievement as evidenced by an undergraduate grade point average of 3.0 (on a 4.0 scale) or better, and a graduate grade point average of 3.5 or better.
- Applicants whose native language is not English must take either the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) exam, or have a graduate degree from a university in the U.S. or another English-speaking country. The minimum TOEFL score required for acceptance by the University of Colorado at Denver is 80 or higher on the TOEFL (sub-scores of 20 in Reading, Listening, and Speaking, and 24 in Writing) or 6.5 on the IELTS (sub-scores of 5.5 in each area). However, the Ph.D. program typically does not accept a student with a score lower than 85 on the TOEFL and 6.8 on the IELTS.

Application Checklist

The following documents must be submitted before an application will be considered:

- Application Forms - Apply online!
- Application Fee
- Three Letters of Recommendation
- Examples of previous research and written works
- Official transcripts from all previously attended institutions of higher learning
- Statement of Personal and Professional Goals
- Scores of Test of English as a Foreign Language (TOEFL) for non-U.S. residents whose native language is other than English
- Financial Statement (for non-U.S. residents/citizens)

Program Requirements

Overview

Successful completion of the Ph.D. Program requires fulfilling course requirements, passing the comprehensive examinations, preparing and defending a dissertation proposal, and undertaking research, writing and defending a dissertation. This is a multi-year process that involves a close mentoring relationship with the student's advisor.

A student's program of study must include at least 12 semester hours of Ph.D. Program core classes and 24 semester hours of study within the area(s) of focus established with the primary mentor. The student may focus on one main field of interest or a major and minor field.

Students shall complete the minimum of 36 semester hours in their area(s) of focus and Ph.D. Program core requirements prior to advancement to candidacy. Credit transfers are not allowed. Credits earned from previous courses before the student is enrolled in the Ph.D. program cannot be used as credit toward the Ph.D. degree.

Students must maintain a 3.0 GPA in all their coursework. A grade of less than B in any Ph.D. Program requirement shall not be accepted as meeting those requirements. For Program Core courses, the student must retake the course. A Program Core course may be retaken only once. The student shall be terminated from the program if a grade less than B is received more than once in a Ph.D. Program Core Course.

In addition, students must also pass a comprehensive exam as well as write and defend a dissertation proposal and dissertation.

Residency and Enrollment Requirements

The minimum enrollment requirement at CU Denver for doctoral students is six semesters of full time scholarly work beyond the attainment of a bachelor's degree.

The doctoral program requires a minimum of two years of residency (not fewer than four semesters enrolled in a minimum of six semester hours each, excluding summer) devoted to coursework and other preparation for advancement to doctoral candidacy status. Ordinarily, research for the dissertation will also be completed while in residence. After that time, special arrangements can be made with the CAP Ph.D. Committee if substantial work needs to be performed elsewhere.

Students must complete the comprehensive examinations and dissertation proposal within four years from the beginning of their first semester in which they are enrolled as a Ph.D. student at University of Colorado Denver. In addition, University of Colorado Denver requires that all degree requirements be completed within eight years of matriculation.

Active Status

To remain actively enrolled, students must register for six semester hours or more each academic semester (excluding summer) until they become a doctoral candidate. Once they become a doctoral candidate, students must register for at least one semester hour per semester. Students who are not so registered are automatically withdrawn from the University of Colorado Denver and must apply for readmission to the program. The readmission decision will depend on the student's academic record and progress toward the degree.

Doctoral students must register for a minimum of one hour of dissertation credit in the term of graduation. If all requirements for graduation, including submission of the final approved dissertation, have been completed prior to the last day of registration, and the student was registered for the preceding term, the student may apply for a waiver of the enrollment requirement.

Advising and Committees

Overview

Each student entering the program shall have a Primary Mentor. Students wishing to change their Primary Mentor should do so during their first year. All appointments of Primary Mentors must be approved by the Ph.D. Program Director. Students wishing to change their Primary Mentor after the first year must petition the Ph.D. Program Director for approval. The Dissertation Advisory Committee is comprised of a primary mentor and at least two additional members. Any of these three may serve as the Chair of the Dissertation Advisory Committee.

Primary Mentor

The Primary Mentor guides the student through the completion of the course requirements, the preparation for the comprehensive examinations, the dissertation proposal, and the dissertation. The Primary Mentor must have a doctoral degree and be a tenured/tenure-track member of the College's Ph.D. Program or an invited affiliate faculty with a regular appointment to the Graduate School. The Primary Mentor may serve as the Chair of the Dissertation Committee but may not serve as the Chair of the Comprehensive Exam Committee.

Committee Chair

The Committee Chair's primary responsibility is serving on the student's Advisory Committee and chairing the dissertation defense.

Dissertation Advisory Committee

The Dissertation Advisory Committee provides guidance for the investigated dissertation topic, comprehensive examination, dissertation, and the final dissertation examination.

This Committee includes at least three faculty members: the primary mentor and at least two additional committee members. One of the committee members must be a full-time faculty member of the College, and the majority of the committee members must have a Ph.D. degree. All committee members must hold Graduate Faculty appointments. This Committee must be fully formed by beginning of the student's third semester of study.

Membership of this Committee may change if the student's interests and needs change. Any changes should be developed in consultation with the student's advisor, and must be approved by the Ph.D. Program Director. The Dissertation Advisory Committee must meet with the student at least once each year to assess progress.

Comprehensive Examination Committee

This Committee consists of a minimum of three graduate faculty members, including the Advisor. Although it is not a requirement, this Committee should mainly consist of the Dissertation Advisory Committee. At least one member of the Comprehensive Examination Committee must be a full-time faculty member of the College, and the majority of the committee members must have a Ph.D. degree. All committee members must hold Graduate Faculty appointments.

Final Dissertation Examination Committee

The final Dissertation Examination Committee shall be formed according to the Policies and Procedures of the Graduate School. All committee members must hold Graduate Faculty appointments.

Special Circumstances

If the Primary Mentor leaves the faculty of the College before the comprehensive exam and/or dissertation topic is approved, the Ph.D. Program Director will work with the student to identify a new Primary Mentor and Chair for the Committee.

If the advisor leaves the faculty of the College after the comprehensive exam and/or dissertation topic is approved, and both the advisor and the student wish to continue in the advising relationship, the original advisor can continue to be co-advisor with the appointment of a co-advisor from within the Program. The advisor may be appointed as adjunct faculty in the Graduate School and will continue to hold a regular graduate faculty appointment until the student graduates, in order to recognize his or her continuing role, with approval of the Ph.D. Program Director.

If a member of the Dissertation Committee other than the advisor is unable to continue in this role, for any reason, the advisor will work with the student to identify a new member for the Committee. Upon accepting to serve in this role, the new member of the Committee must sign on the dissertation topic and dissertation proposal documents as they were previously approved.

Curriculum

The minimum requirement is 36 semester hours of coursework, all of which must be at the Graduate level (5000 and above) and 30 hours of dissertation semester hours. All Ph.D. students are required to take 12 semester hours of core courses.

The curriculum is divided into three stages consisting of core courses, major and minor field courses, and the dissertation. The program requires a minimum of 66 semester hours of graduate work, 36 of which must be earned while in residence.

Each student's curriculum is tailored to his/her individual needs and is determined in close consultation with the dissertation advisor. Within their area of specialization, students will identify a major area of study and an outside field of study. All students are required to enroll in the Ph.D. Colloquium and Research Methods core courses during the first and second years of course work.

Core Courses (12 semester hours, minimum with B or better grade)

- Ph.D. Colloquium 1 (1 semester hour)
- Ph.D. Colloquium 2 (1 semester hour)
- Ph.D. Colloquium 3 (1 semester hour)

- Ph.D. Colloquium 4 (1 semester hour)
- Literature Review survey with the committee chair (2 semester hours total)
- Two Research Methods courses (3 semester hours each)

Courses supporting the Area(s) of Interest (24 semester hours, minimum grade of B)

Students work with their Dissertation Advisory Committee to designate their area(s) of interest. This designation is not intended to reflect the particular focus of their dissertation topic but rather the disciplinary context within which their dissertation topic resides. Students, in consultation with their advising team, may select one central area of study or a major and minor area of study. This designated course of study forms the basis for their comprehensive exam.

Dissertation Credits (variable): (30 semester hours, minimum of B or better grade)

During the course of doctoral study, students may enroll for credits related to their preparation for comprehensive exams, the dissertation proposal and preparation, or advisor approved independent study as dissertation credits.

Typical Course of Study

FIRST YEAR

Students develop their degree plan, take six semester hours of the required Core Curriculum, complete additional courses in their specialty area, and any prerequisite courses.

SECOND YEAR

Students take the remaining core courses, continue to take electives in their specialty areas, begin literature surveys and reviews, and prepare for their comprehensive exam.

THIRD YEAR

Students complete their specialization papers, prepare a dissertation proposal, complete the literature review, and take the comprehensive exam.

FOURTH/FIFTH YEAR

Fourth and fifth years are spent researching and writing the dissertation.

Ph.D. Degree Time Limit: Eight Year Completion Requirement

University of Colorado Denver requires that doctoral students, whether enrolled full time or part time, must complete all degree requirements within eight years of matriculation. Students who fail to complete the degree in this eight-year period are subject to termination from the Graduate School upon the recommendation of the program director and concurrence of the Dean. For a student to continue beyond the time limit, the program director must petition the Dean for an extension and include:

1. reasons why the program faculty believes the student should be allowed to continue in the program and
2. an anticipated timeline for completion of the degree.

Approved leaves of absence do not automatically extend the time limits for earning a degree, but they may be used as a reason to request an extension if needed.

For more information on the Ph.D. in Design and Planning, visit the College of Architecture and Planning website.

Education and Human Development PhD

► Graduate School Rules apply to this program

Office: Lawrence Street Center, 701
Telephone: 303-315-6300
Fax: 303-315-6311
E-mail: education@ucdenver.edu
Website: http://www.ucdenver.edu/academics/colleges/SchoolOfEducation/Academics/Doctorate/Pages/PhD.aspx

The PhD in Education and Human Development links an intensive research-based course of study with a content area specialization in order to prepare candidates to assume faculty positions in institutions of higher education or research-based organizations. Successful applicants will be paired with a faculty mentor who will engage the student in research, development, service, and other forms of professional activity.

You will complete a plan of study that includes at least 45 semester credits of coursework (including all required core courses) and 30 semester credits of dissertation. The PhD program is designed to provide each student with an induction into the university research and teaching culture. PhD coursework is intensive and substantive, requiring significant writing, analysis, and critiquing of theory and professional literature.

Overview of Course Work:

The PhD program consists of a minimum of 75 semester credits. Total credits may vary in order to fully prepare for career opportunities. Students complete 45 credits in three core areas outlined below. The final 30 credits are completed through the dissertation.

12 credits - Foundation courses/experiences: Equity and Diversity; Learning; Epistemology; and Teaching in Higher Education
18 credits - Research Methods
15 credits - Concentration Area (see the list options below)
30 credits - Dissertation

Doctoral students complete a series of courses/experiences in a specified concentration area. Concentration areas focus on a defined discipline or content area in preparation for professional roles as researchers and faculty members.

The following concentration areas are available.

Administrative Leadership and Policy. This concentration serves as key area for those concerned about leadership in schools as a key focus for research by scholars in higher education. A crucial assumption that underlies this concentration area is that school leadership makes a difference in how schools succeed in improving learning outcomes for all students, but we are only beginning to scratch the surface in understanding why leadership is successful when it is, what the interactions are between effective leadership and effective teaching, and leaders' collective impact on learning outcomes at all levels in schools.

Early Childhood Special Education/Early Childhood Education. The goal of this concentration area is to introduce students to issues and practices in early childhood special education/early childhood education and to prepare students to provide leadership to improve outcomes for all children including children with disabilities across early childhood settings. Students will obtain the skills and knowledge of evidence-based practices needed to meet state and national leadership needs within institutions of higher education to address issues in ECE/ECSE. Graduates will: conduct rigorous research related to culturally responsive, evidence-based practices; translate research into practice, thus expanding the use of evidence-based practice in the field; and, create, evaluate, and improve pre-service teacher education programs in ECE and ECSE.

Family Science and Human Development. The goal of this concentration is to prepare students to critically examine and understand family science within an ecological life span development lens. This program prepares students to work in academic careers as professors, researchers and scholars in Family Science and Human Development. Students are provided a rich curriculum that centers on theoretical and scholarly knowledge in family science, human development and research inquiry. Another objective of this program is to integrate the importance of family diversity (which includes race, ethnicity, culture, class, gender, sexual orientation, age, religion, ability and language) into the curriculum as it relates to social justice in family science and child, adolescent and adult development. Central to the Family Science and Human

Development concentration is the conceptual framework of family and human ecological systems and how that impacts research, practice and policy with diverse families in the United States and at the global level.

Math Education. Students and faculty in this concentration area focus on teacher learning and professional development experiences. Specifically, projects investigate the ways that particular interventions used in professional development for mathematics teachers impacts their content knowledge and pedagogical practices in their classrooms. Work in this area is framed by a situative perspective of learning and incorporates mixed methods to answer questions around the ways particular interventions support teacher and student learning. Video data is prominent in both the design of professional development interventions as well as a major data source for analyses. Analytic methods vary based on the research question and grain size.

Research, Assessment and Evaluation. The goal of this concentration area is to prepare students to design and carry out significant applied research on individual and organizational change in the field of education and human development. Through problem-based pedagogy and hands-on learning, students will be prepared to be collaborative applied researchers who work with community, university and school partners. Students will learn advanced quantitative, advanced qualitative and mixed methods research techniques. Course content includes mixed methods, advanced statistics, advanced qualitative data analysis, systems analysis, collaborative team research and practicum experiences. Graduates of the program are prepared to work as faculty members, school district and organizational researchers, data analysts and assessment coordinators.

Science Education. The goal of this area is to prepare students to explore, understand, and think critically about the nature of science and science education from a largely research-oriented perspective. Students may elect to focus on environmental science education as an area of specialization within this concentration area through electives and discipline-specific research agendas.

Urban Ecologies. This concentration area brings together several faculty members in interdisciplinary study of education in urban ecologies. Participating faculty members are aligned with the interdisciplinary concentration area as a whole, rather than specific threads or foci. The philosophical assumptions underlying work in this concentration area are: 1) Cultural groups are not monolithic, 2) Urban life and learning, including Pre-K-20 education, are complex phenomena that benefit from the multiple lenses offered by multi-disciplinarity, and 3) Trans-nationalism characterizes the cultural experiences and political/economic realities of many communities in cities and contributes to the hybrid identities of residents. These assumptions contribute to a conceptual frame for investigating diversity within the city that is not focused on specific groups and is concerned with the influence of globalization on communities in general within the city. Experiences of and issues confronting different cultural and ethno-linguistic groups will be the key content of this concentration area.

Engineering and Applied Science PhD

Graduate School Policies and Procedures apply to this program

The multidisciplinary Engineering and Applied Science Doctor of Philosophy degree program is offered by the College of Engineering and Applied Science and consists of a primary and secondary concentration. Applicants apply and enter the program through one of four departments, called the host department, which is chosen based on the applicant's intended primary concentration of study. The four departments that serve as host departments are:

- Civil Engineering
- Computer Science and Engineering
- Electrical Engineering
- Mechanical Engineering

Each host department offers several concentrations. A list of concentrations can be found on each department's website. Go to **engineering.ucdenver.edu** to learn more.

The required secondary concentration can be chosen from any remaining department within the college, including the Department of Bioengineering. The secondary concentration may also be chosen from another CU Denver school or college. A student chooses his/her secondary concentration with the help of a faculty advisor after entering the program.

Requirements for Admission

Requirements for admission to the Engineering and Applied Science PhD program can be found under the Degree Programs link on each host department's website.

- Civil Engineering (engineering.ucdenver.edu/civil)
- Computer Science and Engineering (engineering.ucdenver.edu/cse)
- Electrical Engineering (engineering.ucdenver.edu/electrical)
- Mechanical Engineering (engineering.ucdenver.edu/mechanical)

Degree Requirements

The minimum degree requirements consist of 30 semester hours of course work in the primary and secondary areas of concentration, as well as 30 semester hours of research/dissertation credit. Each candidate for the degree is expected to take a preliminary examination by the end of the second year. After successful completion of this exam, the student is required to take the comprehensive examination and the doctoral dissertation defense examination. Additional requirements are outlined in the

Rules and Regulations document that each student signs after being admitted to the program. Each student must also satisfy the degree requirements of the CU Denver Graduate School.

Health and Behavioral Sciences PhD

► Graduate School Policies and Procedures apply to this program

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.

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 (3 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 THE GRADUATE SCHOOL POLICIES AND PROCEDURES.

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 CU Denver. These are the concentrations in medical anthropology within the anthropology MA program offered by the anthropology department and the master of public health offered by the Colorado School of Public Health. Contact the 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 Denver campus, all graduate applications are now submitted electronically. To begin the application process, go to the online admissions website. 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 six) 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.

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 CU Denver Financial Aid Office.

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 curriculum is subject to change. What appears below is intended to give students a general idea of the extent, shape and content of the 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 29 semester hours:

I. 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, who must take at least two times.

- HBSC 7001 - Colloquium Series in the Health and Behavioral Sciences

Total: 2 Hours

II. 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.

- HBSC 7011 - Theoretical Perspectives in Health and Behavioral Science I
- HBSC 7021 - Theory in Health and Behavioral Sciences
- HBSC 7071 - Social and Behavioral Determinants of Health and Disease

Total: 9 Hours

III. Human Ecology and Environmental Adaptation

This course will emphasize the biological/physiological dimensions of human health and disease.

- HBSC 7031 - Human Ecology and Environmental Adaptation

Total: 3 Hours

IV. Research Design and Methods in the Health and Behavioral Sciences

Three HBSC core research design and methods courses, plus 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.

- HBSC 7041 - Research Design and Methods in the Health and Behavioral Sciences I
- HBSC 7051 - Qualitative Research Design and Methods
- HBSC 7061 - Quantitative Methods in the Health and Behavioral Sciences
- HBSC 7161 - Quantitative Methods in Health&Behavioral Sciences II

Total: 12 Hours

V. 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.

- HBSC 7111 - Applications of the Health and Behavioral Sciences

Total: 3 Hours

TOTAL CORE: 29 Hours

Elective Courses

Elective course work together constitutes 3 semester hours, which can be drawn from the large number of offerings in the health and behavioral sciences at CU Denver. 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.

TOTAL ELECTIVES: 3 Hours

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 a minimum of three additional committee members who oversee the student's comprehensive examination and dissertation research.

Formal Review

A formal review of each student's progress will be undertaken at the end of each year of study. 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.

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 a minimum of 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 a minimum of 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.

Dissertation Total: 30 Hours minimum

Health Economics PhD

► Graduate School Policies and Procedures apply to this program

Program Director: Brian Duncan, Ph.D., Department of Economics

Program co-Director: Richard Lindrooth, Ph.D., Health Systems, Management & Policy

Graduate Advisor: Daniel Rees, Ph.D., Department of Economics

The Ph.D. in Health Economics is designed to train scientists to engage in modern economic research related to questions pertinent to the health care sector and to personal and public health. Students take courses both from the Economics Department, which is housed in the College of Liberal Arts and Sciences, and from the Health Systems, Management & Policy (HSMP) Department, which is housed in the Colorado School of Public Health. The ECON coursework grounds students in rigorous economic theory and modern statistical methods, whereas the HSMP coursework connects students to institutional details of the health care sector, administrative data methods, grant writing, and the development of interdisciplinary health care research.

Admission Requirements

· Meet all general admission requirements of the Graduate School (including a 3.0 undergraduate grade-point average).

· Submit three letters of recommendation (at least two letters should come from individuals who are familiar with your scholarly record. The third can be an additional academic reference or professional reference from someone who knows you well and can comment on your potential as a graduate student).

· Submit official transcripts from all colleges attended.

· Have completed 15 credit hours of undergraduate economics, including intermediate microeconomic theory and econometrics (upper division courses).

· Have completed courses in calculus and statistics (preferably a year of calculus. A course in linear algebra and/or differential equations is recommended).

· Submit GRE scores. All applicants, international and domestic, must submit GRE scores regardless of prior degrees, course work, or work experience. The institution code for CU Denver is 4875. GRE scores are used in conjunction with other indicators of academic success at the PhD level. Applicants must show strong evidence of quantitative ability either through high grades in math, statistics, and economic courses, a high quant score on the GRE, or preferably both.

· International students must submit TOEFL, IELTS, or PTE Academic scores. The institution code for CU Denver is 4875. The minimum required score is 203 (computer-based TOEFL), 75 (IBT-based TOEFL), 537 (paper-based TOEFL), 6.5 (IELTS), or 51 (PTE). Minimum subscores also apply. More information about TOEFL, IELTS, or PTE waiver requirements can be found on the International Admission's website. Please contact the International Admissions office if you have questions about this requirement.

Application Deadlines: June 1

Students are encouraged to apply by February 1 for full consideration of financial aid. The final application deadline is June 1.

Degree Requirements

The Ph.D. degree requires the completion of 46 didactic credits and 30+ doctoral dissertation credits, of which 37 hours are core requirements.

Students are expected to meet all course prerequisites. A grade of B- or better is required in all courses, with a cumulative grade point average of B (3.0) or above. No course may be taken more than twice.

Core Courses

- ECON 5073 - Microeconomic Theory
- ECON 5803 - Mathematical Economics
- ECON 5813 - Econometrics I
- ECON 5823 - Econometrics II
- ECON 7073 - Advanced Microeconomic Theory II
- ECON 7661 - Health Economics I
- ECON 7662 - Health Economics II
- HSMP 6602 - Health Equity (3 credits)
- HSMP 6605 - Health Policy (3 credits)
- HSMP 6609 - Cost-Benefit and Effectiveness in Health (2 credits)
- HSMP 7010 - Foundations in Health Service Research I and II (2 credits)
- HSMP 7601 - Research Design & Proposal Preparation (3 credits)

- HSMP 7609 Health Services Research Methods II (3 credits)

Total: 37 Credits

Electives

Any course numbered 6000 or higher with an ECON or HSMP subject code. Courses numbered 6611 or higher with a BIOS subject code may be taken with the graduate advisor's approval.

Total: 9 Credits

Preliminary Exam, Dissertation Proposal, and Dissertation

Students must successfully pass a preliminary examination covering topics in microeconomic theory, econometrics, and health economics by the start of their fourth semester coursework to ensure that they are qualified for doctoral study.

Ph.D. students must defend their dissertation proposal after completing or registering for all non-dissertation coursework and concurrent with applying for admission to candidacy. Students are advanced to candidacy for the Ph.D. once they have completed all required coursework and examinations, and have successfully presented their dissertation proposal to their dissertation committee.

After students are advanced to candidacy, they must complete a total of 30 hours of dissertation credits to complete the PhD. Each fall and spring semester, students are expected to register for a minimum of 5 semester hours of dissertation research; if unable to register for at least 5 semester 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 unenrolled from the program. Students then would need to reapply to the program.

Each student must write and defend a dissertation containing original contributions and evidence of significant scholarship that the student's primary advisor and dissertation committee deem satisfactory.

Total: 30+ doctoral dissertation credits

Integrative and Systems Biology, PhD

► Graduate School Rules apply to this program.

Director for PhD Program: Michael Greene
Office: Science, 4111
Telephone: 303-556-5610
E-mail: Michael.Greene@ucdenver.edu
Website: clas.ucdenver.edu/biology/grad.html

Requirements for Admission

- A BA/BS or MS from an accredited institution awarded within the last 10 years (validation of current content may be required).·Minimum undergraduate GPA: 3.0
- General GRE test: minimum 50% performance in each section (quantitative, verbal, and analytical writing)
- TOEFL: required for international applicants from countries in which English is not the official language
- 3 letters of recommendation
- Official transcripts from all attended institutions
- Students are required to contact faculty in advance. Prior to application, applicants must have identified and contacted an available Faculty Advisor to ensure availability of a position and appropriate research interests

Prerequisite courses required:

- One year of General Biology is preferred. Where needed, supplementary courses or reading programs may be designed to provide background information of sufficient depth for the Program curriculum
- One course in applied or biological statistics (through regression and ANOVA)
- Additional prerequisite requirements may be set by individual faculty

Applications will be considered annually starting January 15 for both domestic US students and international students. Application to the PhD program is through CU Denver Admissions.

Degree Requirements

The PhD degree requirements comprise six phases. First, students must complete a minimum of 60 credits, including 30 dissertation credits. Up to 30 hours of graduate level courses from other programs may be transferred and counted toward the degree. Students must also pass the Preliminary Exam, form an Advisory Committee and an Examination Committee, meet the academic residency requirement, pass the comprehensive exam, and write and orally defend a dissertation.

Research-based PhD degree program **requires**

1. Completing 60 credits including 30 of dissertation (BIOL 8990)
2. Meeting minimum academic residency requirements
3. Passing the Preliminary Exam
4. Forming Advisory and Examination committees
5. Writing and defending research proposal
6. Passing the Comprehensive Exam
7. Writing and defending dissertation (including >1 publishable paper)

Required Courses

- BIOL 6764 - Biological Data Analysis (4 credits taken in the first year)
- BIOL 6705 - Biological Research Workshop (4 credits total, taken two different times in the student's career)
- BIOL 6655 - Seminar (2 credits total, taken two different times in the student's career)
- BIOL 7010 - Integrative and Systems Biology (3 credits taken in the first year))
- BIOL 7050 - Special Topics (a minimum of 3 credits must be completed, but students may take up to 9 credits)
- BIOL 8990 - Doctoral Dissertation (30 credits must be completed after passing the Comprehensive Exam)
- BIOL 6002 - Biology Skills Sets - Pedagogy (2 credits taken in the first year; only required for students supported by a Graduate Teaching Assistantship)

Leadership for Educational Equity EdD

► Graduate School Rules apply to this program

Office: Lawrence Street Center, 701
Telephone: 303-315-6300
Fax: 303-315-6311
E-mail: education@ucdenver.edu
Website: http://www.ucdenver.edu/academics/colleges/SchoolOfEducation/Academics/Doctorate/Pages/EdD.aspx

Program Overview

Students completing this program earn a Doctorate of Education (EdD) in Leadership for Educational Equity. The EdD is a practice-based doctorate for professional leaders in P-20 or community-based educational contexts. The EdD prepares leaders within the

profession to address complex educational challenges by combining decision-focused, analytic and research skills with a broad-based understanding of systems anchored in principles of equity and access to education. You will learn to translate research into practice, influence policy, use data effectively in decision-making, and organize individuals and groups to address challenges collaboratively and successfully.

This program reflects a cohort model. In addition to core courses, you select a concentration area (see the list below). Courses are offered in weekend, hybrid (part face-to-face, part online), online and/or intensive formats. Students follow their cohort in taking the prescribed coursework and experiences for three consecutive years. A five-year path is also available.

Course Work - 54 Semester Credits

- 6 credits - Equity core
- 6 credits - Leadership and Organizational Performance core
- 6 credits - Learning core
- 12 credits - Concentration area (select one)
- 9 credits - Research core
- 15 credits - Dissertation

Concentration Areas

Executive Leadership (with Licensure Option): is designed to deepen individuals' skills in policy analysis, development and research; personnel management; finance; accountability systems and evaluation; and community relations. The concentration supports individuals who hold or seek to move into senior management positions inside school districts, community colleges, higher education policy or community-based education organizations. Students working in P-12 schools may also choose either an administrator or a principal licensure option. Roles may include that of a director, deputy, superintendent or president.

Early Childhood Special Education/Early Childhood Education: is designed to introduce students to issues and practices in early childhood special education/early childhood education and to prepare students to provide leadership to improve outcomes for children with disabilities across early childhood settings. The program will prepare students who can act effectively as administrators in districts, agencies and programs to improve outcomes of all children, including children with disabilities.

Mathematics Education: students and faculty focus on teacher learning and professional development experiences. Specifically, projects investigate the ways that particular interventions used in professional development for mathematics teachers impacts their content knowledge and pedagogical practices in their classrooms. Work in this area is framed by a situated perspective of learning and incorporates mixed methods to answer questions around the ways particular interventions support teacher and student learning. Video data is prominent in both the design of professional

development interventions as well as a major data source for analyses. Analytic methods vary based on the research question and grain size.

Professional Learning and Technology (PLT): this concentration area brings together faculty and students seeking to support working educators in ongoing professional development (PD) and learning activities, helping them become more effective and productive in their jobs. The PLT focus addresses the PD needs of K-12 teachers but also those of higher educators and workplace learners. Applying principles of adult learning, instructional design and change leadership, we use a variety of methods (mentoring, coaching, site-based communities, e-learning resources, workshops etc.) to support professional growth and accountability. The PLT courses in the EdD program prepare you to assume leadership in professional learning programs at all levels (site-based, district- or organization-wide), applying the latest research and best practices of the profession.

Science Education: prepares students to explore, understand, and think critically about the nature of science and science education from a largely research-oriented perspective. Students may elect to focus on environmental science education as an area of specialization within this concentration area through electives and discipline-specific research agendas.

Latin@ Schools and Communities: this concentration focuses on leadership, organizational change and measurement, data-informed decision-making, and creating equity and excellence for all children. Students will look at school re-structuring for linguistic diversity, language education policy and politics, and issues of assessment and instruction for Latino/a students. Together with their faculty mentors, students will work with real data sets and authentic observations and apply their leadership skills to create real world solutions for change.

Urban and Diverse Communities: the Urban and Diverse Communities concentration area is developed for practitioners in PK-12, higher education, or community-based settings. Students will impact urban and diverse educational systems through developing a complex view of educational opportunities and challenges that are influenced by policies and practices in housing, healthcare, employment, urban development, and similar fields. Also, students will develop the skills and dispositions to work alongside communities, while developing an understanding of the historical and cultural realities facing those communities.

Psychology, Clinical Health Psychology PhD

► Graduate School Policies and Procedures apply to this program

Objectives of the Program

Clinical health psychology focuses the interaction between psychological, physiological, and environmental factors as they influence health and well-being. This emphasis includes focus on: 1) the development of effective disease prevention behavioral interventions for individuals and populations at high risk for medical problems; and 2) the development of strategies to help individuals who are already ill to manage their disease and to increase their ability to collaborate with medical professionals and improve their coping skills. A clinical health psychologist combines expertise in research on health psychology with training in clinical psychology. Students in this program are trained to work within the community to use clinical psychological skills and techniques to diagnose and treat mental health conditions, promote health and prevent illness, apply behavioral interventions in the treatment of illness, and improve the health care system. In addition to course work, students acquire expertise in research by completing both a master's thesis and doctoral dissertation. They demonstrate competence in clinical assessment and intervention through several applied practicum experiences, successful passage of the Comprehensive Clinical Competency Examination and successfully completing a pre-doctoral psychology internship. Students can complete the program in five years and have up to eight years to complete the program according to Graduate School Policies and Procedures.

Admissions

The application deadline for receipt of all student information is December 1 for the following fall. You are responsible for making sure all materials are in on time. International students should be sure to submit all materials at least two weeks before this deadline (by November 15) so that they arrive at our department on time.

Admission Requirements:

- BA or BS from an accredited college or university, with a minimum GPA of 3.5 based on all college course work.
- Undergraduate courses in: introductory psychology, psychological statistics, research methods and abnormal psychology. Additional courses in psychology are highly desirable; our admissions committee will also look favorably upon courses in the biological and physical sciences.
- Two official transcripts from each college and university attended.
- Graduate Record Exam (GRE): The GRE General Test (verbal, quantitative, analytical writing) is required. Most students in the program had a combined verbal and quantitative score of at least 1100 on the old GRE scoring system. The GRE should be taken at least six weeks before the December 1 deadline so that the scores arrive on time.

- Three letters of recommendation, at least two of which must be academic references. Applicants provide contact information for their references in the online application. Those individuals are automatically contacted electronically and asked to upload their recommendations directly to your application file.
- The online Graduate Application, including your resume/vita and personal statement.
- Application fee of $50 ($75 for international students).

Financial Information

The University of Colorado Denver administers various forms of financial aid for graduate students: fellowships, scholarships and a number of awards from outside agencies. See the Office of Financial Aid for further information. Additionally, the psychology department offers teaching assistantships each year in such courses as introductory psychology, statistics, research methods and human development. Although we do not guarantee TA positions, we have been able to offer positions to our interested students.

Contingent upon the availability of grant money, faculty may also offer part-time research assistantships to qualified students. The typical RA position involves data collection and analysis, library research, etc. Some computer and statistical skills are usually required. RA positions are less available than TA positions, and they may arise on very short notice.

In-state tuition waivers and additional stipend monies may be available for doctoral students. We do guarantee to pay a full stipend, usually in the form of an assistantship, plus tuition for the first year. We will make every effort to do so for four years.

Note: Neither teaching nor research assistantships confer in-state tuition status.

Degree Requirements

Course Work:
The program requires approximately eight semesters of full-time course work and clinical practica, followed by a year-long internship. Students must maintain a 3.0 grade point average, and no grade below a *B* will count toward the requirements. Students must complete their doctoral dissertations prior to beginning their internship in the 5th year. Students can complete the program in five years and have up to eight years to complete the program, according to Graduate School Policies and Procedures.

Master's Thesis:
The program has a provision for achieving a master's degree *en route* to obtaining the PhD. In addition to taking PSYC 8200, Teaching Skills Seminar, an master's degree is required for students to independently teach a course. During their time in the program,

students' funding will likely require them to independently teach a course. Students must complete a master's thesis, an empirical research project that makes a significant contribution to the field. Although the thesis must address the student's own original question, the use of archival data and pilot studies is encouraged for this project.

Clinical Practica:
A minimum of 500 face-to-face intervention and assessment hours and 1200 total practicum hours [face-to-face intervention and assessment hours, plus supervision, plus support hours as defined by the Association of Psychology Postdoctoral and Internship Centers (APPIC)] are expected in preparation for application to pre-doctoral internships. Approximately 50% of required practica are typically conducted in medical settings. Sites for practica training, include the department's own Psychological Services Center and external facilities such as outpatient diabetes clinics, cancer clinics, OB/GYN, HIV/AIDS, end-stage renal disease, pain, and cardiovascular clinics, and in-patient psychiatric facilities. Students are able to select practica based on their personal and professional interests. All field placements are approved in advance by the Coordinator of Clinical Training.

Demonstration of Clinical Competency:
During the second semester of their third year in the program students must demonstrate their clinical competency by completing the Comprehensive Clinical Competency Evaluation (CCCE). The CCCE is designed to facilitate student demonstration of clinical competence at the developmental level of readiness for application to clinical internship. This evaluation is designed to assess the developmentally appropriate broad and general clinical competencies in clinical psychology, and does not necessarily evaluate clinical health psychology competencies *per se*. The CCCE comprises three sequential components conducted in phases:

1. Applied clinical diagnosis, conceptualization and assessment/treatment plan for a standardized patient.
2. Intervention therapy session with a standardized patient.
3. Oral defense with faculty committee.

Dissertation:
Students must complete a dissertation that involves original empirical work and is distinct from other research projects and publications. The dissertation proposal must be completed and defended prior to making application for the pre-doctoral internship. Students must have a dissertation committee composed of four members of the graduate faculty. When the dissertation is completed to the satisfaction of the primary advisor, the student must orally defend the dissertation to the committee.

Internship:
Students must complete a 12-month, full-time pre-doctoral clinical internship, preferably at an APA-accredited site. This internship is required of all clinical psychologists and is the capstone of clinical training in the doctoral program.

Return to Department of Psychology

Courses

- PSYC 6950 - Master's Thesis
- PSYC 7144 - Advanced Cognition and Emotion
- PSYC 7205 - Advanced Developmental Psychology
- PSYC 7220 - Advanced Biological Bases of Behavior
- PSYC 7262 - Health Psychology I
- PSYC 7350 - Psychotherapy I
- PSYC 7360 - Psychotherapy II
- PSYC 7410 - Assessment I: Personality
- PSYC 7420 - Assessment I: Intellectual and Cognitive Assessment
- PSYC 7485 - Diversity in Clinical Psychology
- PSYC 7490 - Topics in Health Psychology Summer Lecture Series
- PSYC 7500 - Advanced Psychopathology
- PSYC 7511 - Historical and Philosophical Foundations of Psychology
- PSYC 7700 - Clinical Research Methods
- PSYC 7710 - Multivariate Statistics
- PSYC 7713 - Advanced Statistics
- PSYC 7730 - Ethics and Professional Issues in Psychology
- PSYC 7910 - Clinical Practicum
  Students should enroll in 1 credit hour during year one (spring and summer semesters only) and 3 credit hours during years two (fall, spring, and summer semesters) and three (fall semester only). A total of 14 credit hours of PSYC 7910 are required.
- PSYC 8100 - Clinical Behavioral Medicine
- PSYC 8200 - Teaching Skills Workshop
- PSYC 8262 - Health Psychology II
- PSYC 8501 - Primary Care Psychology
- PSYC 8502 - Cardiovascular Health Psychology
- PSYC 8503 - Group Interventions in Health Psychology
- PSYC 8550 - Advanced Social Psychology
- PSYC 8910 - Advanced Clinical Practicum
  Students should enroll in 3 credit hours during years three (spring and summer semesters only) and four (fall and spring semesters only). A total of 12 credit hours of PSYC 8910 are required.
- PSYC 8938 - Pre-Doctoral Internship
- PSYC 8990 - Doctoral Dissertation

Public Administration PhD

Introduction

► Graduate School Rules apply to this program

Program Director: Chris Weible, PhD

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 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, research and public policy analysis. Accordingly, the PhD stresses the development of theoretical, conceptual and methodological knowledge in public administration, policy and management.

Faculty

Professors:

Mary Guy, PhD, University of South Carolina
Tanya Heikkila, PhD, University of Arizona
Richard Stillman, PhD, Syracuse University
Paul Teske, PhD, Princeton University
Chris Weible, PhD, University of California, Davis

Associate Professors:
Deserai Crow, PhD, Duke University
Christine Martell, PhD, Indiana University
Geoffrey Propheter, PhD, George Washington University
Danielle Varda, PhD, University of Colorado Denver
Allan Wallis, PhD, City University Graduate Center

Assistant Professors:
Todd Ely, PhD, New York University
Sebawit Bishu, PhD, Florida International University
John Ronquillo, PhD, University of Georgia
William Swann, PhD, Florida State University
Sandy Zook, PhD, Georgia State University

Wirth Chair in Sustainable Development:

Mark Safty, JD, University of Montana

Assistant Research Professor:

Kelly Hupfeld, JD, Northwestern University

Clinical Professors:

Denise Scheberle, PhD, Colorado State University

Scholar in Residence:

Jane Hansberry, PhD, University of Pittsburgh
Parker Baxter, JD, New York University

Senior Instructor:

Wendy Bolyard, PhD, University of Central Florida
Pamela Medina, PhD, University of Central Florida
Robyn Mobbs, PhD, University of Colorado Denver

Professor Emeritus:

Stephen Block, PhD, University of Colorado
John Buechner, PhD, University of Michigan
Lloyd Burton, PhD, University of California, Berkeley

Dean Emerita:

Kathleen Beatty, PhD, Washington State University

Students

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 four to six years to complete all of the requirements for the PhD. 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 GRE scores that are, at a minimum, above the 50th percentile ranking in both the quantitative and verbal sections. Successful applicants will also show the potential for productive careers in 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 five years old)
- a resume or vita
- three letters of reference attesting to a candidate's academic promise
- a well-articulated statement of purpose demonstrating an understanding of the research orientation of the degree and a strong motivation and determination to successfully complete the program

In addition, students may also submit samples of research reports or publications.

Applicants whose native language is not English are required to submit TOEFL or IELTS scores. This requirement may be waived for applicants who have completed a baccalaureate or graduate-level degree program at an English-speaking college or university. In addition, applicants whose native language is not English are required to participate in an oral interview to demonstrate English language skills sufficient to succeed in a rigorous American doctoral program.

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.

Financial Assistance

For excellent candidates, SPA will 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 for the academic year. SPA's goal is to provide such funding for students for at least three years.

Degree Requirements

Course Work

A total of 36 semester hours of coursework is required past a master's degree in public administration or a 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 semester hours of course work in both the fall and spring semesters, until their coursework 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:

- PUAD 8010 - Historical and Comparative Foundations of Public Administration
- PUAD 8020 - Seminar in Public Management
- PUAD 8030 - Seminar in Public Policy
- PUAD 8040 - Seminar In Economic and Institutional Foundations of Public Affairs

Total: 12 Hours

During the next year, doctoral students are required to take the following methods classes:

- PUAD 8060 - Seminar On The Conduct Of Empirical Inquiry
- PUAD 8070 - Quantitative Methods II

Total: 9 Hours

Additional Coursework:

In addition to the three methods classes listed above (8050, 8060, and 8070), students must take an approved qualitative methods course of the student's own choosing. Depending on the student's interest, topics might include qualitative methodology, administrative law, geographical information systems, or social network analysis. In addition, all PhD students must complete four elective courses relevant to the student's dissertation plans. With approval of the PhD director, students may apply up to 9 semester hours of graded graduate-level credit taken at other universities toward their elective courses.

Preliminary Exam, Dissertation Proposal, and Dissertation

In addition to course work, PhD students must pass a preliminary exam in the testing cycle or semester immediately following the completion of their core

courses. 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. Prior to starting the dissertation, students must successfully pass a comprehensive exam that demonstrates their preparation for conducting dissertation research. At the proposal defense, a doctoral student presents a dissertation proposal to SPA faculty and students, and to his or her dissertation committee.

Students are advanced to candidacy for the PhD once they have completed all required course work and examinations, have successfully presented their research and have been certified for candidacy by his/her doctoral committee. After students are formally advanced to candidacy, they must complete 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 semester hours of dissertation research; if unable to register for at least 5 semester 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 unenrolled 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 or online at http://spa.ucdenver.edu.

School Psychology PsyD

Return to: School of Education & Human Development

- Degree
- Admission Requirements

Program Leader: Franci Crepeau-Hobson, PhD
Office: Lawrence Street Center, 1113
Phone: 303-315-6315
Fax: 303-315-6349
E-mail: franci.crepeau-hobson@ucdenver.edu
Website: www.ucdenver.edu/education/spsy

Faculty

Information about faculty in the school psychology program is available online at http://www.ucdenver.edu/academics/colleges/SchoolOfEducation/FacultyandResearch/Pages/Our-Faculty.aspx.

Degree

The doctor of psychology (PsyD) degree in school psychology is a 96 graduate semester-hour program that leads to licensure as a school psychologist by the Colorado Department of Education and prepares graduates to apply for licensure by the Colorado State Board of Psychologist Examiners.

The program is based on the Accreditation Domains and Standards of the American Psychological Association (APA) and the Model for Comprehensive and Integrated School Psychological Services endorsed by the National Association of School Psychologists (NASP). This model and these standards promote the following domains of psychology: data-based decision-making and accountability; consultation and collaboration; interventions and mental health services to develop social and life skills; school-wide practices to promote learning; preventative and responses services; family-school collaboration services; diversity in development and learning; biological bases of behavior; research and program evaluation; and legal, ethical and professional practice.

Consistent with a practitioner-scholar model, the PsyD Program in School Psychology prepares professional school psychologists through rigorous academic study integrated with intensive supervised clinical practice. The Program includes an emphasis on the delivery of mental health services in schools, as well as the development of advanced level practice skills. The Program stresses the application of scholarly findings to practice, as well as a respect for all aspects of diversity.

Bilingual School Psychologist Concentration Option

This optional specialization provides School Psychology students with the knowledge and skills to effectively serve English language learners in the school setting. In addition to the three required courses and practicum component, the Bilingual School Psychologist concentration consists of language proficiency assessments to ensure that school psychologists are adequately proficient in another language to provide psychoeducational services. CU Denver provides one of the few bilingual school psychology concentration areas in the country making our graduates even more desirable in their future endeavors.

Admission Requirements

Successful applicants to the school psychology (SPSY) program will have obtained a minimum 3.2 undergraduate GPA and a combined score of at least 300 on the verbal and quantitative sections of the Graduate Record Exam (GRE) and a minimum score of a 3.5 on the written portion of the GRE. Applicants will also submit a current resume or vita, a personal statement that outlines their reasons for pursuing a degree in school psychology at CU Denver, and three letters of recommendation. The highest ranked applicants will be invited to a full-day group interview that includes a program orientation, a writing assignment, and a campus tour.

Application materials are available at https://application.admissions.ucdenver.edu/apply/. All materials must be submitted online by December 1 for fall semester admissions. Application materials include the following:

- $50 application fee for domestic students, $75 application fee for international students (may be paid via credit card, e-check or by mailing in a check)
- letter of intent/personal statement
- resume or vita
- three letters of recommendation
- one official transcript from each higher education institution attended (in the original, sealed envelope)
- official GRE scores sent directly to the University of Colorado Denver. The GRE is a general scholastic aptitude test that yields separate verbal and quantitative scores. A minimum score of 300 (verbal score + quantitative score) with an approximate score of 3.5 on the written portion is required for consideration as an applicant. When taking the GRE use the code number for CU Denver, 4875, to ensure scores will be sent electronically to CU Denver. GRE scores are required for the School Psychology program unless you already hold a Doctoral Degree.

Requirements for the Doctor of Psychology Degree in School Psychology and Licensure

Students will complete course work in affective, biological, cognitive, and developmental aspects of behavior; legal and professional issues; psychological assessment; crisis intervention; counseling and other direct interventions; and consultation. Specific course requirements include three prerequisite courses, 71 credit hours of coursework, 7 credit hours of practica (minimum of 500 hours in the field), 6 credit hours of clinical externship (minimum of 500 clock hours in the field), 8 credit hours of internship (minimum of 1500 clock hours in the field), and 4 capstone project credit hours. Successful completion of the School Psychology Praxis exam during the course of study and passing of comprehensive examinations are also required. Prerequisites include an undergraduate or graduate course in each of the following: measurement concepts, basic statistics, and child development. Students may be admitted to the program without first completing these prerequisites; however, these courses must be completed during the first year of study.

Program Requirements

Students will complete the following core course work:

- COUN 5010 - Counseling Theories
- EDHD 6320 - Mind, Brain, and Education
- SPSY 7500 - Biological and Neuropsychological Bases of Behavior
- PSYC 7511 - Historical and Philosophical Foundations of Psychology
- PSYC 8550 - Advanced Social Psychology
- RSEM 6100 - Methods of Qualitative Inquiry

- RSEM 7050 - Methods of Survey Research
- RSEM 7110 - Intermediate Statistics
- RSEM 7210 - Program Evaluation
- SPSY 5600 - Behavior Analysis and Intervention
- SPSY 5900 - School-Based Multicultural Interventions
- SPSY 6100 - School Psychology: Professional and Legal Foundations
- SPSY 6150 - Psychoeducational Assessment I
- SPSY 6160 - Psychoeducational Assessment II
- SPSY 6170 - Assessment and Intervention: Birth to 3
- SPSY 6350 - School-Based Interventions: Children, Youth and Families
- SPSY 6400 - School-Based Interventions: Groups, Classrooms and Systems
- SPSY 6410 - Psychoeducational Assessment of Culturally and Linguistically Diverse Students
- SPSY 6420 - Crisis Prevention, Planning and Intervention
- SPSY 6450 - School-Based Consultation for Mental Health Professionals
- SPSY 6500 - Affective Bases of Behavior and Psychopathology
- SPSY 6550 - Academic Interventions in School Psychology
- SPSY 6700 - Advanced Seminar in School Psychology
- SPSY 7980 - Clinical Supervision & Admin of Psych Services

Supervised Experiences

- SPSY 6911 - School Psychology Practicum
- SPSY 6917 - Advanced Practicum in Psychological Assessment
- SPSY 6918 - Clinical Externship
- SPSY 6930 - School Psychology Internship

Total: 96 Hours

The doctor of psychology in school psychology degree also requires satisfactory completion of two comprehensive case studies a passing score (≥ 147) on the ETS PRAXIS specialty exam in school psychology, a passing score on a written comprehensive examination, and completion of a capstone/applied research project.

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.

Licensure

Administrator License - Executive Leadership Program

Designed for the professional educator who, already holding a master's degree and 5 years leadership experience in education, wishes to apply for an initial administrator

license through the Colorado Department of Education and prepare for a career as a superintendent or other district leader. In addition to coursework, a passing score on the Praxis #5411 Educational Leadership: Administration and Supervision exam is also required for administrator licensure through the Colorado Department of Education. The 12-semester-hour administrator licensure program combines weekend meetings with online work and hands-on clinical practice-usually completed in participants' home districts:

EDUC 7500 - Strategic Human Capital Development
EDUC 7510 - Strategic Organizational Management
EDUC 7520 - Strategic System Improvement
EDUC 7530 - Strategic Leadership Development

These courses are differentiated for four student types: administrator licensure students, EdS students, EdD students and PhD students. Click here for additional information.

Early Childhood Special Education Program

The early childhood special education (ECSE) program leads to a Colorado teacher license or added endorsement in ECSE specialist. The program prepares leaders who will enrich the life experience of young children (ages birth to 8 years) with special needs and their families through a variety of professional roles.

The ECSE 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.

Curriculum and Program Requirements

Semester Hour Requirements

ECSE specialist license: 36 semester hours
Master's degree plus ECSE specialist license: 42 semester hours
Master's degree plus ECSE specialist added endorsement: 36 semester hours
ECSE specialist added endorsement: 24 semester hours

The early childhood special education program provides specialized training in:

- language development and disorders
- child growth and development, differences and disorders
- learning approaches with young children
- measurement and evaluation
- multicultural education
- research methods and current issues
- early childhood curriculum and program development for inclusive classrooms
- working collaboratively with parents and families
- program administration/leadership
- screening and assessment of young children
- intervention strategies with infants and preschoolers
- behavior management
- working as a member of the transdisciplinary team
- cognitive and socio-emotional development and disorders
- treatment of children who have neurological impairment and chronic illness
- challenging behaviors and autism

For more information on coursework and plans of study, please contact an advisor in the School of Education and Human Development.

Fieldwork and Practicum Requirements

For the ECSE specialist initial license, a total of 650 hours of fieldwork/practica is required. Approximately 200 hours of fieldwork are associated with course assignments; 450 hours of intense, culminating practica occur toward the end of the second year of study. Students seeking an added endorsement in ECSE specialist complete 450 hours of practicum experiences.

Principal Licensure

ALPS offers coursework that leads to eligibility to apply for the initial license for K-12 principal through the Colorado Department of Education. A passing score on the Praxis #5411 Educational Leadership: Administration and Supervision exam is also required for principal licensure through the Colorado Department of Education. Having earned an initial license, those who go on to complete a district sponsored induction program may then apply for a professional license through the Colorado Department of Education.

Admission to the ALPS principal licensure program is competitive. All principal licensure applicants must hold at least a bachelor's degree and a teaching or special services license; we also recommend principal licensure applicants have a minimum of three years of post-licensure teaching or special services experience. ALPS's principal

licensure 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 submit performance-based assessments (PBAs) during the principal licensure program to an online assessment system. For successful principal licensure completion, PBAs not approved by the end of the fourth semester must be completed within the two subsequent semesters (not including summer.)

Note: Those already holding a master's degree and 5 years of leadership in education should also see the Administrator License - Executive Leadership Program for pursuing K-12 administrator (superintendent or district-level leadership) licensure.

Principal Licensure Cohort Options

Typically, cohorts are comprised of approximately 25 principal candidates who move through the four-semester principal licensure program together. We welcome applicants from all districts into our principal licensure cohorts. However, we partner with metro-area districts to prepare leaders specifically for their schools.

Distance Learning Cohort

The Distance Learning cohort option has a long history of serving students who live far away from campus. Additionally, this cohort offers students a hybrid (online and face-to-face) course format. Students meet in the first summer for a three-day boot camp. In the fall, they experience two Friday/Saturday weekend sessions. And, they attend two more weekend sessions the following spring. During the second summer, they attend a culminating half-day session. The remainder of the work is completed online.

Denver Public Schools

The Denver Public Schools (DPS) cohort option is one of the DPS Pathways to Principalship. The work in this cohort is focused on leadership for multilingual learner student populations as well as cultural leadership. Instructors and students work closely with not only state and national standards, but also with the LEAD Framework to prepare principals. Students meet on one Saturday and two Tuesdays a month over four semesters. A new cohort starts each spring. Please review this information on the DPS website.

Jefferson County Public Schools

The JeffCo cohort option is offered in partnership with Jefferson County Public Schools. Courses occur on twelve Tuesday evenings during each of the four semesters. This standards-based, performance-based assessed, cohort program is taught by university professors and experienced JeffCo administrators.

Northern Cohort

The Northern Cohort option is offered in partnership with the Boulder Valley School District for applicants from northern-metro districts. This cohort meets on Wednesday evenings during each of the four semesters of the program. This standards-based, performance-based assessed, cohort program is taught by university professors and experienced district administrators.

CU South Denver Cohort

The CU South Denver cohort serves southern-metro districts (Douglas County, Cherry Creek, Littleton, Sheridan, Englewood, Lewis-Palmer and Colorado Springs School District 11.) This cohort meets on twelve Tuesdays during each of four semesters at the Liniger Building at CU South Denver. This standards-based, performance-based assessed, cohort program is taught by university professors and experienced district administrators.

Cohorts start at one or more locations each semester and involve a combination of regular in-person meetings (up to 15 times per semester) and online work.

Principal Licensure Course Requirements:

EDUC 5751 - Principal/Administrator Licensing I. Semester Hours: 3 to 9
EDUC 5752 - Principal Administrator Licensing II. Semester Hours: 3 to 9
EDUC 5753 - Principal/Administrator Licensing III. Semester Hours: 3 to 9
EDUC 5754 - Principal or Administrator Licensing IV . Semester Hours: 3 to 9

Total: 32 Semester Hours for principal licensure via the MA or EdS Administrative Leadership & Policy Studies program (32 hours for principal licensure plus 9 hours of faculty approved graduate-level coursework = total of 41 semester hours for the MA or EdS Administrative Leadership & Policy Studies)

Endorsement Programs

Early Childhood Special Education Program

The early childhood special education (ECSE) program leads to a Colorado teacher license or added endorsement in ECSE specialist. The program prepares leaders who will enrich the life experience of young children (ages birth to 8 years) with delays and disabilities and their families through a variety of professional roles.

The ECSE program is interdisciplinary in focus, drawing on university resources and the clinical expertise of various community professionals and partners. There is a strong emphasis on fieldwork and practicum experiences. 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 for students to apply knowledge and practice skills in a closely supervised environment.

Curriculum and Program Requirements

Semester Hour Requirements

ECSE specialist license: 36 semester hours
Master's degree plus ECSE specialist license: 42 semester hours
Master's degree plus ECSE specialist added endorsement: 36 semester hours
ECSE specialist added endorsement: 24 semester hours

The early childhood special education program provides specialized training in:

- language and literacy development,
- child growth and development,
- teaching and learning approaches with young children,
- learning, development and education grounded in culture, context and identity of young children,
- research methods for education,
- early childhood curriculum and program development for inclusive classrooms,
- collaborative program development and supports for children with families and communities at the center,
- leadership of programs and early childhood professional for practice, advocacy, and social change,
- screening and assessment of young children,
- individualized and systematic supports for children diagnosed with disabilities,
- social emotional competence and classroom supports for challenging behaviors,
- working as a participatory member of a transdisciplinary team,
- high and low incidence disabilities,
- educational supports for children diagnosed with disabilities or chronic illness.

For more information on coursework and plans of study, please contact an academic advisor in the School of Education and Human Development.

Fieldwork and Practicum Requirements

For the ECSE specialist initial license, a total of 650 hours of fieldwork/practica is required. Approximately 200 hours of fieldwork are associated with course assignments; 450 hours of intense, culminating practica occur toward the end of the second year of

study. Students seeking an added endorsement in ECSE specialist complete 450 hours of practicum experiences.

Instructional Technology Endorsement

Students already holding a current Colorado teacher license are able to pursue an added endorsement in Instructional Technology (IT.) Added endorsements allow current teachers to add an additional area of specialization to their current teacher license in order to become qualified to teach in multiple areas. The IT added endorsement might be pursued alone or in combination with the Information and Learning Technologies - Digital Media for Teaching and Learning (K-12), Master of Arts.

It is the student's responsibility to ensure you are meeting the requirements for the endorsement. Students should refer to the Colorado Department of Education (CDE) website for the most current information.

Approved Program Verification for added endorsements is completed by the School of Education & Human Development, but endorsements are granted by the Colorado Department of Education. Individual state requirements vary and may include teaching examinations in addition to a valid teaching license. Students should consult with the Colorado Department of Education and/or the state they will be living in, for the most updated endorsement requirements.

There are two options for the Instructional Technology added endorsement, described below:

Teacher Level

The added endorsement in Instructional Technology-Teacher Level (IT-T) is for new teachers with less than 3 years classroom experience who want to bring technology into their classrooms or move into teaching technology. New teachers are able to earn this added endorsement by completion of the 24 semester hour IT endorsement program (or 30 semester hours for those completing the IT endorsement along with the MA ILT.)

Specialist Level

The added endorsement in Instructional Technology-Specialist Level (IT-S) is for seasoned teachers with 3 or more years of licensed classroom experience who want to bring technology into their own classrooms, schools, and districts, move into teaching technology, or support other teachers during professional development and in-service trainings. Teachers with 3 or more years of licensed experience are able to earn this added endorsement by completion of the 24 semester hour IT endorsement program (or 30 semester hours for those completing the IT endorsement along with the MA ILT.)

Teacher Librarian Endorsement

Office: 999 18th Street, Ste 144
Telephone: 720-639-9228
E-mail: cpe@ucdenver.edu
Website:
http://www.ucdenver.edu/academics/colleges/SchoolOfEducation/Academics/LicenseEndorsements/Endorsements/Pages/SchoolLibrary.aspx

Program Overview

The Teacher Librarian Leadership endorsement program within the ILT master's degree program is a revised and approved teacher librarian education program that leads to the Colorado Department of Education endorsement for teacher librarians. The program integrates 21st Century Learning Standards as approved by the American Association of School Libraries with Common Core content standards and leadership competencies. The program adheres to the constructivist theory of resource-based learning, teacher leadership, instructional coaching, and media literacy. The program believes that teacher librarians as endorsed by a state's department of education require education as a teacher as well as a librarian, as advocated by the American Library Association and the International Association of School Libraries. As a teacher librarian, you will provide collaborative instructional planning, facilitation of professional learning, utilization of information literacy, online instructional resources, and teacher leadership through the management of your library program and online. Courses are offered in a completely online program.

Once admitted, students begin a plan of study that typically takes about 18 months to complete. Consult the program website for more information.

Admission Requirements

Admission decisions are based on undergraduate and graduate grades, external letters of recommendation and fit with the program as reflected in a letter of intent. Prospective students should consult the program website for complete admission procedures and requirements.

Professional Expectations

All students in the endorsement 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 endorsement program uses computers and related technologies as a tool for learning. Students are expected to obtain an e-mail account and check it frequently. In addition to on-campus facilities, 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

Students have a choice between a teacher librarian endorsement-only and a full master's program with a teacher-librarian endorsement. The endorsement requires a minimum of 24 graduate semester hours. Students complete a plan of study consisting of courses and professional field experience. Students must be licensed as a teacher or plan to complete a teacher license prior to seeking the additional endorsement as a Teacher Librarian. This is a Colorado Department of Education requirement.

Courses are offered only in certain semesters and courses should be taken in a particular sequence based on when you start the program. Advising is required prior to enrolling in a course, even as a non-degree student, in order to ensure the most effective course sequencing and availability of courses.

24 Credit Endorsement Degree Plan of Study

Prefix: Course Title	**Term**	**Credits**
SCHL 5100: School Libraries in the Digital Age	Fall	3
SCHL 5030: Information Literacy	Fall	3
SCHL 5160: Managing School Libraries	Spring	3
SCHL 5200: Promoting Literature in Schools	Summer	3
SCHL 5913: School Library Field Experience	Fall	3
INTE 5300: Media Literacy	Summer	3
One course in the Teacher Leadership Certificate program	Varies	3
One course in the Online Learning Certificate program	Varies	3

Graduate Certificate Programs

Applied Statistics Graduate Certificate

► Graduate School Policies and Procedures apply to this program.

Coordinator: Stephanie A. Santorico Ph.D.
Telephone: 303-315-1714
E-mail: Stephanie.Santorico@ucdenver.edu
Web site:
http://www.ucdenver.edu/academics/colleges/CLAS/Departments/math/graduateprograms/Pages/Graduate-Statistics-Certificate.aspx

There is a growing need for qualified statistical analysts of the ever-increasing amounts of data collected in business, industry, and government. The Certificates in Applied Statistics program is designed to give students a strong background in statistical methodology and data analysis in preparation for opportunities in the work force or for graduate studies.

Students will gain competence in such topics as descriptive statistics, estimation, confidence intervals, probability and inferential techniques, simple and multiple regression, analysis of variance, and more advanced topics. Students can focus on a particular application area such as economics, psychology, sociology, geology, or environmental science through the choice of an elective course and the data analysis project.

Admissions Requirements

The minimum admission requirements for students applying for the Graduate Certificate in Applied Statistics are:

- A bachelor's degree (not necessarily in mathematics or statistics) from an accredited college or university
- A grade point average (GPA) of 3.0 or above during their bachelor's degree.
- Students must have taken three semesters of calculus (through multivariate calculus), linear algebra, and a calculus-based statistics course that covers basic probability and statistical distributions.
- Completion of the Graduate Record Examination (GRE) with results submitted to the university.

Subject to approval by the Director of the Programs in Statistics and the Graduate Committee, students with prerequisite deficiencies may be admitted with the understanding that those deficiencies must be removed after admission. Courses taken to fulfill admission deficiencies may not be counted toward the certificate.

Certificate Requirements

Four courses and a 1 hour independent study are required as detailed below.

Two Fundamental Courses in Statistics

- MATH 5320 - Introduction to Mathematical Statistics
  Offered: SPRING
- MATH 5387 - Applied Regression Analysis
  Offered: FALL, SPRING

One Advanced Applications Course

Topics vary from year to year. Course must be pre-approved by certificate coordinator and cannot be MATH 5830. Representative courses include:

- MATH 5394 - Experimental Designs
- MATH 6376 - Statistical Computing
- MATH 6380 - Stochastic Processes
- MATH 6384 - Spatial and Functional Data Analysis
- MATH 6388 - Advanced Statistical Methods for Research
- MATH 7384 - Mathematical Probability
- MATH 7826 - Topics in Probability and Statistics

One Elective

- Any statistics course in the Department of Mathematical and Statistical Sciences at the 5000 level or higher (must be pre-approved by the Certificate Coordinator). MATH 5830 cannot apply towards the certificate.
- ECON 5150 - Economic Forecasting
- ECON 5813 - Econometrics I
- ECON 5823 - Econometrics II
- ENVS 5600 - Applied Statistics for the Natural Sciences
- SOCY 5183 - Seminar: Quantitative Data Analysis

Project Requirement

An independent data analysis project with a report and presentation to demonstrate proficiency with data analysis techniques and a statistical computing software package.

Enroll for one hour of MATH 5840, Independent Study, or in an equivalent course pre-approved by the Certificate Coordinator.

Additional Requirements

Students must maintain a 3.0 GPA or above in these courses with no credit given for courses with grades below B-. Since a certificate is a University of Colorado Denver certification of a student's specialized knowledge in an advanced subject area, all courses in the certificate program must be taken in residency at University of Colorado Denver. Students much be enrolled in one course per year to maintain their status in the certificate program. Certificates must be completed within 3 years from matriculation.

Bioinnovation and Entrepreneurship Certificate

The Business Schools graduate certificates are primarily intended to give individuals with an undergraduate degree in any discipline access to business courses that can help them succeed in their current job or even help them launch their own company.

Students can pursue one of our graduate certificates, even if they are not CU Denver students, without taking the GMAT. Credit earned as a part of the certificate DOES count towards your graduate business degree, should you choose to pursue a degree here. One such certificate is our Bioinnovation and Entrepreneurship Certificate.

Bioinnovation and Entrepreneurship Certificate

The Certificate in Bioinnovation and Entrepreneurship is one-of-a-kind, and is geared to helping bioentrepreneurs achieve commercial success. Students have opportunities to participate in a number of Jake Jabs Center programs; including the annual business plan competition, internships in area businesses, speaker programs with local entrepreneurs, and connection with new ventures. Visit the Jake Jabs Center for Entrepreneurship to learn more about our entrepreneurship programs.

Bioinnovation Certificate Information

Commodities Certificate

Commodities Certificate -- 9 Credits

The J.P. Morgan Center for Commodities at the AACSB accredited CU Denver Business School provides a certificate in Commodities designed to introduce recent graduates to the fundamentals of commodities, from physical to financial. The Commodities certificate consists of three courses designed for recent college graduates with a bachelor's degree (or minor) in Business, Economics, International Studies or Math. Emphasis is placed on developing the knowledge and skills that provide a practical Commodities business foundation.

The Commodities Certificate will help prepare students to work in an environment in which Commodities are a major function in business operations. Coursework will integrate industry operating procedures and standards, including regulations and compliance. Emphasis will be placed on markets, supply chain and forecasting supply/demand functions for overall financial benefit of the company.

Complete 3 of the following courses:

Complete three of the following courses:

- CMDT 6802 - Foundations of Commodities
- CMDT 6582 - Commodity Supply Chain Management
- CMDT 6682 - Trading in Commodity and Financial Markets
- CMDT 6782 - Commodity Data Analysis
  Please contact the Commodities Center for more information.

Construction Project Management Graduate Certificate

The Construction Project Management (CPM) Certificate is a four-course certificate designed to build skills and teach critical management tools and techniques that enable individuals and teams to run projects within schedule, budget and quality requirements. This certificate focuses on the challenging and growing field of construction project management and is designed for working or aspiring professionals and graduate students interested in developing a level of expertise in construction project management.

The certificate starts with two required classes on project management that teach the fundamentals of the International Project Management Institute's (PMI) Project Management Body of Knowledge and provide a solid foundation for anyone involved in project or program management. The PMI program is based on rigorous standards and

ongoing research to meet the real-world needs of organizations worldwide. The electives focus on various components of the PMI knowledge areas-project integration, scope, time, cost, quality, human resource, communications, risk, procurement and stakeholder management- from a construction engineering and management perspective.

You can earn graduate-level credit for each course successfully completed and earn the CPM certificate upon completion of the four courses and can take these courses as a non-degree student or by being enrolled at the University of Colorado Denver. Students must have a bachelor's degree to take these classes. These courses can also be used to partially fulfill requirements for the Master of Engineering in Construction Engineering and Management or other eligible graduate programs.

Contact the Department of Civil Engineering for more information.

Courses

Required:
CVEN 5236 - PROJECT MANAGEMENT SYSTEMS
CVEN 5237 - ADVANCED TOPICS IN PROJECT MANAGEMENT

A minimum of two elective courses from the following list:
CVEN 5087 - ENGINEERING CONTRACTS
CVEN 5232 - CONSTRUCTION PLANNING AND CONTROL
CVEN 5233 - CONSTRUCTION COST ESTIMATING
CVEN 5234 - SUSTAINABLE CONSTRUCTION
CVEN 5235 - ADVANCED CONSTRUCTION ENGINEERING
CVEN 5238 - CONSTRUCTION LEADERSHIP
CVEN 5800/IWKS 4930 - CONSTRUCTION, BUSINESS AND INNOVATION

Cyber Security and Defense Graduate Certificate

Graduate Certificate in Cyber Security and Defense

The certificate program in Cyber Security and Defense will prepare Computer Science professionals to identify, analyze, and mitigate technical cybersecurity related vulnerabilities, exploits and attacks against network and critical cyber infrastructure. The coursework emphasizes practical technical skills, analysis and research focused on current cybersecurity issues.

Certificate Objectives

With the advent of greater network, application, and infrastructure connectivity there are more advanced methods of cyber-attack. This certificate program focuses on both the technical and analytical aspects of advanced cyber security and defense. Graduates of this certificate program will learn how to mitigate known cyber-related attacks against multiple network and infrastructure devices. Graduates will also learn how to design secure solutions, analyze new cyber-attacks and provide solutions that balance risk, security, privacy, cost, and operations. Each course in this certificate program provides project-based opportunities to extend technical skills in programming, network, operating system, infrastructure design and analysis as well as understanding prevention of cybersecurity breaches and incidents

Certificate Eligibility

A BS or equivalent in Computer Science is ideal. Applicants with BS degrees other than computer science will be individually evaluated for adequate knowledge in programming, algorithms, and system design and may be assigned additional courses to take as part of the certificate program to address deficiencies in background.

Students currently in BS-CS degree or in CS Scholars (Dual BS-MS) program at CU Denver need to have completed the undergraduate Operating Systems & Computer Networks and the recommendation of their academic advisor

Process to Attain Certificate Objectives

Student will need to complete a sequence of four separate graduate-level courses

- CSCI 5742 -3 credits - Cybersecurity Programming and Analysis
- CSCI 5743 -3 credits - Cyber and Infrastructure Defense

Two of the following: (depending on student background)

- CSCI 5573 -3 credits - Operating Systems
- CSCI 5765 - 3 credits - Computer Networks
- CSCI 5799 - 3 credits - Cloud Computing

Students must take and pass each course with a grade of B- or better and earn a GPA of at least 3.0 to obtain the Cyber Security and Defense Certificate.

Course Objectives

Cybersecurity Programming and Analysis

This course covers programming concepts related to the security of operating systems, applications, networks, and mobile devices. This course will explore:

- Principles of network, database and operating system cybersecurity
- Use of multiple cybersecurity-related programming languages
- Building and extending existing scanning software
- Analysis and reporting of XML or JSON based cyber related data stores
- Analysis and reporting of cyber related NIST data stores
- Log analysis through programming and scripting
- Database programming and attack mitigation
- Analysis of intrusion prevention data
- Use of existing tool vs new tool creation analysis

Cyber Infrastructure and Defense

This course covers analysis and defense techniques for operational networks and critical infrastructure. This course will explore:

- Design and use of cryptographic systems
- Network security firewalls and devices
- Intrusion detection systems
- Malware detection
- Distributed Denial of Service
- Infrastructure and Application attacks
- Emerging cybersecurity defense methods

Operating Systems

Students study the principles of computer operating systems and their essential components. Team projects expose students to a variety of system design issues as they relate to the functionality and performance of the system.

Computer Networks

An in-depth study of active research topics in computer networks

Cloud Computing

This course studies fundamental designs and key technologies in Cloud Computing by reading technical articles, and conducting a semester group project.

Democracy and Social Movements Graduate Certificate

► Graduate School Policies and Procedures apply to this program.

Program Advisor: Lucy McGuffey
Office: Student Commons Building, Room 3217
Telephone: 303-315-1761
E-mail: lucy.mcguffey@ucdenver.edu

The Democracy and Social Movements (DSM) certificate program in political science introduces students to current research and practice concerning the complex interplay between social movements and the processes for initiating and consolidating democracies. While contentious political activities have historically contributed to democratization, they have also led to repression, ethnic conflict and substantive human rights violations. Among the several DSM issues requiring scholarly investigation are:

- Viable ways to contest authoritarian regimes;
- The means for constituting a cohesive civil society after a civil war or revolution;
- The relationships between social equality, distributive justice and democracy;
- The relative efficacy of violence and of nonviolent strategies to institute and sustain regime change;
- The challenges of peace building, transitional justice and democratization in societies torn by internal conflict;
- The growth of transnational social movements in response to globalization;
- The contextual factors determining the specific character of any social movement and of democratic regimes;
- The means by which democratic regimes are consolidated and deepened; and
- The ways in which democratization processes and social movements influence law and public policy, public discourse and culture, the use and design of public/private spaces and the socio-economic outcomes.

Students in the DSM program examine relevant theoretical and methodological literature in these aforementioned areas and apply it to current circumstances by taking specified courses in each of the four major subfields of political science: American, comparative, international politics and political theory.

The DSM certificate program is designed to appeal to persons who want to focus their studies on the recent state of democratization processes around the world, including explorations of the ways in which social movements can catalyze or even threaten those democratization processes. Students in the program will explore how globalization is simultaneously fragmenting and uniting the globe, enhancing wealth and impoverishing people, consolidating human rights regimes and transgressing them and provoking questions about the boundaries of our ethical commitments and the means whereby communities strive for democracy and justice.

By permitting students to devise a curriculum that integrates academic and experiential, the DSM program should enhance students' scholarship, civil engagement and prospects for further study and employment in rapidly growing fields like

international/community development, the non-governmental organization sector, civic education/engagement and human rights.

Requirements

The graduate certificate requires three program courses and the capstone seminar [12 total credits; all must be graduate-level (5000 or above) courses]. Field work/experiential learning is encouraged and promoted throughout the graduate program, but it is not a certificate requirement.

All courses for the certificate must be taken in residency at CU Denver, and completed with a grade of *B* or higher. A minimum GPA of 3.0 is required for the graduate certificate.

All students, whether working toward a degree or as a non-degree student, are eligible for the certificate.

Choose one course from each of the subfields below:

Courses listed below are examples of courses that can be selected for the certificate, but other graduate-level courses (5000-level or above) in political science may be applied with the consent of the program advisor.

Note: Some courses appear more than once in different subfields; students should choose four different subfield courses, not count one toward two subfields.

International Politics

- PSCI 5224 - Dictatorships in 21st Century
- PSCI 5225 - Democracy and Democratization
- PSCI 5265 - Social Justice And Globalization
- PSCI 5808 - Strategies of Peacebuilding

Comparative Politics

- PSCI 5145 - Indigenous Politics
- PSCI 5224 - Dictatorships in 21st Century
- PSCI 5225 - Democracy and Democratization
- PSCI 5256 - Seminar: National Question and Self-Determination
- PSCI 5555 - International Women's Resistance
- PSCI 5808 - Strategies of Peacebuilding

American Politics

- PSCI 5094 - Seminar: Urban Politics

Political Theory

- PSCI 5265 - Social Justice And Globalization

Capstone

- PSCI 5206 - Social Movements, Democracy and Global Politics

Total: 12 Hours

Design Build Graduate Certificate

Contact: Erik (Rick) Sommerfeld
Telephone: 303-315-0008
E-mail: erik.sommerfeld@ucdenver.edu

The College of Architecture and Planning offers a graduate certificate in the emerging area of design build as an extension of the MArch program. The certificate course work totals 18 credit hours and emphasizes design build from the designer's point of view.

Certificate Requirements

Five courses totaling 18 semester hours can be applied to the MArch graduation requirements:

- ARCH 6370 - Introduction To Design Build
- ARCH 6471 - Managing Quality & Risks
- ARCH 6472 - Architecture in a Single Source Project Delivery
- ARCH 6373 - Construction in Design Build
- ARCH 5140 - Design Studio IV

Total: 18 Hours

Emergency Management and Homeland Security Concentration

The EMHS program can be taken as either a stand-alone graduate certification program or as a concentration within the school's Master of Public Administration curriculum.

Non-degree students can earn the Certificate in EMHS by successfully completing 15 credit hours from courses offered and approved by the faculty of the Program Concentration.

The graduate concentration in Emergency Management and Homeland Security (EMHS) provides advanced education in the management of emergencies, hazards, disasters, and homeland security. The EMHS program is designed to meet the needs of students who wish to work, or are currently working, in the field of emergency management and homeland security.

The EMHS program applies an interdisciplinary approach to education that:

1. Emphasizes high-level skills of critical thinking, learning, adaptation and policy analysis
2. Focuses on the all-hazards emergency management model (encompassing natural hazards, technological hazards, and terrorism).

Students completing the EMHS concentration program will have the knowledge and skills necessary to assess and manage a broad range of hazards and disasters, and to understand the policy environment in which emergency management occurs.

Students interested in obtaining a concentration in EMHS within a Master of Public Administration (MPA) or Master of Criminal Justice program must apply and enroll in the MPA or MCJ program within the School of Public Affairs (SPA) and must adhere to all master degree program requirements.

* For more information on the Emergency Management and Homeland Security concentration, please complete a request for more information form on our website.

MCJ EMHS Degree Plan

MPA EMHS Degree Plan

Requirements

Students take two of the following three required courses as well as three elective courses approved by their advisor. The three elective courses may be drawn from the student's particular area of interest, such as policy and management, spatial analysis and quantitative assessment, or public safety.

- PUAD 5655 - Principles of Emergency Management
- GEOG 5230 - Hazard Mitigation and Vulnerability Assessment
- PUAD 5650 - Public Service in Emergency Management and Homeland Security

Entrepreneurship Certificate

The Business Schools undergraduate certificates are primarily intended for students currently pursuing a degree in any undergraduate discipline that want to expand their business knowledge to give themselves a leg up when they enter the work force. However, they can also be taken by students with only a high school diploma.

Students can pursue one of our undergraduate certificates, even if they are not CU Denver students. Credit earned as a part of the certificate DOES count towards your undergraduate degree, should you choose to pursue a degree here. One such undergraduate certificate is listed below:

Launchpad Entrepreneurship Certificate

This certificate can be earned in either downtown Denver at the Jake Jabs Center for Entrepreneurship or CU South Denver.

The Jake Jabs Center for Entrepreneurship is offering an affordable program in one of the fastest growing business segments in the country-Innovation and Entrepreneurship. All courses are taught by faculty from the Jake Jabs Center for Entrepreneurship at CU Denver. You will find many opportunities including scholarships, mentoring, and networking. You will gain skills that prepare you to start a successful business or become an entrepreneurial asset to an existing company.

Benefits:

- Experiential opportunities
- Condensed 8-Week courses
- Two convenient Denver locations
- Cost effective - Scholarships available
- No GPA requirements or prerequisites

For more details about Launchpad courses and registration, visit the Launchpad Certificate page.

The Business Schools also offers post-graduate certificates which are primarily intended to give individuals with an undergraduate degree in any discipline access to business courses that can help them succeed in their current job or even help them launch their own company.

Students can pursue one of our graduate certificates, even if they are not CU Denver students, without taking the GMAT. Credit earned as a part of the certificate DOES count towards your graduate business degree, should you choose to pursue a degree here. One of the post-graduate certificates is listed below:

A Certificate in Entrepreneurship gives students the ability to marshal resources to seize new business opportunities which have uncertain outcomes. The post-bachelors certificate introduces students to fundamental entrepreneurial concepts plus provides the flexibility to allow them to explore specialized areas of interest including cutting-edge social entrepreneurship, new venture design, finance structuring, legal issues, leadership, marketing and personal branding, new product development and business plan creation. Visit the Jake Jabs Center for Entrepreneurship to learn more about our entrepreneurship programs.

Environmental Policy, Management and Law Concentration/Graduate Certificate

The graduate concentration in Environmental Policy, Management and Law is available as a concentration within the MPA program, or as a stand-alone certificate for non-degree students. This concentration, which requires 15 credit hours (5 courses), provides an understanding of how our natural environment is governed and affected by relationships between various entities, including:

- legislatures
- administrative agencies
- courts
- federal, state, and local governments
- government and the nonprofit and private sectors
- government and the public it has been established to serve

The core of the EPML program requires completion of two required graduate seminars, all taught by faculty who specialize in environmental affairs. Then students select three elective courses under faculty advisement.

Requirements

Students must take the following two courses:

- PUAD 5631 - Seminar in Environmental Politics and Policy

Pre-approved Electives (partial list)

An additional three electives are required, and must be approved by the Concentration Director.

- CVEN 5393 - Water Resources Development and Management
- CVEN 5401 - Introduction to Environmental Engineering
- CVEN 5402 - Integrated Environmental Modeling
- CVEN 5480 - Hazardous Wastes and Site Remediation
- CHEM 4700 - Environmental Chemistry
- CHEM 5710 - Air Pollution Chemistry
- CHEM 5720 - Atmospheric Sampling and Analysis
- URPL 6250 - GIS Analysis
- URPL 6500 - Environmental Planning/Management
- URPL 6549 - Environmental Impact Assessment
- URPL 6510 - Energy/Natural Res. Planning
- ENVS 5030 - Environmental Geology
- ENVS 5500 - Topics in Environmental Sciences
- ENVS 5730 - Air Quality Modeling and Analysis
- ENVS 6200 - Risk Assessment
- ENVS 6210 - Human Health and Environmental Pollution
- ENVS 6220 - Toxicology
- ENVS 6230 - Environmental Epidemiology
- BIOL 5154 - Conservation Biology
- BIOL 5445 - Applied Environmental Biology
- GEOG 5090 - Environmental Modeling with Geographic Information Systems
- GEOG 5265 - Sustainability in Resources Management
- PUAD 5310 - Policy Formulation & Implementation
- PUAD 5320 - Public Policy Analysis
- PUAD 5410 - Administrative Law
- PUAD 5420 - Law and Public Policy
- PUAD 5440 - Negotiation and Conflict Resolution
- PUAD 5625 - Local Government Management
- PUAD 5650 - Public Service in Emergency Management and Homeland Security
- PUAD 5710 - Public Sector Technology

Certificate Requirements

Students must take the following two courses:

- PUAD 5631 - Seminar in Environmental Politics and Policy

Total: 15 Hours

Environmental Science Education Graduate Certificate

► Graduate School Policies and Procedures apply to this program.

Certificate Advisor: Bryan Wee
E-mail: bryan.wee@ucdenver.edu

Introduction

Please click here to see Geography and Environmental Sciences Department information.

Certificate Objectives

1. Students will synthesize environmental science content with relevant educational practices
2. Students will recognize, understand and apply environmental science education in either formal or informal educational settings
3. Students will utilize education research methods to support disciplinary learning
4. Students will identify a broader set of career options (see list below)

Sample list of career options

- K-12 Teacher or curricular specialist
- UNICEF/UNESCO/World Heritage Foundation
- National Parks Service or U.S. Forest Service
- Non-profit organizations (e.g. Colorado Alliance for Environmental Education)
- Regulatory Agencies (e.g. U.S. Environmental Protection Agency)
- Environmental and/or Educational Consultancy Firms
- Adjunct lecturer or instructor

Program Delivery

This is both an on-campus and field-based program.

Declaring This Certificate

Please see the Certificate advisor.

General Requirements

Click here for information about Academic Policies.

Eligibility

Environmental Science Education has broad applications across many disciplines. Students who already hold a bachelor's degree from CU Denver or other institutions in any major may be admitted as a CU Denver graduate student or a non-degree-seeking student, depending on enrollment status.

Current CU Denver Students

A student may begin the program in any semester or during the summer by making arrangements with the Certificate advisor. This should be done as soon as you have decided to pursue the certificate, and no later than the semester previous to completion of all the courses required to obtain the certificate.

Former CU Denver Students or Graduates of Other Universities

In order to start the certificate program, you will need to apply to the university as a non-degree seeking student if you are not already enrolled in a graduate program within CU Denver. Once accepted, you will be able to enroll in all of the appropriate classes.

Admissions: http://www.ucdenver.edu/admissions/non-degree/Pages/default.aspx.

Specific questions about enrollment or tuition should be addressed directly to the University Registrar's Office or Bursar's Office.

PROGRAM EXPECTATIONS

Because a certificate is a CU Denver certification of a students' specialized knowledge in an advanced subject matter, all courses in a certificate program are expected to be taken in residency at CU Denver. Only in rare circumstances will exceptions be made regarding this policy. Courses taken within the Environmental Science Education Certificate may be used towards one other degree requirement. Any changes to the standard curriculum program must be approved in writing by the Certificate advisor. Please pay close attention to prerequisites for specific courses.

PERFORMANCE EXPECTATIONS

Students must earn a 3.0 GPA average with no course below a "B-" in all approved courses for the certificate. For graduate and non-degree seeking students, the certificate will be awarded upon completion of the program and be added to the student's transcript.

Certificate Requirements

As a graduate or non-degree student at CU Denver, the requirements for the Environmental Science Education Certificate are two core classes and two electives,

totaling 12 hours. All classes must be taken at the graduate level (5000 or above) to fulfill the requirements of the Certificate.

Required Courses (6 credit hours)

- ENVS 5340 - Equity & Culture in Science Education: Local/Global
- ENVS 5650 - Environmental Education

Electives (6 credit hours)

Select from the following list of electives. Students should consult with the certificate advisor about other courses that may count toward this requirement.

- ANTH 5170 - Culture and the Environment
- BIOL 5154 - Conservation Biology
- COMM 5282 - Environmental Communication
- ENVS 5020 - Earth Environments and Human Impacts
- ENVS 5305 - Water Quality and Resources
- ENVS 5470 - Sustainable Urban Agriculture Field Study II
- GEOG 5265 - Sustainability in Resources Management
- GEOG 5335 - Contemporary Environmental Issues
- GEOG 5440 - Science, Policy and the Environment
- PSCI 5354 - Seminar: Environmental Politics and Policy

Free and Open Source Software for Geospatial Applications Graduate Certificate

Graduate School Policies and Procedures apply to this program

Certificate Advisor: Rafael Moreno
E-mail: rafael.moreno@ucdenver.edu

Certificate Objectives:

1. Provide students and working geospatial professionals with the knowledge and skills for the effective use and development of FOSS4G solutions in diverse

application contexts. This complements and enhances the knowledge and skills they have in the use of geospatial proprietary software solutions.
2. Students will be exposed to several FOSS4G alternatives to address the needs of a geospatial information infrastructure from desktop, database management systems, systems automation/customization, all the way to Web/Cloud-based applications and enterprise level solutions.
3. Students will acquire the necessary knowledge and skills to effectively use the most advanced FOSS4G alternatives to develop solutions for each of levels of a geospatial information infrastructure previously mentioned.
4. Students will have the knowledge and hands-on skills that will enable them to design and develop hybrid geospatial information infrastructures that make use of proprietary software and FOSS4G incorporating each them in a combination that maximizes efficiency of the end infrastructure.

Current CU Denver Students

A student may begin the program in any semester or during the summer by making arrangements with the GISci Certificate Coordinator. This should be done as soon as you have decided to pursue the certificate, and no later than the semester previous to completion of all the courses required to obtain the certificate.

Former CU Denver Students or Graduates of Other Universities

In order to start the certificate program, you will need to apply to the university as a non-degree seeking student if you are not already enrolled in a graduate program within CU Denver. Once accepted, you will be able to enroll in all of the appropriate classes.

Admissions: http://www.ucdenver.edu/admissions/non-degree/Pages/default.aspx.

Specific questions about enrollment or tuition should be addressed directly to the University Registrar's Office or Bursar's Office.

PERFORMANCE EXPECTATIONS

Students must earn a 3.0 GPA average with no course below a "B-" in all approved courses for the certificate. For graduate and non-degree seeking students, the certificate will be awarded upon completion of the program and be added to the student's transcript.

Credit hour requirements:

A total of 12 credits are required for the certificate. The students will have the option to take other courses above and beyond the core requirements for the certificate.

Required Courses

- GEOG 5091 - Open Source Software for Geospatial Applications

  This course exposes students to the diversity of FOSS4G solutions that exist for each of the elements of geospatial information infrastructure. They acquire the necessary hands-on skills to effectively use one FOSS4G to address the needs of each of the levels of a geospatial information infrastructure.

- GEOG 5092 - GIS Programming and Automation

  Students learn programming principles and techniques to automate processes and customize a geographic information system (GIS), and to integrate and coordinate the functions of diverse geospatial software (e.g. a database management system with a GIS).

- CVEN 5385 - GIS Relational Database Systems

  Students learn the principles and techniques to design a spatial database and perform multiple analyses and functions in a FOSS4G spatial database management system.

- GEOG 5086 - FOSS4G Systems Integration

  This course functions as the capstone for the certificate. It concentrates on applying all the knowledge and skills previously obtained and adding more in the area of integration of geospatial information infrastructures based on FOSS4G. Students work on integrating systems from desktop to Web/Cloud-based applications.

Optional Courses

Students can choose to take one or more of the following courses that can complement their formation in specific topics. However, these course are not required as part of the certificate program.

- BIOL 3763 - Biostatistics
- BIOL 6764 - Biological Data Analysis

  Both of these courses use the open source software R for environmental data analysis including spatial statistics and geostatistics.

- CVEN 5389 - Open Source Desktop Mapping, Modeling & Data Processing

  This course uses different FOSS4G for the creation of Web-based mapping solutions.

- GEOG 5050 - Applied Spatial Statistics

  This course is offered annually as part of the GES offerings. It also uses R for data analysis including spatial statistics and geostatistics.

- GEOG 5095 - Deploying GIS Functionality on the Web

  This course uses FOSS4G for database analysis and creation of Web-based GIS systems.

Gender-Based Violence Concentration/Graduate Certificate

A student may choose to complete a concentration in gender-based violence studies as part of the MCJ or MPA degree, or the gender-based violence program can be completed by non-degree students as a stand-alone graduate certificate. The gender-based violence program of study provides an interdisciplinary perspective on crime, the formulation of laws and codes, and the criminal legal system and its intersection with gender and violence. Students pursuing the gender-based violence concentration must complete a total of 15 semester hours via intensive in-person and online hybrid courses that meet periodically throughout a two-year period.

Requirements

Students take the four specified courses below and one elective.

- PUAD 5910 - Nature and Scope of Interpersonal Violence
- PUAD 5920 - The Psychology of Interpersonal Violence
- PUAD 5930 - Interpersonal Violence Law and Policy
- PUAD 5940 - Interpersonal Violence Leadership, Advocacy, and Social Change

Total: 15 Hours

Geographic Information Science Graduate Certificate

► Graduate School Policies and Procedures apply to this program.

GISci Certificate Advisor: Matt Cross
E-mail: matthew.cross@ucdenver.edu

The Geographic Information Science (GISci) Certificate in the Department of Geography and Environmental Sciences is designed to provide CU Denver undergraduates and graduates, as well as non-degree seeking students interested in professional development, with proficiency in the application of spatial thinking, geographic information science, and geo-technologies in the social and physical sciences, spanning the natural, built and human environments and emphasizing human-environment interconnections. The GISci Certificate core establishes a broad foundation in spatial technologies and methodologies, including geographic information systems, remote sensing, cartography, spatial extensions to database management systems, and statistics. From this base, students can delve into various specialization areas depending on their interests.

Upon successful completion of the certificate, students will be able to:

- articulate and apply basic theoretical underpinnings of spatial analytical principles, methodologies, and techniques;
- effectively utilize at least three different types of software used for spatial analysis;
- apply geo-spatial thinking, geographic information science, and geo-technologies appropriately; and
- analyze diverse real-world problems that have a spatial dimension and develop alternative solutions to them.

Eligibility

Geographic information science and geo-technologies have broad applications across many disciplines Students who already hold a bachelor's degree from CU Denver or other institutions in any major may be admitted as a CU Denver graduate student or a non-degree-seeking student, depending on enrollment status.

You must complete the Application for GISci Certificate, which can be obtained from the GISci Certificate Coordinator. The application requires copies of former transcripts indicating that an undergraduate degree has been previously granted or an unofficial transcript from CU Denver showing that you are a current undergraduate or graduate student. This application is required to be formally registered in the GISci Certificate program, and must be completed no later than the semester prior to the scheduled completion of the certificate.

Current CU Denver Students

A student may begin the program in any semester or during the summer by making arrangements with the GISci Certificate Coordinator. This should be done as soon as you have decided to pursue the certificate, and no later than the semester previous to completion of all the courses required to obtain the certificate.

Former CU Denver Students or Graduates of Other Universities

In order to start the certificate program, you will need to apply to the university as a non-degree seeking student if you are not already enrolled in a graduate program within CU Denver. Once accepted, you will be able to enroll in all of the appropriate classes.

Admissions: http://www.ucdenver.edu/admissions/non-degree/Pages/default.aspx.

Specific questions about enrollment or tuition should be addressed directly to the University Registrar's Office or Bursar's Office.

PROGRAM EXPECTATIONS

To earn the certificate, students must complete a specific set of geospatial classes. Because a certificate is a CU Denver certification of a students' specialized knowledge in an advanced subject matter, all courses in a certificate program are expected to be taken in residency at CU Denver. Only in rare circumstances will exceptions be made regarding this policy. Courses taken within the GISci Certificate Program may be used towards one other degree requirement. Any changes to the standard curriculum program must be approved in writing by the GISci Certificate Coordinator. Please pay close attention to prerequisites for specific courses.

PERFORMANCE EXPECTATIONS

Students must earn a 3.0 GPA average with no course below a "B-" in all approved courses for the certificate. For graduate and non-degree seeking students, the certificate will be awarded upon completion of the program and be added to the student's transcript.

Course Requirements

As a graduate or graduate-non-degree student at CU Denver, the requirements for the GISci Certificate are four core classes and two electives, totaling 18 hours. All classes must be taken at the graduate level (5000 or above) to fulfill the requirements of the Graduate GISci Certificate. It is assumed that graduate students have some prior knowledge in basic mapping skills, therefore GEOG 2080 is not required. All core classes are required for completion of the GIS Certificate and are offered at least on a yearly basis. The statistics course requirement can be filled by enrolling in the GEOG 5050 Applied Spatial Statistics, or one of several graduate level (5000 or above) classes offered by

CU Denver and approved by the certificate coordinator. There is a prerequisite requirement of a basic statistics class taken at the undergraduate college level prior to taking any graduate level statistics class at CU Denver. Any additional two electives can be taken from the elective list. If you are currently a graduate student at CU Denver and also attended CU Denver as an undergraduate, you may apply only one 3 credit hour undergraduate course (4000 level) to the GISci Certificate. The required classes are as follows:

Prerequisite Course

Note: this course does NOT count as part of the total credits required for the certificate.

Core Courses

- GEOG 5050 - Applied Spatial Statistics
- GEOG 5060 - Remote Sensing I: Introduction to Environmental Remote Sensing (May also take as GEOL 5060)
- GEOG 5080 - Introduction to GIS
- GEOG 5081 - Cartography and Computer Mapping
  OR equivalent course approved by the GISci Certificate Coordinator

Total: 12 Hours

Elective (choose two from the following):

- GEOG 4086 - FOSS4G Systems Integration
- GEOG 5070 - Remote Sensing II: Advanced Remote Sensing (May also take as GEOL 5070)
- GEOG 5085 - GIS Applications for the Urban Environment
- GEOG 5090 - Environmental Modeling with Geographic Information Systems
- GEOG 5091 - Open Source Software for Geospatial Applications
- GEOG 5092 - GIS Programming and Automation
- GEOG 5095 - Deploying GIS Functionality on the Web
- GEOG 5235 - GIS Applications in the Health Sciences
- CVEN 5382 - Geospatial Data Development
- CVEN 5385 - GIS Relational Database Systems
  One of these courses may be substituted with an elective approved by the GISci Certificate Coordinator

Total: 6 Hours

Certificate Total: 18 Hours

Geographic Information Systems Graduate Certificate

This certificate is for students who want to get a taste of the geographic information systems (GIS) specialty area before applying for a graduate degree and for professionals who need a working knowledge of GIS. To earn the certificate in GIS, students must complete four of the core GIS classes, equaling 12 semester hours of work. Students can complete this certificate as a master's student or as a nondegree student. Students must already have a baccalaureate degree and must complete any course-specific prerequisites.

Geospatial Information Science Graduate Certificate

Contact: Michael Hinke (Co-coordinator)
E-mail: michael.hinke@ucdenver.edu

Contact: Austin Troy (Co-coordinator)
Telephone: 303-315-1006
Email: austin.troy@ucdenver.edu

Geospatial Information Science (GIS), known to some as "computer mapping," is used to store, manage, analyze, synthesize, and display spatial data and information. In the College of Architecture and Planning we use GIS to analyze and understand space, to answer the place-based questions posed by our stakeholders and our clients, and to create the planning- and research-oriented maps that are critical to communicating with our stakeholders. Our work with GIS in the college is built on the many advances in Geospatial Information Science over the last 40 years.

This certificate program is intended for motivated people with a strong interest in the application of GIS to the design and planning professions. It is targeted both at students currently enrolled in a University of Colorado degree program who wish to add a credential to their degree, and working professionals who do not wish to enroll as degree-seeking students, but who wish to pursue a certificate to improve job skills.

Students who earn this Certificate through the College of Architecture and Planning at the University of Colorado Denver will exit the program with the following:

- An understanding of GIS theory and concepts

- Technical mastery of general GIS methods using ArcGIS as well as familiarity with remote sensing
- Familiarity with common public geospatial data sources, as well as metadata standards
- Knowledge of data interoperability, including how to move data and maps from one software platform to another; examples of software includes Adobe Creative Suite, 3D Studio Max, SketchUp, RhinoTerrain, ArcMap, and Quantum GIS
- Specialized skills in geospatial technologies and methods related to the design and planning professions, including rendering and visualizations, infrastructure and transportation network analysis, cadastral mapping, site selection and analysis, geodesign, and many others.

GIS is a rapidly growing field and an increasingly important job skill. GIS skills are showing up as requirements for architects, landscape architects and planners. Our GIS Certificate holders are currently working as: environmental planners, transportation planners, city planners, urban designers, landscape architects and software developers.

A minimum of a 3.0 GPA in all GIS related course work is required to earn the GIS Certificate, and for certificate credit a B- or better is required in all GIS certificate courses.

Course Requirements

The GIS Certificate is designed to supplement students' course work in their field of study. Degree seeking students in the College of Architecture and Planning wishing to pursue the GIS Certificate are expected to take 12 additional semester hours of course work to complete the certificate.

Achieving the GIS certificate in your degree program requires you to follow the appropriate advising sheet.

Master of Landscape Architecture - GIS Advising Sheet
Master of Urban and Regional Planning - GIS Advising Sheet

Part 1: Introductory GIS class (3 semester hours)

- URPL 6250 - GIS Analysis
- LDAR 5540 - Introduction to GIS

Part 2: Advanced GIS methods class (3 semester hours)

- URPL 6260 - Advanced Geo-Spatial Methods

Part 3: One of the following (3 semester hours)

- GEOG 5060 - Remote Sensing I: Introduction to Environmental Remote Sensing
- GEOG 5070 - Remote Sensing II: Advanced Remote Sensing
- Boulder: GEOG 5093 - Remote Sensing of the Environment (cost and financial aid availability may vary)

Part 4: Specialized advanced classes (9 semester hours)

- GEOG 5081 - Cartography and Computer Mapping
- GEOG 5085 - GIS Applications for the Urban Environment
- GEOG 5090 - Environmental Modeling with Geographic Information Systems
- GEOG 5091 - Open Source Software for Geospatial Applications
- GEOG 5092 - GIS Programming and Automation
- GEOG 5095 - Deploying GIS Functionality on the Web
- GEOG 5230 - Hazard Mitigation and Vulnerability Assessment
- CVEN 5382 - Geospatial Data Development
- CVEN 5385 - GIS Relational Database Systems
- CVEN 5800 - Special Topics - Geomatics for GIS
- LDAR 6686 - Special Topics: Landscape Architecture - Advanced Topics in GIS
- Any course from the Part 3 list (either track) not already used to fulfill the Part 3 requirement
- Up to 3 semester hours from a studio course where intensive GIS is used. This must be done by submitting a petition to the coordinators describing the GIS activities undertaken.
- Up to 3 semester hours for an internship using GIS in a planning or design context, also by petition. Please see the coordinators before you start the process of looking for an internship.
- Other relevant courses by permission

Part 5: Portfolio

Students pursuing the GIS Certificate are strongly encouraged to assemble a digital portfolio of GIS-related work undertaken in classes in the College of Architecture and Planning.

The Certificate Coordinators and the Academic Advisors have materials to help students prepare their portfolios. Students are encouraged to work with the GIS faculty to cater their portfolio to their intended careers.

Note: Students pursuing the GIS Certificate in the College of Architecture and Planning are expected to use GIS data and software in their design and planning related classes.

Graduation

Students who have completed all of the requirements for the GIS Certificate must submit their GIS Certificate form at the start of the semester that they plan to graduate.

Hours: 18 semester hours

Eligibility, Application, and Tuition and Fee Information

The certificate program is open to all. Applicants already enrolled in a University of Colorado degree program need only submit an internal application to the CAP GIS certificate program. Applicants who are not currently enrolled in a degree program must apply to CU Denver as non-degree seeking students and also submit an application to the CAP GIS certificate program. More details on the process are available from the coordinators.

Apply as a non-degree-seeking student in the Admissions area of the university website.

Find tuition and fee information in the Bursar's Office area of the university website.

Students interested in pursuing the GIS Certificate may start the conversation with their academic advisors, or one of the GIS coordinators. Michael Hinke serves as the director of the interdisciplinary GIS teaching lab on campus (the Facility for Advanced Spatial Technology), and he is happy to talk to students who need more information about classes taught in Geography and Civil Engineering.

Historic Preservation Graduate Certificate

Graduate Certificate in Historic Preservation

The University of Colorado Denver Graduate Certificate in Historic Preservation, an interdisciplinary collaboration between the College of Architecture and Planning and the History Department. The certificate program is open to any qualified graduate student or non-degree seeking student with a bachelor's degree.

The certificate provides CU Denver students and the wider community with foundational knowledge and skills in Historic Preservation, a field that enhances studies and

professional work in areas such as architecture, heritage tourism, historic preservation, national park interpretation, planning, public history, urban studies and related fields.

The certificate can stand on its own, can complement a graduate program in Architecture, History, or Urban Planning; or can serve as a beginning to graduate studies. It can also be a stepping stone to further work in Historic Preservation with the College of Architecture and Planning's Masters of Science in Historic Preservation.

Applicants must have a B.A. or B.S. degree.

Interested students must register their intent to complete the certificate with the Director of the Public History & Preservation Program, CU Denver History Department. Students already enrolled in a graduate program at CU Denver can begin their certificate work at any point during their studies. Non-degree students must apply to the university as a non-degree seeking student.

Those students already admitted to a degree program in the College of Architecture and Planning should begin the process by contacting program co-director, Professor Christopher Koziol (Christopher.koziol@ucdenver.edu). All others should contact the Department of History Director of the Public History & Preservation Program, Professor Tom Noel (tom.noel@ucdenver.edu)..

All courses in the certificate program must be taken in residency with CU Denver faculty. Students must maintain a 3.0 GPA, and no course below B- will count towards the certificate.

Graduate students in the History Department can count courses for both their major or minor fields and the requirements for the certificate. Graduate students in the College of Architecture and Planning should discuss credit distributions with their academic advisor.

Admissions Requirements

1. Applicant must have a B.A. or B.S. Degree.
2. Applicant applies to the above designated co-director.
3. Applicants must provide a transcript, statement of purpose, and two letters of recommendation.

Certificate in Historic Preservation: 18 credits

Required Courses

- HIST 5232 - Historic Preservation **(3 credits)**
  OR
- HIST 6989 - Seminar: Special Subjects in History (listed as a topics course - check for the title) **(3 credits)**

One of these courses is offered once a year by the History Department.

- HIPR 6010 - Preservation Theory and Practice **(3 credits)**

  This course is offered every fall by the College of Architecture and Planning.

  Total 6 credits

Electives

Optional Courses (to complete the 18 credit hours required). These remaining 12 credit hours should be distributed so that at least 3 hours are from each of the two participating colleges, CLAS(HIST) and CAP(ARCH and HIPR), and hence, no more than 9 hours from the other. Be sure to consult your preservation advisor (Profs. Koziol or Noel) on your course selection.

- HIST 5228 - Western Art and Architecture
- HIST 5229 - Colorado Historic Places
- HIST 5240 - National Parks History
- HIST 5245 - Heritage Tourism
- HIST 5939 - Internship
  OR
- HIPR 6930 - Internship
- HIST 6950 - Master's Thesis
  OR
- HIST 6952 - Master's Project: Public History
- HIPR 6110 - Regionalisms & the Vernacular
- HIPR 6210 - Historic Buildings in Context
- HIPR 6220 - Adaptive Reuse: Business and Practice
- HIPR 6310 - Documentation, Analysis, Representation
- HIPR 6410 - Urban Conservation: Context for Reuse
- HIPR 6510 - Building Conservation
- HIPR 6610 - Reading the City
- ARCH 6210 - History of American Architecture
- ARCH 6212 - History of Modern Architecture

Integrated Construction, Management + Leadership Graduate Certificate

Contact:

Business School: Linda Brooker
303.315.8200
linda.brooker@ucdenver.edu

College of Engineering and Applied Science | Civil Engineering: Roxanne Pizano
303.315.7162
roxanne.pizano@ucdenver.edu

College of Architecture and Planning: Leo Darnell
303-315-1015
leonard.darnell@ucdenver.edu

The colleges of Architecture and Planning, Engineering and Applied Science, and the Business School at the University of Colorado Denver have formed a partnership to create an innovative and interdisciplinary leadership program. The Integrated Construction, Management and Leadership (ICML) Certificate is a four-course certificate designed to launch designers, architects, engineers, and business entrepreneurs into the world of construction or rapidly update an existing skill-set.

All classes are held in the Liniger Building at CU South Denver, located east of Interstate 25 on Lincoln Avenue in Parker, Colorado. Go to the CU South Denver website to see the class schedule.

As disciplinary identities, project boundaries, and conventional markets blur, leadership, management skills, and civic mindfulness are key aspects to successfully navigating a rapidly transforming 21st century built environment. Many new ideas are emerging involving how projects are conceived and delivered that better integrate the complex relationships among finance, marketing, design, and construction. These new interdisciplinary management and construction techniques streamline the construction of increasingly large-scale and complex projects. Leadership skills are necessary for success in the central activities of contemporary engineering, architectural design firms, business, government, and non-profits. The demands of project management in firms today involve more than a specific technical expertise in a given field. Firms need creative individuals who can effectively innovate, execute, and communicate across disciplines. This new certificate program capitalizes on these changes and the new opportunities they present.

ICML is an interdisciplinary program designed for working or aspiring professionals, and upper level students interested in expanding their knowledge base in the fields of engineering, architecture, business, and their intersections. The courses include introductions to and explorations of current trends in the construction industry, project management and building information modeling (BIM). The final course is an integrated course that brings together top executives in the architecture, engineering and

construction (AEC) business to discuss current industry topics and provides students an opportunity to apply principles from the various fields to case study projects.

- Students can earn graduate level credit for each course they successfully complete and the ICML Certificate upon completion of all four courses.
- They can take the courses as a non-degree student or while enrolled in a degree program at the University of Colorado Denver.
- The courses can be used to partially fulfill requirements for the MEng in Construction Engineering and Management or other eligible graduate programs such as the Master of Architecture degree upon acceptance into these programs.
- Approved courses in this Certificate may also count toward related Certificates offered by the Business School and Construction Engineering and Management.

Certificate Requirements

Four courses totaling 12 semester hours:

- ARCH 6420 - Integrated Practice & BIM Technology
- BANA 6650 - Project Management
- CVEN 6235 - Advanced Construction Engineering
- CVEN 6238 - Integrated Construction Leadership

  If these courses are not offered in a given semester with permission other courses with similar scope and level may be substituted.

Total: 12 Hours

Interpersonal Violence and Health Care Graduate Certificate

The Certificate in Interpersonal Violence and Health Care (CIVHC) fulfills a nationally recognized need to educate and train individuals from a broad range of health disciplines to effectively respond to victims of interpersonal violence. CIVHC is a program of the Center on Domestic Violence in CU Denver's School of Public Affairs, developed in collaboration with local and national advisors representing schools of nursing, medicine and dentistry, as well as knowledgeable health practitioners skilled in meeting the needs of patients experiencing interpersonal violence. CIVHC is the first graduate level program of its kind. As a distance learning program it represents a collaboration within the University of Colorado system-the Downtown Campus, the Anschutz Medical

Campus and the Colorado Springs Campus. Its goal is to provide education for health professionals, faculty and students, thereby building proficiency and confidence in interpersonal violence prevention, identification and intervention in Colorado and the nation.

At the completion of this certificate program, participants will have:

- Leadership skills necessary to improve systematic responses to interpersonal violence in health care settings
- Thorough understanding of the health ramifications of interpersonal violence
- Skill and comfort with screening all patients for interpersonal violence-victims, offenders and child witnesses
- Ability to effectively assess and treat adults and children engaged in violent relationships
- Ability to build resources to meet the needs of patients including, but not limited to, collaboration with community based providers.

Four courses are required for completion of this certificate. Please contact the Director of the Center on Domestic Violence at barb.paradiso@ucdenver.edu for more information.

Local Government Concentration and Graduate Certificate

Local government is the most rapidly growing area of the public sector employment across the country, providing jobs in municipalities, counties, regional authorities, and councils of government.

The Local Government Concentration allows Master of Public Administration students to become well-versed in the forces that shape the agendas of these offices and agencies and gain an understanding of government management and policy making. MPA students who wish to earn a concentration in Local Government must take two of the following courses as part of their electives:

Non-degree students may earn a Local Government Certificate by completing 15 credit hours (5 courses) in topics approved by the Concentration Director.

For more information, contact:

Dr. Allan Wallis, Local Government Concentration Director & Associate Professor
University of Colorado Denver
School of Public Affairs
Phone: (303) 315-2829

Fax: (303) 315 - 2229
E-mail: Allan.Wallis@ucdenver.edu

Certificate Requirements

Students take at least two of the four courses listed below:

- PUAD 5503 - Public Budgeting and Finance
- PUAD 5625 - Local Government Management
- PUAD 5626 - Local Government Politics and Policy
- PUAD 5628 - Urban Social Problems
  Electives approved by advisor (3) (6-9 semester hours)

Total: 15 Hours

Nonprofit Organizations Graduate Concentration/Certificate

The graduate concentration in Nonprofit Organizations is available as a concentration within both the MPA and MCJ degree, or as a stand-alone certificate for non-degree students. This program prepares students to become innovative and critical thinkers in the areas of nonprofit organizational management and public policy, with a unique approach that bridges theoretical knowledge with real-world experience. As students prepare for their careers or advancement in their current positions, they gain insight into the interdependence between the nonprofit, public, and for-profit sectors. Graduates are able to span the boundaries of these three sectors to assess community needs, navigate the realm of public policy, and strategically and effectively manage organizations that ultimately benefit society.

Requirements

Students take two required courses as well as three electives approved by the concentration advisor, for a total of 15 hours.

- PUAD 5110 - Seminar in Nonprofit Management
- PUAD 5140 - Nonprofit Financial Management

Post-Graduate Certificates

The Business School's post-graduate certificates are primarily intended for professionals in the community with a master's degree, in any business discipline, from an AACSB accredited institution. These certificates are offered in a variety of specialized business areas from Business Analytics to Information Systems. The courses are designed to allow individuals that are already in the business community to bring their skills up to date - or to explore a new area of business that interests them.

Students are required to complete four graduate courses in order to receive a post-graduate certificate. Students can pursue one of our post-graduate certificates, even if they are not CU Denver students. Credit earned as a part of the certificate DOES count towards a second graduate business degree, should you choose to expand your knowledge further with one of our complete MS or MBA degrees.

We currently offer post-graduate certificates in:

- Bioinnovation and Entrepreneurship
- Business Intelligence
- Business Strategy
- Change Management
- Commodities
- Digital Health Entrepreneurship
- Enterprise Risk Management
- Enterprise Technology Management
- Entrepreneurship
- Finance
- Health Information Technology
- Human Resources Management
- Information Systems
- International Business
- Leadership
- Managing for Sustainability
- Marketing
- Risk Management and Insurance
- Sports and Entertainment Management
- Technology Innovation and Entrepreneurship
- Web and Mobile Computing

Some of the post-graduate certificates require prior knowledge in the area being studied, Please contact an advisor for specific courses and requirements for the post-graduate certificates.

Public, Nonprofit and Community Leadership Graduate Certificate

Introduction

Please click here to see Political Science department information.

The Public, Non-Profit and Community Leadership Graduate Certificate is offered in two different formats: the traditional, on-campus format, and the New Directions weekend classes format, with classes offered in CU Denver facilities south of Denver (either at the Liniger Building in Parker, or at Fort Lewis College in Durango). Students can choose either of these two pathways to complete the certificate.

Public, Non-Profit and Community Leadership Graduate Certificate: On-Campus Pathway

The CU Denver Political Science Department's Public, Non-Profit and Community Leadership Certificate engages students in a focused curriculum in the community organizing and development field, including field placements in internships with local community partners. The program curriculum is anchored around the study and practice of local civic engagement, especially in traditionally marginalized communities. Students will be connected to meaningful work and networking opportunities in those communities, through community-based coursework, internships and service-learning opportunities. The certificate program provides critical education and effective skills-based training for students seeking careers in community organizing and development, as well as for students seeking more active citizenship and civic engagement. Students will be prepared to become change agents in their communities, while developing possible career paths in community-based advocacy/service organizations, public agencies, or international development work.

Curriculum and Credit Requirements: On-Campus Pathway

The graduate certificate requires four "public leadership" courses (12 credits), which must include PSCI 5914 - Community Development and an appropriate field study (internship) course (with the default course being PSCI 5944 - CU in the City).

Required Public Leadership Courses (6 credits)

- PSCI 5914 - Community Development

  Field Placement Requirement, fulfilled by ONE of the following courses:
- PSCI 3914 - The Urban Citizen

- PSCI 5944 - CU in the City
- PSCI 5939 - Internship (including opportunities in the Colorado State Legislature)

Elective Public Leadership Courses (6 credits)

- PSCI 5025 - Local Governance and Globalization
- PSCI 5094 - Seminar: Urban Politics
- PSCI 5024 - State Politics: Focus on Colorado
- PSCI 5206 - Social Movements, Democracy and Global Politics
- PSCI 5265 - Social Justice And Globalization
- PSCI 5274 - Conflict Resolution and Public Consent Building
- PSCI 5324 - Politics, Public Policy and Leadership
- PSCI 5414 - Organizational Change Agents
- PSCI 5555 - International Women's Resistance
- PSCI 5008 - Graduate Topics in Political Science (when relevant and approved by Program Advisor)
- PSCI 5840 - Independent Study: PSCI (when relevant and approved by Program Advisor)
- Public Leadership Course credits may also be earned through study abroad in the Sustainability in Berlin program (3 credits) or the Development in East Africa program (3 credits).

Public, Non-Profit and Community Leadership Graduate Certificate: Center for New Directions Weekend Pathway

The Center for NEW DIRECTIONS in Politics and Public Policy offers a formally transcripted graduate certificate in Public, Nonprofit, and Community Leadership to meet the needs of individuals in formal public and nonprofit positions that require development of their leadership competencies and for individuals in informal community leadership positions who want to build their knowledge, skills, and effectiveness. This certificate will help human resources directors in local governments and nonprofit organizations who are seeking additional leadership development for the department heads and other individuals they want to groom for succession to leadership. The certificate is open to non-degree seeking students (with or without an undergraduate degree) as well as students formally admitted to the MA in Political Science and to upper division undergraduates seeking to get a head start on their graduate studies.

The certificate can be earned entirely through classes offered in a weekend format.

Students who successfully complete the certificate program would be allowed to transfer in the credits received in the certificate program to complete the Master's Degree in Political Science with emphasis in Politics and Public Policy offered through the Center for NEW DIRECTIONS in Politics and Public Policy in the Political Science Department at the University of Colorado Denver. Transfer of credits would follow completion of the

formal application for admission and follow the established review for acceptance of transfer credits.

Prospective students for programs other than the MA in Political Science with emphasis in Politics and Public Policy should verify with their proposed graduate program to determine the number of credit hours that may be accepted for transfer credit for other MA degrees.

Curriculum and Credit Requirements: New Directions Weekend Pathway

9 credit hours must be successfully completed with a grade of B- or better. All courses are currently offered in the extended studies weekend format at the Liniger Building in Parker and on the Fort Lewis College campus in Durango, CO.

Required Courses

Take both of the courses below:

- PSCI 5324 - Politics, Public Policy and Leadership
- PSCI 5644 - Ethical Responsibilities of Leaders

Elective Courses

Take one of the courses below:

- PSCI 5009 - Politics of the Budgetary Process
- PSCI 5084 - Local Government and Administration
- PSCI 5274 - Conflict Resolution and Public Consent Building
- PSCI 5374 - Public Priorities for the 21st Century
- PSCI 5414 - Organizational Change Agents
  *Please note, required courses will be offered every year. Some combination of elective courses will be offered each year to assure sufficient choice for certificate completion in that year.

Admissions and Declaring This Certificate

Any student wishing to declare this certificate should schedule a certificate advising appointment with either the Department Chair, the Department Undergraduate Advisor, or the NEW DIRECTIONS office in order to register their intent to pursue the Community Leadership Certificate and to develop a curriculum plan.

Individuals who are not currently admitted students seeking the graduate Public, Nonprofit, and Community Leadership Certificate would use the "quick admit" feature online or the extended studies admissions form previously developed by the College of Liberal Arts and Sciences.

Students requesting admission to the MA in Political Science program would need to complete the application for admissions (undergraduate or graduate, respectively) and be formally admitted by the department (and Graduate School for prospective graduate students) prior to requesting transfer of their certificate credits for their degree program. Please note: completion of the Graduate Certificate in Public, Nonprofit, and Community Leadership does not obligate the individual to pursue further education. The Certificate can be earned as a stand-alone University certificate, or it can be applied to a current or future degree program.

Currently admitted upper division undergraduates should schedule certificate advising appointments with the NEW DIRECTIONS office to register their intent to pursue the Public, Nonprofit, and Community Leadership Certificate. Then they may register for classes as usual.

Risk Management and Insurance Certificate

The Business Schools undergraduate certificates are primarily intended for students currently pursuing a degree in any undergraduate discipline that want to expand their business knowledge to give themselves a leg up when they enter the work force. However, they can also be taken by students with only a high school diploma.

Students can pursue one of our undergraduate certificates, even if they are not CU Denver students. Credit earned as a part of the certificate DOES count towards your undergraduate degree, should you choose to pursue a degree here. One such certificate is our Risk Management and Insurance Certificate. Information for that certificate is below:

Broaden your knowledge of Risk Management and Insurance (RMI) by completing a one-year Certificate in RMI Studies from the University of Colorado Denver. By completing three semester-long RMI courses, all available online, and meeting prior finance course requirements, you will be on your way to enhancing your personal knowledge and providing your employer with RMI awareness and professional skills. See the Risk Management and Insurance Certificate page for more information.

Scientific Foundations of Technical Innovation Certificate

The goal of this certificate is to give students and working professionals an opportunity to broaden their technical knowledge while contributing to regional economic development. Two real-world projects—one for a client and one for the student's own pursuits—are combined with a series of six short courses to provide both context and substance for gaining knowledge needed to create technical prototypes. The model is based on the method by which most physical science graduate students learn technical domains on a "just-in-time" basis. It is also a method by which many corporations quickly bring new project team members up to speed on project knowledge. Entry into the certificate program requires prior completion of two semesters of calculus-based physics and two semesters of calculus **or** permission of the certificate advisor.

Undergraduate required courses

- PHYS 4850 - Physics for Design and Innovation I
- PHYS 4400 - Scientific Instrumentation
  Choose six 1-semester-hour short courses out of a larger list of offered topics; the specific sequence must be approved by the certificate advisor
- PHYS 4852 - Physics for Design and Innovation II

Total: 12 Hours

Graduate required courses

Graduate versions of the courses (5000-level) require an undergraduate degree and additional work on technical analysis or connection to professional practice.

- PHYS 5850 - Physics for Design and Innovation I
- PHYS 5400 - Scientific Instrumentation
  Choose six 1-semester-hour short courses out of a larger list of offered topics; the specific sequence must be approved by the certificate advisor.
- PHYS 5852 - Physics for Design and Innovation II

Total: 12 Hours

Software Engineering Graduate Certificate

Graduate Certificate in Software Engineering

This certificate is designed for working professionals, or computer science students beginning careers, in the fields of software engineering and software development. This certificate requires a previous computer science or systems engineering degree. At the start of the certificate program students are expected to have a strong understanding of software development in terms of software construction, software coding and basic software design.

Certificate Objectives

- To provide working or career-oriented students with knowledge and practice of the applied skills needed to become successful software engineers.
- To provide working or career-oriented students with knowledge and understanding of the skills needed to successfully advance their careers as software engineers.

Process to Attain Certificate Objectives

Students will complete a sequence of three separate graduate-level courses

- Software Architecture (CSCI 5010)
- One of the following:
    - Operating Systems (CSCI 5573) or
    - Advanced Computer Architecture (CSCI 5593)
- Software Project Management Support (CSCI 5011); Prerequisites: CSCI 5010 plus either CSCI 5573 Operating Systems or CSCI 5593 Advanced Computer Architecture

Students must take and pass each course to obtain the Software Engineering Certificate.

Course objectives

Software Architecture

This course will focus on two major areas. The first part of the course will cover Software Requirements Analysis and Development as well as Software Architecture and the Soft Skills needed by high level Software Architects. The second part of the course will cover how Persistent Data fits into different types of Software Systems. The primary focus of the second part of the course will be on incorporating larger scale Enterprise Data Systems into Software Systems and will be an application of the first part of the course material. This course will explore:

- Chronic Software Production Problems
- Derived Functional and Non-Functional Requirements

- Problem and Solution Space mapping and complexity
- Architecture (the product) and Architecting (the practice)
- Object and Component based Software Architecture techniques
- Architectural Styles and how to apply them
- Architectural Views and their relationship to Requirements
- Application Data Systems vs. Enterprise Data Systems
- The different Quality Attribute requirements between Application and Enterprise Data Systems
- Software Architectures for Enterprise Data Systems
- Architecting Domain Models for Data Systems

Software Project Management Support

This course will cover Software Planning, Estimation, Staffing and Scheduling. This course will explore:

- Software Work Breakdown Structures
- Software Project Dependencies and Effort Schedules
- Estimation Techniques
- Comparisons between different Project Models (Waterfall, Agile, Iterative, ...) and when one might be preferred over the others

Operating Systems

This course provides an in-depth study of the principles of computer operating systems and their essential components. Team projects expose students to a 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, Process and Threading, and review of some related articles in the literature.

Advanced Computer Architecture

This course covers concepts in the structural design of computer systems important to software designers. Topics include memory hierarchy, super pipelining and super scalar techniques, dynamic execution, vector computers and multiprocessors and performance impacts of software design.

Strategic Communication Graduate Certificate

► Graduate School Policies and Procedures apply to this program.

Strategic Communication has been defined as the management function that entails planning, research, publicity, promotion and collaborative decision-making to help any organization's ability to listen to, appreciate and respond appropriately to those persons and groups whose mutually beneficial relationships the organization needs to foster as it strives to achieve its mission and vision. The Graduate Certificate in Strategic Communication is designed to provide students with the principles and theories that guide the work of public relations practitioners in commercial, public and nonprofit contexts.

Non-degree students who enroll in the MA program following completion of the certificate may transfer up to 12 hours of credits earned for the certificate into credits for the MA degree. The certificate also is designed for students enrolled in a CU Denver's master's program, including the Department of Communication's MA program. For such students, the certificate can be completed as part of or in addition to the coursework required for the master's degree.

Recipients of the Undergraduate Certificate in Strategic Communication are ineligible to complete this certificate.

Grade and Residency Requirements

Application Procedures and Additional Information

Students should apply for the Graduate Certificate in Strategic Communication before or after the completion of the required courses. To apply, students must complete the certificate application, attach it to an unofficial transcript, and return it to Dr. Hamilton Bean in room 3010 of the Student Commons Building, or mail to Department of Communication; P. O. Box 173364, Campus Box 176; University of Colorado Denver; Denver, CO 80217-3364. The approved certificate is posted to the transcript and mailed to the student after final grades are posted for the semester.

Students who are not already enrolled at CU Denver must also complete an online Application for Non-Degree Admission prior to registering for courses.

Additional information about the Graduate Certificate in Strategic Communication may be obtained from Dr. Hamilton Bean, Department of Communication, Student Commons Building, 1201 Larimer Street, Suite 3010, 303-315-1909, Hamilton.Bean@ucdenver.edu.

Certificate Requirements

- The Graduate Certificate in Strategic Communication requires 12 semester hours (four courses)

- A grade of B must be earned in each course completed as part of the certificate (a grade of B- is not acceptable).
- All of the credit hours for the certificate must be earned from faculty at the University of Colorado Denver.
- COMM 5051 - Advanced Strategic Communication
- COMM 5240 - Organizational Communication
- COMM 5939 - Internship
- An elective at the graduate level from the College of Arts & Media, School of Business, the School of Public Affairs, or the Anschutz Medical Campus. The elective must be approved in consultation with the Department of Communication.
  Students may be permitted to take courses other than those listed above to fulfill the requirements for the certificate if those courses fit their professional goals better. Requests for approval for substitute courses, including an explanation for the substitution, must be made in writing to Dr. Hamilton Bean.

Sustainability Certificate

The Business Schools graduate certificates are primarily intended to give individuals with an undergraduate degree in any discipline access to business courses that can help them succeed in their current job or even help them launch their own company.

Students can pursue one of our graduate certificates, even if they are not CU Denver students, without taking the GMAT. Credit earned as a part of the certificate DOES count towards your graduate business degree, should you choose to pursue a degree here. Listed below is information on one such certificate.

The Managing for Sustainability Certificate is designed for business professionals seeking a deeper understanding of sustainability and/or the technical knowledge to lead sustainability initiatives in their companies. To earn a Managing for Sustainability Certificate, students complete four semester-long graduate Business School courses. Two of the courses provide a foundation in sustainable business practices then, students select their remaining two certificate classes covering such specialized areas as finance, marketing, accounting, and social entrepreneurship. See the Managing for Sustainability Certificate page for more information.

Sustainable Urban Agriculture Graduate Certificate

Certificate Advisor: Amanda Weaver
E-mail: amanda.weaver@ucdenver.edu

Introduction

Please click here to see Geography and Environmental Sciences Department information.

The goal of the certificate program is to provide GES students advanced training in sustainable urban agriculture through the integration of university classroom study and field-based practicum conducted at the department's field research station. Requirements for the certificate are therefore divided between on-campus courses and field courses.

Upon successful completion of the certificate, students will:

- Have knowledge of the history of urban farming
- Understand the modern agro-food system
- Participate in sustainable urban agricultural practices

Program Delivery

This is both an on-campus and field-based program.

Declaring This Certificate

- Please see the Certificate advisor.

General Requirements

- Click here for information about Academic Policies.

Eligibility

Sustainable Urban Agriculture has broad applications across many disciplines. Students who already hold a bachelor's degree from CU Denver or other institutions in any major may be admitted as a CU Denver graduate student or a non-degree-seeking student, depending on enrollment status.

Current CU Denver Students

A student may begin the program in any semester or during the summer by making arrangements with the Certificate advisor. This should be done as soon as you have decided to pursue the certificate, and no later than the semester previous to completion of all the courses required to obtain the certificate.

Former CU Denver Students or Graduates of Other Universities

In order to start the certificate program, you will need to apply to the university as a non-degree seeking student if you are not already enrolled in a graduate program within CU Denver. Once accepted, you will be able to enroll in all of the appropriate classes.

Admissions: http://www.ucdenver.edu/admissions/non-degree/Pages/default.aspx.

Specific questions about enrollment or tuition should be addressed directly to the University Registrar's Office or Bursar's Office.

PROGRAM EXPECTATIONS

Because a certificate is a CU Denver certification of a students' specialized knowledge in an advanced subject matter, all courses in a certificate program are expected to be taken in residency at CU Denver. Only in rare circumstances will exceptions be made regarding this policy. Courses taken within the Sustainable Urban Agriculture Certificate may be used towards one other degree requirement. Any changes to the standard curriculum program must be approved in writing by the Certificate advisor. Please pay close attention to prerequisites for specific courses.

PERFORMANCE EXPECTATIONS

Students must earn a 3.0 GPA average with no course below a "B-" in all approved courses for the certificate. For graduate and non-degree seeking students, the certificate will be awarded upon completion of the program and be added to the student's transcript.

Certificate Requirements

As a graduate or graduate-non-degree student at CU Denver, the requirements for the Sustainable Urban Agriculture Certificate are two core classes and four electives, totaling 18 hours. All classes must be taken at the graduate level (5000 or above) to fulfill the requirements of the Certificate.

Take **all** of the following courses (6 credit hours):

- ENVS 5450 - Urban Food and Agriculture: Perspectives and Research

- ENVS 5460 - Sustainable Urban Agriculture Field Study I

Take **four** of the following elective courses (12 credit hours):

- ENVS 5470 - Sustainable Urban Agriculture Field Study II
- GEOG 5060 - Remote Sensing I: Introduction to Environmental Remote Sensing
- GEOG 5085 - GIS Applications for the Urban Environment
- GEOG 5335 - Contemporary Environmental Issues
- GEOG 5640 - Urban Geography: Denver and the U.S.
- GEOG 5680 - Urban Sustainability: Perspectives and Practice
- GEOG 5939 - Internship (a sustainable agriculture internship with a local food/ urban agriculture community organization)

Teaching College-level Language and Literacy

The English Department at University of Colorado Denver offers a Graduate Certificate in Teaching College level Language and Literacy. It fulfills the increasing needs of educators seeking to deepen and to broaden their content specialization. It allows an English Masters Candidate to specialize in an area of study additional to the primary area of degree focus. The certificate does not grant state licensure. It ensures competency for those who already are licensed, provides documentation in expertise for those teaching in community colleges, and enables specialization for those with Master's degrees in related fields (i.e. Rhetoric, Composition, Literature, Film Studies, Humanities, Education).

General Requirements:

All candidates must possess a Bachelor's of Arts in any field. Students must maintain a 3.0 GPA with no courses below a B-. All courses must be taken at the graduate level and in residence at CU Denver. 18 Credit hours are required to obtain this certificate.

Additional information about the Graduate Certificate in Teaching College-level Language and Literacy may be obtained from:

Rodney Herring, Associate Professor

Office: 1061 Ninth Street Park, Room 20I

Phone: 303-556-5673

email: Rodney.Herring@ucdenver.edu

Required Courses

Take **all** of the following (15 credit hours):

- ENGL 5093 - Teaching of Writing
- ENGL 5155 - Genres of Writing
- ENGL 5135 - English Language Study
- ENGL 5165 - Literacy and Technology
- ENGL 5601 - Principles and Practices of Second Language Acquisition
  OR
- ENGL 5651 - Second Language Writing

Electives

Choose **one** additional gradaute level course (3 credit hours).

Teaching College-level Literature and Film Graduate Certificate

Graduate School Policies and Procedures apply to this program

The English Department at University of Colorado Denver offers a Graduate Certificate in Teaching College-level Literature and Film. It fulfills the increasing needs of educators seeking to deepen and to broaden their content specialization. It allows an English Masters Candidate to specialize in an area of study additional to the primary area of degree focus. The certificate does not grant state licensure. It ensures competency for those who already are licensed, provides documentation in expertise for those teaching in community colleges, and enables specialization for those with Master's degrees in related fields (i.e. Rhetoric, Composition, Literature, Film Studies, Humanities, Education).

General Requirements:

All candidates must possess a Bachelor's of Arts in any field. Students must maintain a 3.0 GPA with no courses below a B-. All courses must be taken at the graduate level and in residence at CU Denver. 18 Credit hours are required to obtain this certificate.

Additional information and advising about the Graduate Certificate in Teaching College-level Literature and Film may be obtained from:

Sarah Hagelin, Associate Professor

Office: 1061 Ninth Street Park, Room 20I

Phone: 303-556-5673

email: Sarah.Hagelin@ucdenver.edu

Required Courses

Take **all** of the following courses (9 credit hours):

- ENGL 5100 - Introduction to Graduate Studies
- ENGL 5145 - Theory *(Literary and Rhethorical Theory)*
- ENGL 5155 - Genres of Writing

Electives

Take **three** graduate level literature or film courses (9 credit hours)

Teaching English Language Learners Graduate Certificate (CTELL)

► Graduate School Policies and Procedures apply to this program.

Program Advisor: Joanne Addison, Professor
Office: 1059 Ninth Street Park, Room 104
Telephone: 303-315-7000
E-mail: Joanne.Addison@ucdenver.edu

Program Description

To meet the increasing needs of individuals seeking advanced training in teaching English as a second language, the English department at CU Denver offers a graduate Certificate in Teaching English Language Learners (CTELL).

The certificate program, which can be completed through CU Online, is designed to build the necessary skills to teach adults English as a second language through focused preparation. It is primarily aimed at native speakers of English who want to teach overseas, but may serve the needs of international students wanting to teach English in their home country or other countries.

Upon successful completion of the program, CTELL participants will be able to:

- Discuss the theoretical basis of second language instruction
- Demonstrate a variety of effective ESL teaching techniques
- Explain, in pedagogically relevant ways, the linguistic structures of the English language

Curriculum

The curriculum consists of 12 semester hours (9 semester hours of required courses, and three semester hours of electives). The required courses must be taken at CU Denver. A GPA of 3.0 or better and a minimum grade of B- or better is required for all graduate courses applyiong toward the certificate.

Required Courses

- ENGL 5171 - Language Theory
- ENGL 5601 - Principles and Practices of Second Language Acquisition
- ENGL 5651 - Second Language Writing

Total: 9 Hours

Elective Courses

- ENGL 5093 - Teaching of Writing
- An alternative elective such as a special topic course (i.e., ENGL 5190 Advanced Topics in Writing & Digital Studies) approved by the program advisor.
- An internship (ENGL 5939 Internship) approved by the program advisor.

Total: 3 Hours

Total: 12 Hours

Additional Information

LENGTH OF TIME

The course of study will typically last one academic year, including the summer session.

WHEN YOU MAY BEGIN

You may begin in any semester. There is no fixed deadline for application for admission.

PREREQUISITES

All applicants must have a bachelor's degree or the equivalent, with a 3.0 GPA, to be accepted to the program. Graduate students at CU Denver will also be permitted to apply for the certificate while they are concurrently completing another graduate degree. Permission may not be granted to graduate students in the applied linguistics option of the Master of Arts in English program.

Non-native speakers of English are required to submit an official TOEFL (Test of English as a Foreign Language) report showing a score of at least 600. Those who score below 600 but above 500 on the TOEFL may be admitted conditionally to the program. Under these conditions, students will have their English language skills assessed by the faculty of the program immediately after they arrive on campus to determine whether further courses are needed to develop English language proficiency. After assessment, the students may be assigned to full-time language study in an intensive English program, permitted to take graduate-level classes on a conditional basis along with further designated language study or permitted to begin graduate study without further restrictions.

Women's and Gender Studies Graduate Certificate

► Graduate School Policies and Procedures apply to this program.

The Women's and Gender Studies Graduate Certificate is administered through the Women's and Gender Studies program in the College of Liberal Arts and Sciences at the University of Colorado Denver. It is designed to provide members of the CU Denver population and public with specialized knowledge of the history, politics, literature and social practices related to women's and gender concerns. Students must complete 12 credit hours of course work in order to receive the certificate. Acceptance into the certificate program is subject to CU Denver Graduate School Policies and Procedures.

The WGST certificate is available to any qualified graduate student or non-degree seeking, graduate-level student at CU Denver. Students begin with a required, graduate-level methodology or foundational course before pursuing a combination of WGST-related course work. Upon completion of the certificate, students will have foundational and theoretical knowledge of the major concerns of women's and gender studies.

All prospective students must complete and submit an application to the program whic can be obtained from the graduate advisor. Upon admission to the certificate program, students are eligible for the certificate. All course work must be taken at CU Denver.

Courses

(Please note that some of the following courses may have prerequisites that *must* be met.)

Required Course

Choose one of the following:

- ENGL 5306 - Survey of Feminist Thought
- HIST 5306 - Survey of Feminist Thought
- WGST 5306 - Survey of Feminist Thought
- HUMN 6010 - Methods and Theories of Feminism and Gender
- SSCI 6010 - Methods and Theories of Feminism and Gender Studies
- WGST 6010 - Methods and Theories of Feminism and Gender Studies

Total: 3 Hours

Elective Courses (choose three)

These courses must be explicitly women's and/or gender and/or identity-based courses. They can be taken through any CU Denver department or program with the approval of an advisor. Only one 4000-level elective may be counted toward the certificate. All other course work must be 5000-level or above.

The following is a representative listing of WGST-related courses that may be taken toward the certificate; it is not comprehensive. Please note that some of these courses may be taught sporadically. Students should meet with their advisor to plan their course of study.

- ANTH 5200 - Gender in Cross-Cultural Perspective
- COMM 5020 - Feminist Perspectives on Communication
- COMM 5265 - Gender and Communication
- CRJU 5553 - Women, Crime, and Justice
- ENGL 4510 - Whores and Saints: Medieval Women
- -OR- ENGL 5510 - Whores and Saints: Medieval Women
- ENGL 5000 - Studies of Major Authors
  (depending on author being studied; e.g., Virginia Woolf, George Sand, etc.)
- ENGL 5306 - Survey of Feminist Thought
- HIST 5306 - Survey of Feminist Thought
- -OR- WGST 5306 - Survey of Feminist Thought
- ENGL 5308 - Contemporary Feminist Thought
- -OR- WGST 5308 - Contemporary Feminist Thought
- HIST 5303 - Sex and Gender in Modern Britain
- -OR- WGST 5303 - Sex and Gender in Modern Britain

- HIST 5307 - History of Sexuality
- -OR- WGST 5307 - History of Sexuality
- HIST 5345 - Gender, Science, and Medicine: 1600 to the Present
- -OR- WGST 5345 - Gender, Science and Medicine: 1600 to the Present
- HUMN 5720 - Sexuality, Gender and Their Visual Representation
- -OR- SSCI 5720 - Sexuality, Gender and Their Visual Representation
- PSCI 5245 - Gender, Globalization and Development
- -OR- WGST 5248 - Gender, Globalization and Development
- PSCI 5555 - International Women's Resistance
- -OR- WGST 5555 - International Women's Resistance
- PUAD 5910 - Nature and Scope of Interpersonal Violence
- PUAD 5920 - The Psychology of Interpersonal Violence
- PUAD 5930 - Interpersonal Violence Law and Policy
- SOCY 5550 - Seminar: Sociology of the Family
- SSCI 6010 - Methods and Theories of Feminism and Gender Studies
- -OR- WGST 6010 - Methods and Theories of Feminism and Gender Studies

Total: 9 Hours

For more information about this certificate program, contact the Women's and Gender Studies Director, Gillian Silverman, 303-556-4529.